

NOVEMBER – EDITORIALS
2025

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Tribunals in India: Purpose, Power & Pitfalls

Tribunals in India function as specialized quasi-judicial bodies that aim to deliver swift, affordable, and expert dispute resolution. Their significance was recently underscored at the 10th All India Central Administrative Tribunal (CAT) Conference held in New Delhi, which focused on reforms to strengthen justice delivery mechanisms.

Tribunals are institutions established through legislation to adjudicate specific categories of disputes. They possess powers similar to those of civil courts, as seen in bodies like the National Green Tribunal (NGT). Unlike traditional courts, tribunals operate based on the principles of natural justice and are not bound by the procedural formalities of the Civil Procedure Code or the Indian Evidence Act. Their primary objective is to simplify legal processes and expedite the resolution of cases.

Constitutional Foundations: Articles 323-A and 323-B

The constitutional legitimacy of tribunals stems from the 42nd Amendment Act of 1976.

- Article 323-A empowers Parliament to establish Administrative Tribunals, such as the Central Administrative Tribunal (CAT) and State Administrative Tribunals (SAT).
- Article 323-B allows both Parliament and State Legislatures to create tribunals for other matters, including the Income Tax Appellate Tribunal (ITAT).
- To implement these provisions, the Government of India enacted the Administrative Tribunals Act in 1985, which led to the formal establishment of CAT and SAT.

Key Benefits of the Tribunal System

Tribunals offer several advantages that make them a vital component of India's legal framework:

- They ensure speedy justice by relying on oral hearings and simplified procedures, which significantly reduce the time required for case disposal.
- Their panels often include technical experts who bring domain-specific knowledge to the adjudication process.
- Tribunals are cost-effective, as they do not require court fees or affidavits.
- They allow for adaptive decision-making, enabling revisions based on new facts and changing socio-economic contexts.
- By handling specialized disputes, tribunals help reduce the overwhelming backlog of over 4.5 crore cases in regular courts.

Jurisdictional Landscape: Tribunals vs. Traditional Courts

Tribunals operate within a distinct jurisdictional framework that sets them apart from ordinary courts:

- They have exclusive authority over certain types of disputes, such as those handled by CAT and NGT.
- Statutory provisions often limit the scope of judicial review by regular courts in matters adjudicated by tribunals.
- Some tribunals, like the Armed Forces Tribunal (AFT), serve as the final appellate authority, bypassing the traditional court system.
- However, concerns have been raised about executive influence over tribunal appointments, which

may compromise their independence.

- The Tribunal Reforms Act of 2021 aimed to streamline the system by reducing the number of tribunals from 26 to 19, thereby enhancing efficiency and reducing overlap.

Challenges Undermining Tribunal Effectiveness

Despite their advantages, tribunals face several structural and operational challenges:

- Judicial independence is often compromised due to executive control over appointments and tenure, as highlighted by the Supreme Court in the Rojer Mathew case (2019).
- Many tribunals continue to grapple with case backlogs; for instance, the AFT reported over 18,000 pending cases in 2021.
- Short tenures for tribunal members, typically ranging from three to four years, hinder continuity and institutional memory.
- Procedural inconsistencies across different tribunals create confusion for litigants and reduce transparency.
- Jurisdictional overlaps with High Courts and other judicial bodies lead to forum shopping and delays.
- Technical members may lack adequate legal training, affecting the quality of adjudication.
- Administrative control by the same ministries that tribunals are meant to review poses a conflict of interest, such as the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) being under the Department of Telecommunications.

Reform Agenda: Building a Robust Tribunal Framework

To address these challenges, several reforms have been proposed and partially implemented:

- Appointment processes should be overseen by selection committees headed by the Chief Justice of India to ensure transparency and judicial primacy.
- Vacancies in tribunals must be filled promptly through proactive recruitment strategies.
- A single nodal agency under the Ministry of Law and Justice should be established to monitor tribunal operations and ensure uniformity in appointments, tenure, and service conditions.
- The power of judicial review by High Courts should be restored, in line with the Supreme Court's ruling in the Chandra Kumar case (1997).
- Tribunals should have benches across the country, ideally in locations where High Courts are situated, to ensure equitable access to justice for all citizens.

Tribunals play a crucial role in India's justice architecture by offering specialized, efficient, and accessible legal remedies. As Justice V.R. Krishna Iyer famously stated, "Justice delayed is justice denied." To uphold this principle, it is imperative to reinforce the independence, consistency, and reach of tribunals so they can truly fulfill their mandate of delivering timely and fair justice.

MAINS PYQs

1. Comment on the need of administrative tribunals as compared to the court system. Assess the impact of the recent tribunal reforms through rationalization of tribunals made in 2021. [UPSC 2025]
2. How far do you agree with the view that tribunals curtail the jurisdiction of ordinary courts? In

view of the above, discuss the constitutional validity and competency of the tribunals in India.
[UPSC 2018]

Abhidhamma Divas

The International Buddhist Confederation (IBC), in collaboration with Gautam Buddha University (GBU), Antarrashtriya Baudh Shodh Sansthan and the Ministry of Culture celebrated **International Abhidhamma Day**.

- Abhidhamma Divas commemorates the day when Lord Buddha descended from the celestial realm, Tāvātimsa-devaloka, to Sankassiya (now Sankisa Basantapur) in Uttar Pradesh.
- The Asokan Elephant Pillar, a historical marker at the site, marks this significant event.
- According to Theravāda Buddhist texts, Lord Buddha spent three months teaching the Abhidhamma to the deities in Tāvātimsa, including his mother.

- India, the birthplace of Buddhism, holds a deep spiritual and cultural connection to the life and teachings of Gautam Buddha, especially through sacred sites like Bodh Gaya.
- These places symbolize his journey to enlightenment and inspire seekers toward peace and self-discovery.
- At the heart of his teachings is the Abhidhamma, a profound philosophical text that emphasizes mental discipline, self-awareness, and inner transformation beyond ethical conduct.

International Abhidhamma Divas

- It is celebrated worldwide to honor the Abhidhamma's timeless relevance in guiding ethical conduct and mental discipline.
- It highlights India's enduring connection to Buddhism and its role in preserving and promoting the Buddha's legacy, serving as a bridge between ancient wisdom and modern spiritual practice.

Teachings of Abhidhamma

- The Abhidhamma, known as the "Higher Teaching" of the Buddha, offers a rigorous and analytical exploration of mind and matter, distinct from the everyday language of the Sutta Piṭaka.
- It presents a detailed framework for understanding existence, including birth, death, and mental processes, using a specialized Pali vocabulary—such as citta (consciousness), cetasika (mental factors), rūpa (materiality), and nibbāna (liberation).
- Traditionally taught by the Buddha in the Tavatimsa heaven and later elaborated by his disciple Sariputta, the Abhidhamma Piṭaka comprises seven treatises, including the Paññhāna, which deeply analyzes causal relationships.
- These texts form the foundation of Buddhist philosophy and psychology, serving as vital tools for practitioners seeking insight and spiritual growth.

Government support and efforts

- Abhidhamma's profound teachings are preserved through the ancient Pali language, recognized as a Classical Language by the Government of India for its literary and historical significance in Buddhism and Jainism.
 - Pali, shaped from various dialects around 500 B.C., is the medium for the entire Buddhist canon, including the **Vinaya Pitaka (outlines ethical monastic rules)**, Sutta Pitaka (a rich

compilation of the Buddha's discourses), and Abhidhamma Pitaka (delves into ethics, psychology, and the intricate analysis of mind and reality).

- Pali literature also includes the **Jataka tales** (recount the stories of the Buddha's previous lives, reflecting shared moral values prevalent among the Indian populace).

Artificial rain technology

Artificial rain technology, primarily achieved through **cloud seeding**, enhances precipitation by introducing chemical agents like silver iodide or salt into clouds to stimulate rainfall. This weather modification technique is used globally to combat drought, manage water resources, and reduce air pollution by washing away particulate matter.

Methods of Cloud Seeding

There are three primary cloud seeding techniques: **static**, **dynamic**, and **hygroscopic seeding**, each targeting different cloud conditions and physical processes.

- **Glaciogenic (Static) Seeding:** Used in supercooled clouds (below 0°C), this method disperses **silver iodide (AgI)**, which has a crystalline structure similar to ice, acting as a nucleus for ice crystal formation. These crystals grow by collecting surrounding supercooled water droplets and eventually fall as snow or rain upon melting. This is the most common method and is effective in orographic clouds over mountainous regions.
- **Hygroscopic Seeding:** Employed in warm-based convective clouds, this technique involves releasing **salt particles (NaCl)** via flares or explosives into the lower parts of clouds. The salt acts as cloud condensation nuclei (CCN), attracting water vapour and promoting droplet coalescence into larger raindrops that fall as precipitation.
- **Dynamic Seeding:** Aims to enhance vertical air currents by releasing latent heat during ice formation, which strengthens updrafts and increases cloud volume and longevity. This method can potentially increase rainfall by 20%, but its success depends on a precise sequence of atmospheric responses, making it more complex and less predictable.

OPENING UP THE CLOUDS

WHAT IS CLOUD SEEDING
A weather-modification technology that can create rain in drought-affected areas and also help fight air pollution

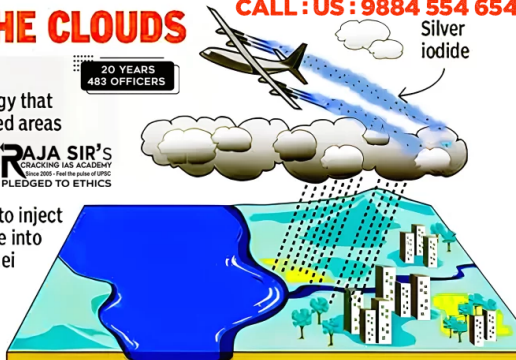
HOW IT WORKS
Scientists use aircraft or rockets to inject silver iodide or another substance into the atmosphere to mimic ice nuclei

HELPING HAND
Clouds often lack naturally occurring ice nuclei, so injecting them with silver iodide particles (which are very similar in structure to ice) increases the number of nuclei

HOW IT HAPPENS
It makes the clouds more efficient at generating ice crystals that either fall as snowflakes or melt to produce raindrops, depending on temperatures in and beneath the cloud. Cloud seeding is also used to disperse fog banks near some airports

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Silver iodide



The amount of rain or snow a cloud can produce depends on a balance between the number of ice nuclei inside it and the amount of water available to grow around those nuclei

Dispersion Techniques

Cloud seeding agents are delivered using various platforms, with **aircraft** being the most effective method.

- **Aircraft Seeding:** Specially equipped planes, such as the Cessna 210 or Beechcraft King Air, fly through or above clouds to release silver iodide flares. Two types of flares are used:
 - **Burn-in-Place (BIP) flares** mounted on wings for in-cloud seeding.
 - **Ejectable (Ej) flares** released from the aircraft's belly into turbulent or dangerous cloud zones.
- **Ground-Based Generators:** Located on windward mountain slopes, these devices release silver iodide into the air, relying on natural winds to carry particles into clouds. While cheaper, they are less efficient due to inconsistent dispersion and boundary layer contamination.
- **Drones and Lasers:** Emerging technologies include drones delivering electric charges to stimulate droplet coalescence and infrared lasers to induce particle formation, though these are still experimental.

Environmental and Health Considerations

The environmental impact of cloud seeding is generally considered low due to the minimal concentrations of chemicals used. Silver iodide, the most common agent, is used in amounts far below harmful levels, and studies have not shown significant ecological accumulation. However, concerns persist about long-term effects on sensitive ecosystems, particularly with repeated use. Hygroscopic agents like salt are considered safer and are gaining popularity for their lower environmental risk.

Global Applications

Countries such as **China**, the **UAE**, and the **United States** have implemented large-scale cloud seeding programs. China uses it to ensure clear skies during major events and to combat drought, while the UAE employs it to enhance rainfall in arid regions. In India, Delhi launched a pilot project in 2025 to use artificial rain for air pollution control, marking a significant urban application of the technology.

Despite decades of use, scientific consensus on cloud seeding's efficacy remains mixed, with some studies reporting 10–30% increases in precipitation, while others show negligible effects. Success depends heavily on precise meteorological conditions, including cloud type, moisture content, and wind patterns.

Concerns

Cloud seeding, while promising as a tool for weather modification and pollution control, comes with a range of **scientific, environmental, ethical, and logistical challenges**.

Scientific and Technical Limitations

- **Unpredictable Results:** Cloud seeding doesn't guarantee rainfall. Success depends on cloud type, moisture content, and atmospheric conditions.
- **Short-Term Impact:** Even when successful, the effects—like pollution washout—are temporary and may last only a few hours or days.
- **Measurement Challenges:** It's difficult to isolate the impact of cloud seeding from natural weather patterns, making it hard to quantify effectiveness.

Environmental Concerns

- **Chemical Residue:** Agents like silver iodide may accumulate in soil and water, raising concerns about long-term ecological effects.
- **Altered Rainfall Patterns:** Artificial rain in one region could potentially reduce rainfall in

downwind areas, disrupting natural hydrological cycles.

- **Impact on Biodiversity:** Sudden rainfall can affect local ecosystems, especially in arid zones where flora and fauna are adapted to dry conditions.

Ethical and Geopolitical Issues

- **Weather Ownership:** Who controls the weather? Cloud seeding raises questions about sovereignty, especially if rain is diverted across borders.
- **Unequal Access:** Wealthier regions may benefit more from cloud seeding, widening environmental inequality.
- **Consent and Transparency:** Local communities may not be informed or consulted before cloud seeding operations.

Economic and Logistical Challenges

- **High Costs:** Aircraft, chemicals, and monitoring systems make cloud seeding expensive—often viable only for emergency or pilot use.
- **Infrastructure Needs:** Requires skilled personnel, meteorological data, and coordination between agencies.
- **Weather Dependency:** Cannot be deployed during clear skies or unsuitable cloud conditions.

Scientific Debate

- **Mixed Evidence:** Some studies show measurable increases in rainfall; others find negligible impact. The scientific community remains divided.
- **Risk of Overuse:** Frequent seeding could lead to unintended climate effects or reduce natural rainfall efficiency.

Cloud seeding as a form of artificial rain offers a compelling, though limited, solution to pressing challenges like air pollution and water scarcity. While it can provide **short-term relief** and has shown promise in cities like Delhi and countries like the UAE and China, it is **not a silver bullet**. The technology faces hurdles in terms of **scientific reliability, environmental safety, ethical governance, and economic feasibility**.

For India and other developing nations, cloud seeding should be viewed as a **complementary tool**, not a replacement for long-term strategies like emission control, sustainable water management, and climate-resilient infrastructure. Responsible deployment, transparent monitoring, and continued research will be key to unlocking its full potential.

Prelims Practice Questions

UPSC Prelims 2023 Question

Artificial way of causing rainfall to reduce air pollution makes use of

- (a) Fog dispersal
- (b) Hail suppression
- (c) Cloud Seeding
- (d) Cyclone modification

UPSC Prelims 2025 Question

Artificial way of causing rainfall to reduce air pollution makes use of

- (a) Silver iodide and potassium iodide
- (b) Silver nitrate and potassium iodide
- (c) Silver iodide and potassium nitrate
- (d) Silver nitrate and potassium

Consider the following statements regarding Cloud Seeding:

- 1. It involves dispersing chemicals like silver iodide into clouds.
- 2. It can be used to reduce air pollution.
- 3. It guarantees rainfall in all weather conditions.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a) 1 and 2 only

Explanation:

- Statement 1 is correct: Silver iodide, potassium iodide, and dry ice are commonly used to provide nuclei for droplet or ice crystal formation.
- Statement 2 is correct: Cloud seeding is being explored in cities like Delhi to induce rain that washes away PM2.5 and PM10 particles.
- Statement 3 is incorrect: Cloud seeding only works under specific conditions—moisture-laden clouds must already be present; it cannot create rain in clear skies.

Which of the following chemicals are commonly used in cloud seeding?

- 1. Silver iodide
- 2. Potassium iodide
- 3. Sodium chloride
- 4. Calcium carbide

Select the correct answer using the code below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2, 3 and 4
- (d) 2 and 4 only

Correct Answer: (c) 1, 2, 3 and 4

Explanation:

- **Silver iodide** and **potassium iodide** are used in glaciogenic seeding for cold clouds.
- **Sodium chloride** (salt) is used in hygroscopic seeding for warm clouds.
- **Calcium carbide** is less common but has been explored in experimental setups for fog dispersion and rain initiation, though not standard.

“Project Varshadhari” is associated with:

- (a) River interlinking
- (b) Artificial rainfall through cloud seeding
- (c) Groundwater recharge
- (d) Solar irrigation

Correct Answer: (b) Artificial rainfall through cloud seeding

Explanation:

"Project Varshadhari" refers to state-led initiatives in India, such as in Karnataka and Maharashtra, aimed at inducing artificial rain during droughts using cloud seeding technology.

With reference to Artificial Rain, consider the following statements:

1. Artificial rain is induced by dispersing hygroscopic substances into clouds to stimulate precipitation.
2. Cloud seeding has been used in India to mitigate air pollution and drought conditions.
3. Silver iodide and potassium nitrate are commonly used in cloud seeding.
4. Artificial rain guarantees rainfall regardless of atmospheric conditions.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2 and 4 only
- (d) 1, 3 and 4 only

Correct Answer: (a) 1 and 2 only

Explanation:

- **Statement 1** is correct: Hygroscopic substances like silver iodide or salt particles are used to attract moisture.
- **Statement 2** is correct: India has used cloud seeding in states like Maharashtra, Karnataka, and recently in Delhi to combat pollution.
- **Statement 3** is incorrect: Silver iodide is used, but **potassium nitrate** is not a standard seeding agent.
- **Statement 4** is incorrect: Cloud seeding **does not guarantee** rainfall; it depends on cloud type and atmospheric conditions.

Euthanasia In India: An In-Depth Overview

Euthanasia—commonly known as "mercy killing"—refers to intentionally ending a person's life to relieve suffering. The practice is deeply debated, involving legal, ethical, medical, and social considerations globally and within India. The Indian framework distinctly treats active and passive euthanasia, with the latter being the only form permitted under strict Supreme Court guidelines.

Legal Framework of Euthanasia in India

Article 21 of the Indian Constitution guarantees the right to life, interpreted to include dignified death.

- **Active vs Passive Euthanasia:**
 - **Active euthanasia** (deliberate intervention, like administering lethal injection) remains

illegal and is treated as homicide under the Indian Penal Code (IPC). Assisting in active euthanasia is also criminalized as abetment to suicide or murder.

- **Passive euthanasia** (withdrawing or withholding life-support from terminally ill patients) is legally allowed, but only under strict protocols, following Supreme Court judgments.
- **Landmark Judgments:**
 - **Aruna Shanbaug v. Union of India (2011):** The Supreme Court permitted passive euthanasia, laying guidelines for the withdrawal of life support for terminally ill patients, subject to court oversight and medical board approval.
 - **Common Cause v. Union of India (2018):** The apex court expanded the scope by legalizing passive euthanasia across India and recognizing the validity of "Living Wills"—advance directives allowing individuals to refuse life-sustaining treatment if in a vegetative or terminal state. The ruling tied the right to die with dignity to Article 21 (Right to Life).
- **Recent Reforms (2023):**
 - The Supreme Court further simplified the procedure for passive euthanasia, allowing living wills to be attested by a gazetted officer or notary instead of a magistrate. Living wills can now be integrated into National Health Digital Records for wider accessibility and practical application.

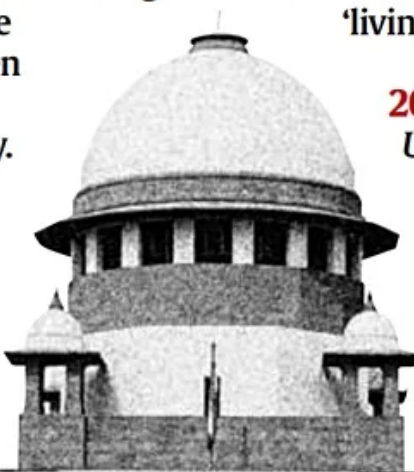
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2011: *Aruna Shanbaug v. Union of India* recognised that life-sustaining treatment could legally be withheld/ withdrawn even from persons without decision-making capacity.

2018: *Common Cause v. Union of India* recognised the right to die with dignity as a fundamental right under Article 21 of the Constitution



of India, and legalised the use of advance medical directives or 'living wills'.

2023: *Common Cause v. Union of India* simplified the process for making living wills and withholding/ withdrawing life-sustaining treatment by removing bureaucratic hurdles.

Major Challenges and Ambiguities

- **Legal Ambiguities:** The absence of clear parliamentary legislation on euthanasia (active or passive) leads to confusion, judicial burden, and uneven application. Medical practitioners fear legal repercussions even in cases of passive euthanasia.
- **Procedural Complexity:** Passive euthanasia requires dual medical board certifications, advance directives, and sometimes judicial approval, making accessibility difficult—especially outside urban centres.

- **Societal Attitudes:** Surveys show less than 40% public support for euthanasia; religious, cultural, and ethical dilemmas often slow legal and medical adaptation.

Living Wills and Advance Directives

- A "Living Will" allows patients to legally refuse artificial life-support in advance, providing autonomy in end-of-life care. The Supreme Court's 2018 ruling endorsed living wills, but a robust digital and institutional system is still evolving.

Proposed Reforms and Road Ahead

- **Comprehensive Legislation:** Need for a clear law by Parliament to detail procedures, safeguards, rights, and responsibilities for passive euthanasia, living wills, and medical boards, protecting practitioners and families.
- **Institutional Support:** Establish hospital ethics committees and expand hospice and palliative care infrastructure to support dignified end-of-life decisions.
- **Public Awareness:** Promote informed societal discussion about euthanasia, advance directives, pain management, and patient autonomy.
- **Digital Integration:** Incorporate living wills into national digital health records, making patient intent accessible to medical boards irrespective of locality.

Ethical and Constitutional Considerations

- The right to die with dignity has been read into Article 21 by the Supreme Court, balancing individual autonomy with state responsibility to protect life and prevent misuse.
- The framework prioritizes checks and balances—medical, legal, and institutional—to guard against coercion and abuse.

India's approach to euthanasia remains principled and cautious, permitting only passive euthanasia under Supreme Court-mandated guidelines to balance patient autonomy with protection against misuse. While landmark judgments and recent procedural simplifications have advanced the right to die with dignity, major challenges persist due to legal ambiguities, limited access to palliative care, and prevailing social and ethical dilemmas. Moving forward, India must strengthen its framework through comprehensive legislation, digital advances, institutional safeguards, and public awareness, ensuring end-of-life care is both humane and constitutionally consistent.

India and the Multipolar West

Multipolar West

The term refers to the **fragmentation of Western unity**—once dominated by U.S. leadership—into **multiple autonomous centers** like the EU, UK, Japan, and Canada. This shift is driven by:

- **Strategic autonomy in Europe:** Leaders like Macron and von der Leyen are pushing for defense, tech, and economic independence from the U.S.
- **Divergent threat perceptions:** Europe focuses on Russia, while the U.S. and its Asian allies prioritize China
- **Economic and tech rivalries:** Disputes over AI regulation, data sovereignty, and industrial subsidies are deepening transatlantic rifts

- **Cultural polarization:** The export of American culture wars and declining faith in liberal norms are unsettling European partners

Opportunities for India

India is uniquely positioned to benefit from this fragmentation:

- **Diversified partnerships:** India can engage with the EU for digital governance, the UK for trade, and the U.S. for defense tech
- **Strategic autonomy:** The shift from non-alignment to multi-alignment allows India to build flexible coalitions while safeguarding its independence
- **Economic integration:** New trade deals with EFTA, the UK, and the EU signal deeper ties with Western markets
- **Tech collaboration:** Joint efforts in AI, green tech, and digital infrastructure help India shape global standards

Challenges Ahead

Despite the promise, India must navigate several hurdles:

- **Weakening collective Western response:** Disunity may blunt efforts to counter authoritarian powers like China and Russia
- **Demand for internal reform:** To fully leverage Western pluralism, India must modernize its economy and diplomatic institutions
- **Navigating intra-Western tensions:** India must balance its ties amid U.S.–EU trade disputes and differing security priorities

Strategic Outlook

India's foreign policy is increasingly agile, adapting to a world where **Western powers no longer act in lockstep**. This multipolarity allows India to:

- Play a **central role in Europe's Indo-Pacific vision**
- Shape global norms in **digital and environmental governance**
- Build **resilient supply chains** and **defense partnerships** across continents

UPSC major policy change: Implications

The Union Public Service Commission (UPSC) will now release provisional answer keys promptly after the Civil Services Preliminary Examination, as communicated to the Supreme Court in response to public interest litigation and legal recommendations. This constitutes a major reform aimed at improving transparency, enabling real-time objections, and promoting good governance in the examination process.

Implications For Candidates

- Candidates will gain early access to correct answers, allowing them to verify their performance quickly, challenge errors in marking, and better prepare for subsequent stages or future attempts.
- Only those who appeared for the exam will be allowed to raise objections to the provisional answer key, and each objection must be supported by three authoritative references (such as NCERTs or standard textbooks). This ensures that only well-researched and valid challenges are considered, promoting accuracy and credibility.

- A panel of subject experts will then evaluate these objections before finalizing the corrected answer key, which will determine the Prelims results. The final answer key continues to be published after the declaration of results.
- The reform, resulting from Supreme Court directives and persistent candidate petitions, addresses long-standing demands for transparency and fairness, reducing confusion and litigation associated with the previous delay in releasing answer keys.

Governance Aspects of UPSC's Reform

Transparency and Openness

- Publishing provisional answer keys allows candidates to scrutinize the evaluation process.
- It reduces opacity in decision-making and aligns UPSC with global best practices in public examinations.

Accountability to Stakeholders

- By inviting objections and expert review, UPSC becomes answerable to the public it serves.
- This fosters a culture of responsiveness and reduces arbitrary decision-making.

Participatory Governance

- Candidates become active participants in the evaluation process, not passive recipients.
- This democratizes the examination system and strengthens civic engagement.

Rule of Law and Procedural Fairness

- The move aligns with principles of natural justice—giving candidates a fair chance to contest errors.
- It reinforces the idea that public institutions must operate within a framework of fairness and legality.

Institutional Integrity

- By proactively adopting reforms, UPSC demonstrates its commitment to ethical governance.
- It sets a benchmark for other recruitment bodies and reinforces its reputation as a meritocratic institution.

Judicial Collaboration

- The reform emerged from a Supreme Court petition, showing how judicial oversight can catalyze administrative improvements.
- It reflects healthy checks and balances between branches of governance.

This decision isn't just about answer keys—it's a signal that even constitutional institutions like UPSC are evolving to meet modern expectations of transparency, fairness, and public accountability. This landmark change would benefit lakhs of aspirants setting a high standard for other public examinations.

Drug Regulation and Public Health

- India's aspiration to become the "pharmacy of the world" and realize Atmanirbhar Bharat is being undermined by recurring incidents of poor-quality pharmaceuticals, especially cough syrups.
- Recent deaths of children in Rajasthan and Madhya Pradesh were linked to contaminated cough syrups containing diethylene glycol (DEG), a nephrotoxic (kidney-damaging) substance, detected in products from a Tamil Nadu manufacturer. Initial Health Ministry tests did not confirm DEG except in

one batch, but further investigation by Tamil Nadu authorities revealed significant contamination.

Regulatory Response and Findings

- The manufacturing facility violated several Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP), including the use of non-pharmacopoeial grade propylene glycol, which led to the contamination.
- The Central Drugs Standard Control Organization (CDSCO) recommended cancellation of the company's manufacturing license, and the doctor responsible for prescribing the syrup was arrested under relevant legal provisions.
- The editorial condemns incident-driven regulatory action and highlights that these failures expose systemic gaps in India's drug regulation regime, including lax enforcement, sporadic inspections, and poor inter-State coordination.

Policy Recommendations

- India must adopt a **zero-tolerance policy** toward substandard drugs to protect public health and credibility as a pharma exporter.
- Monitoring must be continuous ("hawk-like"), with surprise inspections, swift punitive action for every violation, and criminal liability for negligent manufacturers.
- Quality assurance should match manufacturing scale, and regulatory vigilance must shift from crisis management to proactive preventive surveillance.
- Recommendations include strengthening CDSCO and State drug regulators, technology-enabled traceability of drug batches, transparent publication of test results, and public accountability mechanisms.

Broader Implications

- Repeated lapses damage India's international credibility, threaten public safety, and erode trust in the domestic healthcare system.
- Achieving "self-reliance" in manufacturing is not enough unless uncompromising standards of quality and public safety are maintained.
- The editorial's tone is urgent, demanding structural reforms and rigorous accountability across the pharma sector.

To truly achieve Atmanirbhar Bharat and global leadership in pharmaceuticals, India's regulatory regime must move from reactive "damage control" to proactive, non-negotiable standards of public safety and manufacturing quality.

Diethylene glycol (DEG) - Coldriff issue

The diethylene glycol (DEG) issue has resurfaced in India with alarming consequences, particularly involving the cough syrup brand *Coldrif*, manufactured by Sresan Pharma in Tamil Nadu. Here's a breakdown of the situation:

- **Contamination Discovery:** A batch of *Coldrif* cough syrup was found to contain diethylene glycol beyond permissible limits during testing at the Tamil Nadu manufacturing site.
- **Fatalities:** The contaminated syrup has been linked to the deaths of at least 16 children in Madhya Pradesh and 2 in Rajasthan due to acute kidney failure.

- **Nationwide Response:** The Central Drugs Standard Control Organisation (CDSCO) launched inspections at 19 drug manufacturing units across six states to uncover lapses in quality control.

Diethylene Glycol

Diethylene Glycol (DEG) is a colorless, odorless, syrupy organic chemical compound (formula: $C_4H_{10}O_3$). It is a synthetic industrial solvent, belonging to the glycol family, and is not approved for pharmaceutical or food use. Chemically, DEG is a by-product of ethylene oxide hydrolysis, often used where water-miscible, low-volatility liquids are required.

- **Industrial Use:** DEG is a toxic solvent used in antifreeze, brake fluids, and paints. It has no place in pharmaceuticals.

• **Antifreeze and Coolants:** Used as a **de-icing and coolant agent** in automobile and aircraft industries.

• **Paints and Plastics:** Acts as a **solvent** in paints, plasticizers, resins, and polyurethane foams.

• **Brake Fluids and Lubricants:** Used to maintain fluid stability in hydraulic and brake systems.

Pharmaceutical contamination occurs when **industrial-grade DEG** is mistakenly or fraudulently substituted for **pharmaceutical-grade glycerine or propylene glycol** during drug formulation — often due to poor quality control or cost-cutting.

- **How It Gets In:** Contamination often occurs when cheaper, industrial-grade glycerine or propylene glycol is used instead of pharmaceutical-grade materials.
- **Health Impact:** Ingestion can cause nausea, vomiting, reduced urination, seizures, acute kidney failure, and death—especially in children.

Global Context

- **Past Tragedies:** Similar DEG contamination incidents have occurred in The Gambia (2022), Uzbekistan (2023), and other countries, leading to hundreds of child deaths.
- **WHO Action:** The World Health Organization has issued alerts and developed new testing protocols to detect DEG and ethylene glycol in medicines.

Accountability & Fallout

- **Doctor Arrests:** In Madhya Pradesh, a doctor who prescribed the syrup was arrested, sparking protests from medical professionals who argue that manufacturers and regulators should be held accountable.
- **Regulatory Crackdown:** Authorities are now focusing on raw material sourcing, manufacturing practices, and supplier traceability.

Schedule M Norms

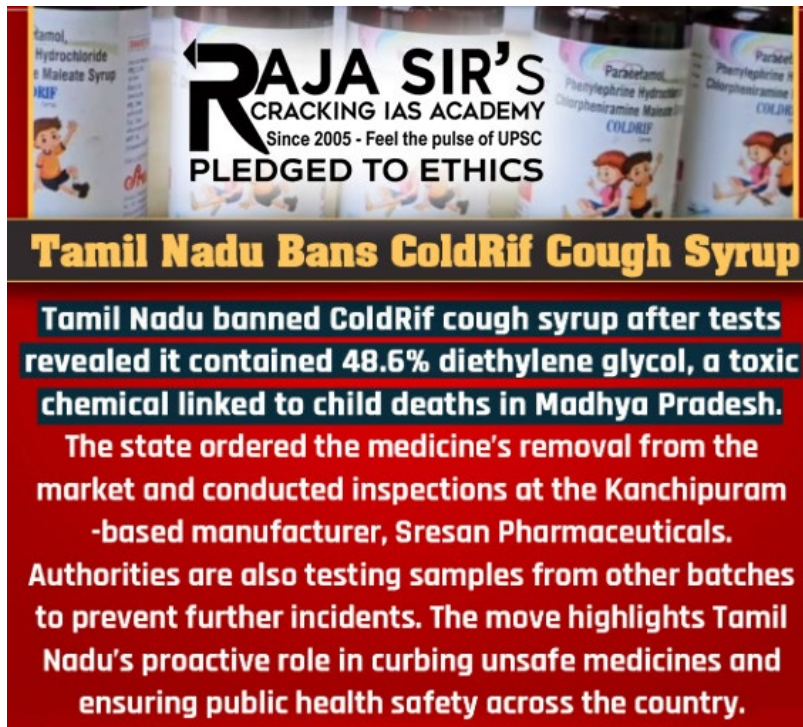
- Schedule M is a section of the *Drugs and Cosmetics Act, 1940*, prescribing Good Manufacturing Practices (GMP) for pharmaceutical products in India.
- It defines the minimum requirements for facilities, equipment, quality systems, documentation, and personnel to ensure safe, effective, and consistent drug production.
- **Origin:** Introduced under the *Drugs and Cosmetics Rules, 1945*, to regulate drug manufacturing quality across India.
- **Earlier Framework:** Focused mainly on **facility hygiene and record-keeping**, with limited

emphasis on process validation or data integrity.

- **Recent Revision (2023-24):** The revised Schedule M brings Indian GMP norms in **alignment with WHO-GMP and PIC/S standards**, strengthening India's position as a global pharmaceutical hub.
- **Implementation Deadline:** All units must achieve compliance by **December 31, 2025**.

Features of Revised Schedule M

- **Pharmaceutical Quality System (PQS):** Mandatory adoption of a structured quality and risk management framework across all manufacturing stages.
- **Quality Risk Management (QRM):** Identification and mitigation of product risks through scientific and evidence-based evaluation.
- **Data Integrity – ALCOA+ Principles:** All records must be **Attributable, Legible, Contemporaneous, Original, Accurate, Complete, Consistent, Enduring, and Available**.
- **Pharmacovigilance System:** Compulsory reporting and tracking of **adverse drug events** to ensure post-market surveillance.
- **Equipment & Process Validation:** Lifecycle-based validation (Design, Installation, Operation, Performance Qualification).
- **Supply Chain & Vendor Traceability:** Complete raw material traceability with supplier audits and digital monitoring systems.
- **Infrastructure Modernisation:** Requirement for computerised storage systems, controlled environments, and regular self-inspections.



Ethical Concerns

The diethylene glycol (DEG) contamination crisis in India raises serious ethical concerns across multiple dimensions of the pharmaceutical ecosystem. Here's a breakdown of the key ethical issues:

Corporate Negligence

- **Use of Industrial-Grade Solvents:** Some manufacturers substituted pharmaceutical-grade propylene glycol with cheaper industrial-grade alternatives containing DEG, prioritizing cost over safety.
- **Lack of Testing and Quality Control:** Failure to rigorously test raw materials and final products violates ethical obligations to ensure consumer safety.

Regulatory Oversight Failures

- **Inadequate Monitoring:** Despite past incidents, regulatory bodies failed to enforce strict compliance with Schedule M and other safety standards.
- **Delayed Action:** Authorities often act reactively—only after fatalities occur—rather than proactively preventing such tragedies.

Medical Ethics and Prescribing Practices

- **Overprescription of Cough Syrups:** Doctors frequently prescribe cough syrups unnecessarily, especially to children, despite global guidelines advising against it for those under four.
- **Blame Shifting:** Arresting doctors for prescribing contaminated products raises questions about scapegoating frontline professionals instead of holding manufacturers accountable.

Justice and Accountability

- **Criminal Liability:** The manufacturer, Sresan Pharma, faces charges including culpable homicide and drug adulteration. Ethical justice demands transparent investigations and fair trials.
- **Victim Compensation:** While ex-gratia payments have been announced, long-term support for affected families and survivors is ethically necessary.

Global Reputation and Responsibility

- **Export Ethics:** Indian pharmaceutical companies have been linked to DEG-related deaths in The Gambia, Uzbekistan, and now domestically. This undermines trust in India's drug exports and raises global ethical concerns.
- **WHO Warnings Ignored:** Despite repeated alerts, lapses continue, suggesting a disregard for international safety norms.

This tragedy is not just a failure of systems—it's a failure of ethics.

CJI Gavai - Javari temple issue

In a recent Supreme Court hearing, Chief Justice B.R. Gavai's remark—"Go and ask the deity himself"—sparked widespread debate over the boundaries of judicial expression and religious sensitivity. The comment, made while dismissing a PIL seeking restoration of a Vishnu idol's missing head at Khajuraho's Javari Temple, triggered emotional reactions and even courtroom disruption. This incident has reignited discussions on the role of the judiciary in faith-based matters, the tone of judicial discourse, and the delicate balance between constitutional authority and cultural reverence in India's pluralistic society.

- The **Javari Temple**, part of the UNESCO World Heritage Khajuraho complex, houses a **seven-foot-tall idol of Lord Vishnu** that is **missing its head**. The rest of the idol—arms, legs, and torso—is intact and features intricate Nagara-style carvings dating back to the Chandela period.
- A **Public Interest Litigation (PIL)** sought restoration of the missing head of a Vishnu idol at the

Javari Temple.

- CJI Gavai dismissed the plea, remarking: *"Go and ask the deity himself to do something. If you are a strong devotee, then pray and meditate."*
- The comment was perceived by some as **sarcastic or dismissive**, triggering backlash from religious groups and legal professionals.

Reaction

- The CJI's comment sparked outrage among some religious groups and individuals.
- A lawyer named **Rakesh Kishore** attempted to throw a shoe at the CJI inside the courtroom, citing the Vishnu idol case as his motivation.
- Kishore claimed he was deeply hurt by the dismissal and felt the deity was insulted.

Judicial Perspective

Scope of Judicial Intervention

- The Supreme Court emphasized that **heritage restoration falls under the Archaeological Survey of India (ASI)**, not the judiciary.
- The remark may have been intended to **highlight the limits of judicial power** in matters of faith and archaeology.

Tone and Sensitivity

- While legally sound, the tone of the comment was seen as **insensitive to religious sentiments**.
- Judges are expected to maintain **judicial decorum** and **empathy**, especially in emotionally charged cases.

Public Reaction and Fallout

- The remark led to **public outrage**, culminating in a lawyer attempting to throw a shoe at the CJI inside the courtroom.
- The incident raised concerns about **security, professional ethics**, and the **emotional volatility** surrounding faith-based issues.

Governance and Institutional Implications

Balancing Rationality and Faith

- Courts must navigate the **intersection of law and belief** with care, ensuring that legal reasoning doesn't alienate cultural values.

Respect for Religious Sentiment

- Even when dismissing a plea, the judiciary must **communicate with dignity**, recognizing the symbolic weight of religious icons.

Civic Conduct and Protest

- The shoe-throwing incident underscores the need for **civil discourse**, even in disagreement. Protest must remain within the bounds of law.

What to learn?.

- **Judicial restraint** must be matched by **judicial empathy**.
- **Faith-based litigation** requires a delicate balance between constitutional principles and cultural sensitivity.

- Public institutions must foster **trust through respectful engagement**, not just legal correctness.

The controversy surrounding CJI Gavai's remark underscores the delicate balance between **judicial restraint** and **cultural sensitivity** in a diverse democracy like India. While courts must uphold constitutional boundaries and avoid overreach into religious or archaeological domains, they must also communicate with empathy and respect for public sentiment. The incident serves as a reminder that **institutional dignity** and **citizen trust** are built not only on legal reasoning but also on the tone and temperament of public discourse. In an era of heightened emotional and symbolic politics, the judiciary's role as a stabilizing force demands both **clarity and compassion**.

India's Clean Energy Rise Needs Climate Finance Expansion

- India has made rapid progress in clean energy, especially solar, positioning itself as a global leader.
- In 2024, India installed **24.5 GW of solar capacity**, ranking third worldwide after China and the US.
- Featured prominently in the UN Secretary-General's 2025 Climate Report for scaling up solar and wind energy; India's efforts with the International Solar Alliance (ISA) have reinforced its global role.
- The renewable sector employs **over 1 million people** and contributes around **5% to GDP growth**; decentralized off-grid solutions alone created 80,000 jobs in 2021.

The Climate Finance Gap

- Despite the impressive momentum, India faces an **enormous funding gap**. Achieving national climate and clean energy targets by 2030 will require between **\$1.5 trillion and \$2.5 trillion** in investments.
- Finance is needed for a broad range of sectors: expanding renewables, modernizing grids, advancing battery storage, scaling sustainable transport, deploying green hydrogen, climate-resilient agriculture, and adaptation/loss & damage.
- Current climate finance flows are growing but **insufficient and concentrated among large corporations**; MSMEs, agri-tech innovators, Tier II/III infrastructure face challenges accessing climate finance due to high risks and lack of concessional funding.

Climate Finance Trends

- India's **green, social, sustainability, and sustainability-linked debt issuance** reached **\$55.9 billion by Dec 2024**, with green bonds accounting for 83% of this total.
- Green bond investment is projected to exceed **\$45 billion by 2025**.
- Still, the gap for future climate investments is vast, demanding fresh strategies.

Policy Recommendations & Financial Innovations

- Public finance must play a **catalytic role**—leveraging budget allocations and fiscal incentives to de-risk green projects and attract private investment.
- Blended finance models** (combining concessional and commercial funds) are essential, with tools like credit guarantees, subordinated debt, and risk-sharing to broaden participation.
- Greater efforts to mobilize domestic institutional capital, including pension and insurance funds, will require regulatory reform and robust ESG frameworks.
- Innovative solutions are needed: the new Carbon Credit Trading Scheme, blockchain for transparent finance tracking, AI-based risk assessment, and tailored models for India's economic reality.
- Boosting finance to adaptation and loss & damage is critical, ensuring vulnerable communities benefit

and resilience is strengthened.

- Successes include Solar Park auctions, sovereign green bonds, and SEBI's social bonds framework.

Broader Implications

- The transition must be **inclusive**: climate finance should reach MSMEs, agri-tech firms, rural infrastructure, not just large corporates.
- Consistent, transparent climate finance is key to achieving India's 2070 net zero target, SDGs, and strengthening global climate leadership.
- India's progress offers a model for G-20, COP, and South-South cooperation, but closing the climate finance gap remains crucial for sustaining momentum.

Prelims Practice Question

Which of the following best describes "greenwashing" in the context of climate finance?

- (a) The practice of planting trees to offset carbon emissions
- (b) Making unverified or exaggerated claims about environmental benefits of a project or product
- (c) Providing subsidies for renewable energy projects
- (d) Converting coal plants to run on natural gas

Mains Practice Question

Evaluate India's renewable energy achievements in context of global leadership. Critically analyze why expanding climate finance is essential. Suggest measures to bridge the finance gap.

Gaza Peace Plan - The View From India

The US Gaza Peace Plan, unveiled in October 2025 as a 20-point initiative by President Donald Trump, aims to end hostilities between Israel and Hamas through immediate ceasefire, hostage exchange, and the demilitarization of Gaza. The plan includes transitional governance under a technocratic Palestinian committee, large-scale humanitarian aid, and an international stabilization force to oversee security and reconstruction. Backed by several Arab nations and welcomed by Israel, the plan holds significance for regional stability and carries important implications for India's strategic and energy interests.

Features of the Gaza Peace Plan

- *Ceasefire and Hostage Exchange*: The plan calls for an immediate cessation of hostilities between Israel and Hamas, with all Israeli hostages (alive and deceased) returned within 72 hours of Israel's acceptance. In exchange, Israel will release Palestinian prisoners, including those detained since October 7, 2023, as well as life-term prisoners.
- *Demilitarization and Redevelopment*: Gaza is to be transformed into a demilitarized, terror-free zone. All military facilities, tunnels, and weapons manufacturing sites will be dismantled, verified by independent monitors, with amnesty and safe passage offered to disarmed Hamas members wishing to leave Gaza.
- *Transitional Governance*: Governance of Gaza will be handed over to a temporary body of Palestinian technocrats, supervised by international agencies, with Hamas and other armed factions renouncing any future role in the territory's administration.
- *International Stabilization Force*: A new international stabilization force, including personnel from the US, Arab states, and Europe, will oversee security, train Palestinian police, and prevent arms

smuggling. Israel will withdraw gradually as the force establishes stability.

- *Humanitarian and Reconstruction Aid:* Large-scale international aid will be sent for infrastructure, health, and economic redevelopment, aiming to encourage Gazans to stay and rebuild.
- *Pathway to Palestinian Statehood:* The framework hints at opening dialogue toward Palestinian self-determination and eventual statehood, but does not guarantee US recognition at this stage. Israel's leadership has publicly ruled out immediate statehood under this plan.

20 YEARS
483 OFFICERS

INDIA WELCOMES THE US'S PLAN FOR GAZA PEACE

Key Provisions of the Peace Plan

- Gaza to become a deradicalised, terror-free zone without threats to its neighbours
- Immediate ceasefire and suspension of all military operations
- Hostage (living or dead) release within 72 hours of Israel's acceptance
- An interfaith dialogue will be launched to promote tolerance and reconciliation
- Creation of a special economic zone, an international investment drive, and job creation

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Implications for India

Diplomacy and Geopolitics

- India has consistently supported a two-state solution and peaceful dialogue in the Middle East, emphasizing the rights of Palestinians while maintaining strong strategic and defense partnerships with Israel.
- The peace plan offers India an opportunity to reaffirm its balanced foreign policy—supporting global peace initiatives, Arab partners, and Israel—without antagonizing any party.

Energy Security

- Stability in Gaza and the wider Middle East directly reduces geostrategic risks for India's energy imports, with the region being a vital source of crude oil and LNG.
- A peace settlement can help lower insurance premiums and transport costs for Indian petroleum companies operating in or around the region.

Counterterrorism and Security

- The demilitarization of Gaza and the dismantling of terror networks aligns with India's long-standing stance against terrorism and radical militancy.

- India can share expertise in peacekeeping, policing, and counter-radicalization, potentially joining international development or security missions on invitation.

Humanitarian and Development Engagement

- Indian companies and aid agencies could participate in Gaza's reconstruction, leveraging experience in infrastructure, hospitals, education, and digital governance, consistent with India's "human-centric" development diplomacy.
- There is scope for trilateral cooperation (India-Arab world-West) on sustainable economic initiatives in Gaza.

Diaspora Concerns

- Peace in Gaza would reduce risks for the Indian diaspora across the Gulf states by stabilizing migrant routes, commerce, and safety.

The Gaza Peace Plan is a major geopolitical development, balancing demilitarization, humanitarian aid, and a conditional path to Palestinian governance; its success depends on stakeholder buy-in and credible enforcement. For India, supporting peaceful settlement enhances global diplomatic standing, energy security, and economic linkages, while allowing articulation of a principled, pragmatic policy that embraces multilateralism and regional stability.

Ethical Analysis of TVK - Party and its Leader based on Madras High Court Observations

After the tragic stampede at a TVK event in Karur, which led to multiple deaths, Vijay and his party blamed the ruling DMK for mismanagement instead of pointing to TVK's own organizational lapses.

Socratic Reflection in Political Leadership

After the tragic stampede at a TVK rally in Karur that claimed 41 lives, actor-politician Vijay and his party blamed the ruling DMK for poor arrangements and alleged conspiracy. DMK leaders, in turn, criticized Vijay for arriving late, failing to provide basic amenities, and leaving the venue immediately after the incident.

Socrates' quote "*An unexamined life is not worth living*" applies here. Ethical leadership begins with reflection, not evasion.

"An unexamined life is not worth living" (2021 UPSC GS4 Question) implies that true leadership demands introspection.

Instead of immediately blaming external forces (DMK), a responsible leader must first examine:

- Was the venue appropriate for the crowd size?
- Were safety protocols followed?
- Did the delay in arrival contribute to unrest?
- Was there adequate crowd management?

Absence of Accountability: The Madras High Court noted that Vijay left the venue immediately after the tragedy and showed no remorse. Ethical leadership demands owning responsibility, especially in moments of crisis.

Failure of Compassion: Abandoning victims and failing to provide immediate support contradicts the moral duty of care expected from a public figure.

Blame-Shifting: Instead of introspection, Vijay and his party blamed the DMK. This violates the spirit

of Thirukkural (Kural 190): "If each his own, as neighbours" faults would scan, Could any evil hap to living man?"

— urging self-correction over fault-finding.

If Vijay had publicly reflected on these questions before assigning blame, it would have demonstrated ethical maturity and accountability. This introspection could have:

- Strengthened public trust.
- Shifted the narrative from political blame to collective responsibility.
- Set a precedent for ethical leadership in crisis.

Ethical Application of Thirukkural to Vijay's Leadership

Thirukkural (190) — "If each his own, as neighbours" faults would scan, Could any evil hap to living man?"

ஏதிலார் குற்றம்போல் தங்குற்றங் காண்கிற்பின்

தீதுண்டோ மன்னும் உயிர்க்கு. (190)

The Madras High Court strongly rebuked Vijay and his party, TVK, for their conduct during and after the Karur rally stampede that claimed 41 lives. The court condemned:

- Vijay's disappearance from the scene.
- TVK leaders abandoning victims.
- Lack of remorse or accountability.
- Misleading rally timings and poor crowd management.

Kural Insight:

- The Kural urges **self-accountability**: Vijay, as the leader, should have first examined his own party's lapses—delayed arrival, inadequate safety measures, and misinformation—before attributing blame to others.
- The **absence of introspection**, as noted by the court, reflects a failure in ethical leadership. The judge even remarked that the lack of remorse "shows the mental state of the leader".

In moments of crisis, **true leadership lies in accepting responsibility**, learning from mistakes, and prioritizing public welfare. Had Vijay embodied the spirit of this Kural, the tragedy might have been met with compassion, reform, and healing—instead of confrontation and evasion.

Bisphenol A: What is it?

Bisphenol A (BPA) was first synthesized in 1891. It is used to make clear, strong, and lightweight plastics known as polycarbonates. These polycarbonate plastics are very common – they are used in reusable water bottles, baby bottles, plates, cups, and containers for storing food. BPA is also used for creating epoxy resins that are used to line the inside of food and drink cans. Other than food packaging and containers, BPA is used for manufacturing electronics, construction materials, and medical devices among other things.

BPA is primarily used in manufacturing:

- **Polycarbonate plastics**: Found in water bottles, baby bottles, food containers, eyewear, and electronics
- **Epoxy resins**: Used to coat the inside of metal food and drink cans, bottle tops, and water supply pipes

- **Other products:** CDs/DVDs, sports equipment, automotive parts, and medical devices

Routes

We come into contact with bisphenol-A through various routes. Firstly, BPA can migrate from containers and materials that come into contact with food such as plastic bottles and the lining of food cans. When these containers are heated, reused excessively, or exposed to acidic or basic substances, BPA transfer to food increases. Acidic substances in food typically include citrus fruits, tomatoes, and vinegar-based products, which have a low pH and can contribute to breaking down the chemical bonds in plastics, allowing the release of BPA. On the other hand, basic (or alkaline) substances in food might include baking soda or certain dairy products, which have a higher pH and can also affect the integrity of plastic containers. BPA migration is especially a cause for concern in high-fat foods and when the packaging directly touches the food for a long time or is exposed to higher temperatures.

Secondly, BPA is considered an omnipresent environmental contaminant, found in air, soil, and water due to its widespread use. Environmental exposure to BPA results from contamination of the atmosphere, aquatic environments, and soil, largely due to industrial use and recycling processes. BPA can last in the environment for a while, but microorganisms present in water bodies as well as sunlight help decompose

it over time. Occupational exposure to BPA occurs primarily among workers involved in its production.

Harmful Effects

BPA is known to pose several health risks:

- **Hormonal disruption:** Mimics estrogen and interferes with endocrine function
- **Reproductive issues:** Linked to reduced fertility and developmental problems in foetuses and infants
- **Immune system impact:** May impair immune responses and increase risk of autoimmune diseases
- **Cancer risk:** Associated with increased risk of breast, ovarian, prostate, and testicular cancers
- **Other effects:** Eye damage, skin allergies, airway irritation, and metabolic disturbances

Exposure & Safety

- **Main exposure route:** Through diet, especially canned foods and plastic containers
- **Leaching risk:** BPA can leach into food and drinks, especially when containers are heated
- **Regulations:** Many countries have restricted

BISPHENOL-A C15H16O2

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PLEDGED TO ETHICS

WHAT IS BISPHENOL-A (BPA) ?

- Bisphenol-A (BPA) is a synthetic form of estrogen.
- It is a chemical generally used to harden plastic and coating the inside of food and drink cans.
- It can easily dissolve into the food and hot liquids that are kept in the plastic or plastic coated containers.
- It can easily enter into our body after eating or drinking from such containers.

FROM WHERE CAN BISPHENOL-A (BPA) ENTER INTO OUR BODY?



Baby bottles
(Bottle feeding)



Canned food
packages



Soda or
juice cans



Plastic food
containers



Plastic water
bottles

SOURCES OF BPA (BISPHENOL-A)



Plastic toys
for children



Plastic utensils
for microwave



Blenders and
food processors



Plastic
food plates



Plastic cups for
drinking tea/ coffee

BPA use in baby products and food packaging.

BPA is considered hazardous due to its potential to affect the immune system, harm fertility, disrupt hormones, and increase the risk of various cancers, among other health concerns. Regulatory measures

have been implemented to limit BPA exposure, including specific migration limits and bans on its use in certain products for infants and young children.

ABC of Dengue for UPSC

Dengue is a viral disease caused by four related but distinct dengue virus serotypes (DENV-1 to DENV-4). It spreads mainly through the bite of infected *Aedes aegypti* mosquitoes, prevalent in tropical and subtropical regions. The disease affects over half the world's population, with an estimated 100–400 million infections annually.

Causes and Transmission

- **Four dengue virus serotypes:** DENV-1, DENV-2, DENV-3, DENV-4—all belonging to the *Flavivirus* genus.
- **Mosquito vector:** Primarily *Aedes aegypti*; these mosquitoes breed in small collections of stagnant water and bite during the day.
- **No direct person-to-person spread**, except rarely from mother to child during pregnancy.

Symptoms and Progression

- **Typical onset:** Symptoms appear 3 to 14 days after infection.
- **Common symptoms:** High fever, severe headache, joint/muscle pain ("breakbone fever"), nausea, vomiting, skin rash.
- **Characteristic rash:** Red patches, blanching on pressure—may progress to "islands of white in a sea of red" as fever subsides.
- **Severe cases:** About 1 in 20 develop severe dengue, with plasma leakage, bleeding, shock, and risk of death without prompt care.
- **Recovery period:** Symptoms typically last 2 to 7 days.

Risk Factors and Disease Severity

- **Antibody-dependent enhancement (ADE):** Prior infection with a different dengue serotype increases risk for severe disease.
- **Higher risk groups:** Children, elderly, people with pre-existing conditions.
- **DENV-2 often causes severe disease**, while DENV-1 was most prevalent in some recent studies.

Prevention and Control

- **Mosquito control:** Eliminate standing water, use repellents, window screens, wear protective clothing.
- **Vaccines:** Dengvaxia (for those previously infected), Qdenga (for ages ≥4, regardless of prior infection).
- **Biological controls:** Wolbachia-infected mosquitoes are used to block virus transmission.
- **Public health campaigns:** Remove mosquito breeding sites, educate communities.

Global Trends and Impact

- **Endemic in 100+ countries:** Most common in Southeast Asia, Americas, Africa, Western Pacific.
- **Rapid expansion:** Urbanization and climate change push dengue into new regions—including parts of Europe and the US.
- **Incidence rises:** 30-fold increase over 50 years; 5+ million reported cases and 5,000 deaths globally in 2023.

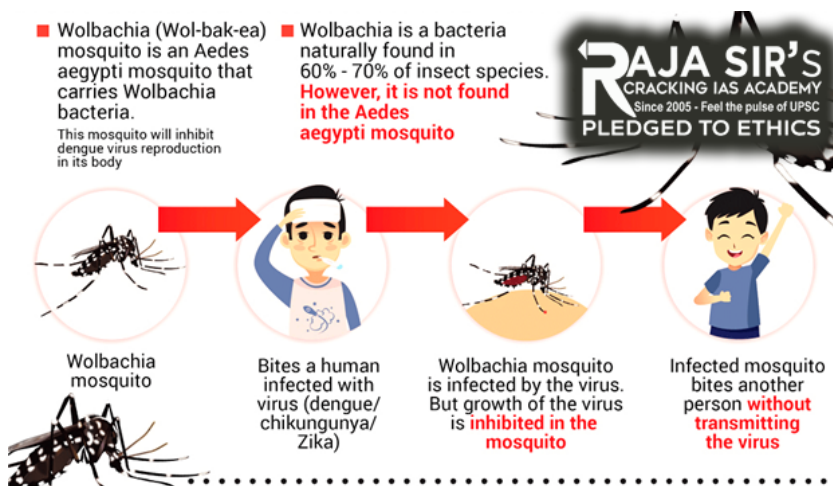
- **WHO:** Dengue is listed among the world's top ten global health threats.

Wolbachia method

- The **Wolbachia method** uses a naturally occurring bacterium, *Wolbachia*, to control mosquito-borne diseases like dengue, Zika, and chikungunya.
- *Wolbachia* is **introduced into *Aedes aegypti* mosquitoes**, making them less able to transmit viruses to people.

How Wolbachia Works

- **Blocks virus replication** inside the mosquito so dengue and related viruses can't reach levels needed for transmission.
- **Does not harm the mosquito or humans;** infected mosquitoes live normally but can't pass viruses as easily.
- *Wolbachia* is **inherited by offspring**—females with the bacterium pass it on to future generations, allowing the effect to persist naturally.



Deployment Strategies

- **Population replacement:** Both male and female *Wolbachia*-infected mosquitoes are released. They breed with wild mosquitoes, spreading *Wolbachia* through the local population.
- **Population**

suppression: Only male mosquitoes with *Wolbachia* are released. When they breed with wild females, the eggs don't hatch, shrinking the mosquito population.

Impact and Effectiveness

- **Major trials** in places like Yogyakarta, Indonesia showed **up to 77% reduction in dengue cases** and **up to 86% fewer hospitalizations** where *Wolbachia* mosquitoes established.
- **Singapore's suppression program** led to **up to 98% reduction in *Aedes aegypti* numbers** and fewer dengue cases in treated zones.
- The method is **eco-friendly**—there is no widespread impact on local wildlife or food chains.

Safety and Sustainability

- *Wolbachia* is **common in nature**, found in around 50% of insect species.
- **No known risk to humans, animals, or the wider environment;** regulatory assessments in multiple countries have deemed it safe.
- **Self-sustaining:** Once established, *Wolbachia* populations persist with little or no ongoing intervention.
- **Does NOT require pesticides or chemicals**, reducing dependence on traditional mosquito control methods.

Limitations and Future Directions

- The method does **not completely eliminate dengue**, but it offers a sustainable way to **drastically reduce outbreaks and protect communities**.
- Ongoing research aims to optimize deployment and adapt the strategy for more regions and vector-borne diseases.
- The **World Mosquito Program (WMP)** and other organizations are expanding the method globally with strong community engagement and promising results.

Dengue Immunity and Vaccine Development (Recent Developments)

The specific components of the immune response that protect against **dengue virus (DENV)** infection are not well understood. A novel study provides insights into developing strong immunity against DENV, which has implications for vaccine development.

Key Findings of the Study

- **Envelope Dimer Epitope (EDE)-like Antibodies:**
- EDE-like antibodies have been identified as key for building broad, cross-serotype immunity following natural infection or vaccination.
- The study found that EDE-like antibodies were prevalent in children with secondary DENV immunity, with 81.8% to 90.1% of participants having detectable levels.
- **Antibody-Dependent Enhancement:**
- Primary immunity from the first infection increases the risk of severe disease upon re-infection with a different serotype.
- This phenomenon poses a challenge for developing dengue vaccines, leading to the recommendation that vaccines be administered only to those with prior exposure.
- **Role of EDE-like Antibodies:**
- The study suggests these antibodies are a hallmark of established immunity against dengue.
- Higher levels of EDE-like antibodies were associated with lower odds of symptomatic dengue and hospitalization, highlighting their protective effect.

Dengue Vaccine Challenges and Current Solutions

Current Vaccines:

- The two primary vaccines are **Dengvaxia and QDenga**.
- These vaccines are most effective in individuals who have had at least one prior dengue infection.
- **Study Limitations and Future Directions:**
- The study had limitations, like a small number of cases for assessing protection against all serotypes.
- Further research is necessary to validate EDE-like antibodies as indicators of protection, which could guide vaccine efficacy trials.

The study marks a significant advance in understanding dengue immunity, offering potential pathways to more effective vaccines by focusing on eliciting high levels of EDE-like antibodies.

UPSC PRELIMS PYQs

UPSC Prelims 2014

Question: Which of the following diseases are transmitted by mosquito?

1. Dengue
2. Malaria
3. Filariasis
4. Typhoid

Select the correct answer using the code given below:

- (a) 1, 2 and 3 only
(b) 1 and 3 only
(c) 2 and 4 only
(d) 1, 2, 3 and 4

Answer: (a) 1, 2 and 3 only

UPSC Prelims 2017

Question: Consider the following statements:

1. In tropical regions, Zika virus disease is transmitted by the same mosquito that transmits dengue.
2. Sexual transmission of Zika virus disease is possible.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Answer: (c) Both 1 and 2

UPSC Prelims 2020

Question: With reference to diseases transmitted by mosquitoes, consider the following pairs:

Disease — Type of Virus

1. Dengue — Flavivirus
2. Chikungunya — Alphavirus
3. Zika — Flavivirus

Which of the pairs given above are correctly matched?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) All of the above

Answer: (d) All of the above

UPSC Prelims 2023

'Wolbachia method' is sometimes talked about with reference to which one of the following?

- (a) Controlling the viral diseases spread by mosquitoes
(b) Converting crop residues into packing material

(c) Producing biodegradable plastics

(d) Producing biochar from thermo-chemical conversion of biomass

Answer: (a) Controlling the viral diseases spread by mosquitoes

Empowering Women, Transforming India: Progress, Challenges, and the Road Ahead

Women's empowerment in India signifies giving women freedom, rights, and the ability to make their own life choices. It involves increasing women's education, workforce participation, and political representation while challenging traditional patriarchal norms and harmful practices like child marriage and dowry.

Key Factors Driving Women's Empowerment in India

Increasing Female Literacy

- Female literacy rate projected at around 70.3% in 2025.
- Female youth literacy (ages 15-24) at 96%.
- Rural-urban and state-wise disparities exist (e.g., Kerala vs Bihar).

Rising Workforce Participation

- Female labour force participation rate at 41.7% in 2023-24, up from under 30% a decade ago.
- Growth in formal sectors, gig economy, skilled jobs like IT and healthcare.
- Self-employment among women rose from 51.9% in 2017 to 67.4% in 2024.

Entrepreneurship and Economic Independence

- Women-led MSMEs nearly doubled to 1.92 crore enterprises in 2023-24.
- Share of women-owned proprietary establishments rose from 17.4% in 2010-11 to 26.2% in 2023-24.
- Supported by schemes like PM Mudra Yojana, Stand-Up India, Mahila E-Haat.

Political Representation

- Women constitute approximately 13.6% of Lok Sabha in 2025 (74 women).
- Strong representation at Panchayati Raj Institutions with nearly 46% women elected representatives.
- Nari Shakti Vandan Adhiniyam 2023 mandates 33% reservation for women in Parliament & State Assemblies (awaiting implementation).

Health and Safety Improvements

- Maternal mortality rate declined to 97 per 100,000 live births.
- Institutional deliveries over 88%.
- Programs like Pradhan Mantri Matru Vandana Yojana support maternal healthcare.

Legal and Social Reforms

- Laws like Protection of Women from Domestic Violence Act, Nirbhaya Act, sexual harassment amendments.
- Increased awareness and enforcement improving safer environments.

Cultural and Societal Shifts

- Changing societal attitudes, urbanisation, increased media representation.
- Visibility of women in politics, business, sports, entertainment challenging patriarchal norms.

- Role models: Smriti Mandhana, Harmanpreet Kaur, Falguni Nayar, Nirmala Sitharaman, Mamta Banerjee.

Key Barriers Hindering Women's Empowerment in India

Labour Force Exclusion and Informalisation

- Over 90% of working women in informal sector with no social security or career growth.
- India's female workforce participation remains nearly half that of men and below global average.
- Feminisation of agriculture notable with women over 42% of agricultural workforce.

Political Underrepresentation and Tokenism

- 14% seats in Parliament held by women, fewer in state legislatures.
- Issues like "sarpanch-pati" system dilute women's political power.
- Delay in implementation of 33% political reservation undermines genuine representation.

Health Inequality and Gendered Neglect

- 57% women aged 15-49 anaemic as per NFHS-5.
- Maternal malnutrition and inadequate preventive healthcare prevalent.

Educational Disparities and Skill Disconnect

- Learning outcome gaps, high dropout rates, underrepresentation in STEM fields.
- Gross Enrollment Ratio in higher education only 28.5%.
- Early marriages and limited technical education support hinder opportunities.

Digital and Infrastructure Exclusion

- 6% rural women aged 15+ do not own a mobile phone, limiting digital access.
- Impedes education, employment, financial inclusion through digital means.
- Rising digital abuse like cyberbullying creates chilling effects.

Socio-Cultural Patriarchy and Stereotypes

- Harmful practices like child marriage (23.3% married before 18) and dowry persist.
- Women bear disproportionate unpaid care work leading to time poverty.
- Moral policing and patriarchal control enforce restrictive norms (e.g., Miss Rishikesh pageant disruption).

Gender-Based Violence and Safety Concerns

- 445,000+ cases of crimes against women reported in 2022 including domestic violence and dowry deaths.
- Inadequate law enforcement and deep-rooted societal attitudes limit public participation and mobility.

Key Provisions & Initiatives Supporting Women's Empowerment in India

Legal and Constitutional Measures

- Articles 14, 15(3), 16, 39(d), 42 supporting equality and humane working conditions.

Government Initiatives

- Pradhan Mantri Mudra Yojana, Beti Bachao Beti Padhao, Mahila E-Haat, Mahila Shakti Kendra.
- Working Women Hostels, Maternity Benefit Amendment Act 2017, Mission Shakti, Drone Didis.

International Conventions

- CEDAW, Beijing Declaration & Platform for Action, UN SDG 5 for gender equality and empowerment.

Steps to Strengthen Women's Empowerment Further

Strengthen Legal Frameworks and Ensure Swift Justice

- Fast-track courts for crimes against women, expansion of One Stop Centres.
- Gender-sensitisation training for police, accountability mechanisms.

Promote Gender-Responsive Education

- Enhance girl child enrollment under Beti Bachao Beti Padhao.
- Scale up STEM scholarships and gender sensitisation in school curricula.

Expand Women's Political Representation and Leadership

- Expedite implementation of 33% reservation through Nari Shakti Vandan Adhiniyam.
- Model Women-Friendly Gram Panchayats, corporate board capacity-building.

Ensure Comprehensive Healthcare Services for Women

- Use digital health tools for maternal support.
- Strengthen Janani Suraksha Yojana, Poshan Abhiyan to address malnutrition and anaemia.

Enhance Digital Literacy and Financial Inclusion

- Expand PMGDISHA digital literacy training focused on rural women.
- Support women-led micro-enterprises with financial access under PM Mudra Yojana.

Support Women in Gig and Informal Economy

- National social security code extension for gig workers including maternity benefits.
- Empower self-help groups with microcredit and entrepreneurship programs.

Develop Women-Centric Urban Infrastructure

- Build safe hostels for working women under Mission Shakti.
- Women-only public transport compartments and affordable childcare centres.

Empowering women is crucial for holistic national development, fostering gender equality, and building an inclusive society where women can thrive as equal contributors and decision-makers.

Pakistan's Taliban Gamble Backfires: Durand Line in Crisis

The current conflict between Pakistan and Afghanistan in October 2025 centres on escalating cross-border violence, primarily driven by Pakistan's accusations that the Afghan Taliban government is harbouring and supporting the Tehrik-i-Taliban Pakistan (TTP), a militant group responsible for numerous attacks on Pakistani security forces. Tensions peaked after Pakistan conducted airstrikes on October 9, 2025, targeting TTP leadership in Kabul and Paktika province, which Afghanistan condemned as a violation of its sovereignty. In retaliation, Afghan Taliban forces launched attacks on Pakistani border posts, resulting in a deadly exchange of fire that killed over 250 people, with conflicting reports on casualties—Afghanistan claimed 58 Pakistani soldiers were killed, while Pakistan stated it eliminated over 200 Taliban and affiliated militants.

The Pakistan-Afghanistan-TTP conflict stems from a complex mix of historical grievances, strategic mistrust, and militant activity. The key reasons fuelling the current tensions are as below: -

- **TTP Militancy and Cross-Border Attacks** - Pakistan accuses Afghanistan of harboring Tehrik-i-

Taliban Pakistan (TTP) militants who use Afghan soil to launch attacks into Pakistan. These attacks have intensified in recent months, especially in Khyber Pakhtunkhwa and Balochistan, prompting Pakistan to take military action. Afghanistan's Taliban government denies these claims, but Pakistan insists that the TTP operates freely in eastern Afghanistan.

- **Durand Line Dispute** - The Durand Line, a colonial-era border drawn in 1893, remains a contentious issue. Afghanistan has never officially recognized it as the international boundary, while Pakistan considers it settled. This disagreement leads to frequent border skirmishes and accusations of encroachment, especially when Pakistan builds fences or fortifies border posts.
- **Sovereignty Violations** - Pakistan's recent airstrikes inside Afghan territory have been condemned by the Taliban as violations of Afghan sovereignty. Afghanistan views these incursions as aggressive and provocative, while Pakistan argues they are necessary to neutralize threats. This tit-for-tat escalation has deepened mistrust and hardened positions on both sides.
- **Taliban's Strategic Shift** - Afghanistan's Taliban-led government has been signalling a shift in regional alliances. It has praised its relations with India, China, and Iran, while criticizing Pakistan for being confrontational. This shift threatens Pakistan's strategic influence in Afghanistan and raises concerns about regional isolation.
- **Internal Pressures and Political Narratives** - Both countries face internal challenges. Pakistan is grappling with economic instability and rising militancy, while Afghanistan is dealing with diplomatic isolation and humanitarian crises. Leaders in both nations may be using the conflict to rally domestic support or deflect from internal issues.
- **Breakdown of Intelligence Cooperation** - After the Taliban's takeover in 2021, Pakistan hoped for cooperation in counterterrorism. However, intelligence sharing and joint operations have stalled. Pakistan claims Afghanistan is unresponsive to requests for action against TTP, while Afghanistan accuses Pakistan of unilateral aggression.

Core Dispute

- Pakistan accuses Afghanistan of providing sanctuary to TTP fighters, facilitating attacks into Pakistan's Khyber Pakhtunkhwa and Balochistan provinces.
- The Afghan Taliban government denies the allegations, calling for Pakistan to address its own internal security issues.
- Afghan Foreign Minister Amir Khan Muttaqi emphasized peaceful intentions but warned of strong responses to continued airspace violations.

Military Engagements

- Military clashes escalated along the disputed Durand Line border.
- Pakistan deployed XI and XII Corps, air defense, and paramilitary forces.
- Afghanistan responded with its 201 Khalid Ibn Walid Corps and Islamic National Army units.
- Mutual accusations of airspace violations and destruction of border outposts marked the fighting.
- Key border crossings such as Torkham and Chaman were sealed, disrupting trade and movement.

Regional Implications

- Afghanistan emphasized improving relations with India, China, and Iran, contrasting with deteriorating ties with Pakistan.

The genesis of Pak-Af fighting

Afghanistan and Pakistan have said that they killed dozens of each other's troops during a night of heavy border clashes between the two countries. What we know so far



THE CONTEXT

1 Landlocked Afghanistan has a 2,600-km-long border with Pakistan

2 Militancy has surged in Pakistan's Khyber Pakhtunkhwa province since the withdrawal of US-led troops from Afghanistan in 2021 and the return of the Taliban government

3 The Tehreek-e-Taliban Pakistan (TTP), separate to the Afghan Taliban, is accused by Islamabad of killing hundreds of its soldiers since 2021

4 TTP fighters are believed to operate from Afghanistan. TTP aims to overthrow Pak govt and replace it with an Islamic-led system of governance

PAK STRIKES KABUL, PAKTIKA PROVINCE

- Afghanistan had vowed to respond after what it said were Pak airstrikes in Kabul, and the eastern province of Paktika on Thursday
- A Pakistani security official said a vehicle used by the leader of TTP, Noor Wali Mehsud, was targeted in the Kabul airstrike. It was unclear if he survived
- Pakistan has, in the past, launched strikes inside Afghan territory to target what it says are militant hideouts

There will be no compromise on Pakistan's defence, and every provocation will be met with a strong and effective response

— SHEHBAZ SHARIF, Pakistan PM

We want to have zero tension and if they [Pakistan] don't want that, then Afghanistan has other means

— AMIR KHAN MUTTAQI, Afghanistan's FM



- The Taliban government accused Pakistan of confrontation and hinted at seeking alternative alliances.
- Pakistan faces increasing internal pressure from growing militancy and economic challenges.

Humanitarian and Security Concerns

- Fears persist that continued hostilities could destabilize the region further.
- Escalation may trigger more cross-border terrorism and civilian displacement.
- Ongoing fighting has already displaced families along the border, deepening the refugee crisis.
- Diplomatic efforts are urgently needed to prevent a full-scale conflict and maintain regional cooperation.

Theories of international relations

Realism

Realism views international politics as a struggle for power in an anarchic world where states prioritize survival and security.

- **Pakistan's airstrikes** reflect a realist pursuit of national security, targeting perceived threats (TTP) regardless of Afghan sovereignty.
- **Afghanistan's retaliation** and

defense of its borders align with realist principles of self-help and deterrence.

- The **Durand Line dispute** is a classic example of territorial realism, where control over borders is tied to strategic dominance.
- Both states are acting in their **national interest**, with little regard for international norms or cooperation.

Liberalism

Liberalism emphasizes cooperation, institutions, and interdependence.

- The **breakdown of intelligence sharing** and lack of diplomatic engagement show a failure of liberal mechanisms.
- **Regional organizations** like SAARC or the OIC have been largely absent, indicating weak institutional influence.
- Liberalism would advocate for **dialogue, mediation, and joint counterterrorism efforts**, which are currently lacking.

Constructivism

Constructivism focuses on identity, norms, and the social construction of interests.

- **Pakistan and Afghanistan's historical narratives** shape their mutual distrust—Pakistan sees Afghanistan as a haven for militants, while Afghanistan views Pakistan as a meddling neighbor.
- The **Taliban's ideological ties to the TTP** complicate cooperation, as shared religious and ethnic identities influence policy.
- **National identity and sovereignty** are central to Afghanistan's rejection of Pakistani incursions.

Security Dilemma Theory

This theory explains how defensive actions by one state can be perceived as threats by another, leading to escalation.

- Pakistan's strikes, meant to secure its borders, are seen by Afghanistan as aggression.
- Afghanistan's military buildup and retaliatory attacks then reinforce Pakistan's perception of threat.
- This cycle of action-reaction fuels instability and mistrust.

Offensive vs Defensive Realism

- **Offensive realism** suggests Pakistan is proactively asserting power to eliminate threats and shape regional dynamics.
- **Defensive realism** would argue Afghanistan is merely responding to protect its sovereignty and avoid encirclement.

Strategic Implications for India

India's strategic interests are deeply affected by the escalating Pakistan-Afghanistan-TTP conflict.

Security Concerns

- **Spillover of Militancy:** The rise in TTP activity and instability along the Durand Line could lead to increased militant movement across South Asia. India may face heightened risks in Jammu & Kashmir and along its western borders if extremist networks expand or shift focus.
- **Border Vigilance:** India will likely reinforce surveillance and counterterrorism operations, especially in sensitive border areas, to prevent infiltration or radicalization.

Diplomatic Leverage

- **Improved Ties with Afghanistan:** The Taliban government has praised its relations with India while criticizing Pakistan. This opens a window for India to deepen engagement through humanitarian aid, infrastructure projects, and diplomatic outreach.
- **Regional Balancing:** India can use the conflict to position itself as a stabilizing force in South Asia,

advocating for peaceful resolution and multilateral dialogue.

Geopolitical Influence

- **Countering Pakistan's Narrative:** India may highlight Pakistan's internal instability and its alleged support for militant groups to strengthen its case in global forums.
- **Strategic Partnerships:** India could collaborate more closely with Iran, Central Asian republics, and even the US to monitor developments and counter extremist threats.

Economic and Connectivity Projects

- **Impact on Trade Routes:** Instability in Afghanistan affects India's plans for regional connectivity, especially the Chabahar port and International North-South Transport Corridor (INSTC).
- **Investment Risks:** Indian investments in Afghan infrastructure and education may face delays or security threats if the conflict escalates.

Intelligence and Counterterrorism

- **Enhanced Monitoring:** India's intelligence agencies will likely increase focus on TTP movements, Taliban factions, and Pakistan's military deployments.
- **Cyber and Hybrid Threats:** The conflict could trigger propaganda campaigns or cyber threats targeting Indian interests, requiring robust digital defenses.

Roadmap for India

Strengthen Border and Internal Security

- **Enhance surveillance** along western borders, especially in Jammu & Kashmir, to prevent militant spillover.
- **Boost counterterrorism coordination** among intelligence agencies to monitor TTP movements and potential alliances with anti-India groups.
- **Invest in cyber defense** to guard against propaganda or hybrid threats emerging from the conflict zone.

Deepen Engagement with Afghanistan

- **Humanitarian aid and development projects:** India can expand its support for Afghan civilians, building goodwill and influence.
- **Track Taliban factions:** Maintain diplomatic channels to identify moderate elements open to cooperation.
- **Cultural and educational diplomacy:** Offer scholarships, training, and cultural exchanges to build long-term ties.

Leverage Multilateral Forums

- **Raise concerns at the UN, SCO, and SAARC** about cross-border terrorism and regional instability.
- **Push for a regional counterterrorism framework** that includes Afghanistan, Pakistan, and Central Asian states.
- **Support peace initiatives** led by neutral actors like Iran or Qatar to de-escalate tensions.

Coordinate with Strategic Partners

- **Work with the US, EU, and Gulf nations** to monitor militant financing and arms flows.
- **Strengthen ties with Iran and Central Asia** to bypass Pakistan-Afghanistan bottlenecks in connectivity projects.

- **Engage China cautiously** on shared concerns like extremism, while managing border tensions separately.

Safeguard Economic Interests

- **Secure Chabahar Port and INSTC routes** to ensure access to Central Asia and beyond.
- **Protect Indian investments in Afghanistan**, especially in infrastructure, education, and health sectors.
- **Monitor trade disruptions** that may arise from regional instability and adjust supply chains accordingly.

Shape the Narrative

- **Use media and diplomacy** to highlight India's constructive role and Pakistan's destabilizing actions.
- **Promote India as a responsible regional power** committed to peace, development, and counterterrorism.

India should respond to the Pakistan-Afghanistan-TTP conflict with a balanced mix of strategic caution, diplomatic engagement, and regional leadership.

Ethical Reflections on the Pakistan-Afghanistan-TTP Conflict

The ethical dimensions of the Pakistan-Afghanistan-TTP conflict in October 2025 reveal deep tensions between national security imperatives and international norms, raising critical questions about sovereignty, proportionality, and humanitarian responsibility.

Sovereignty vs. Security

- Pakistan's alleged airstrikes on Kabul, Khost, and Paktika in October 2025 challenge the principle of state sovereignty, a cornerstone of international law.
- While Pakistan justifies these actions as self-defense against cross-border terrorism by the TTP, Afghanistan views them as violations of its territorial integrity.
- A July 2025 UN report noted that the TTP receives "logistical and operational support" from Taliban authorities, lending credibility to Pakistan's claims, though Kabul denies any such collaboration.
- Ethically, realist perspectives may support Pakistan's actions as necessary for survival, but liberal and constructivist frameworks emphasize that unilateral force undermines global order and risks normalizing aggression.

Responsibility to Protect (R2P)

- Pakistan argues it has a duty to protect its citizens from TTP attacks, which killed over 500 people—including 311 soldiers—between January and September 2025.
- The R2P doctrine allows for intervention to prevent mass violence, but it also demands multilateral coordination, proportionality, and last-resort status—conditions not clearly met by Pakistan's unilateral strikes.
- By acting without international consensus or Afghan cooperation, Pakistan risks overreach, potentially violating ethical and legal standards even while claiming moral justification.

Ethics of Retaliation

- Afghanistan's military response, including claims of killing 58 Pakistani soldiers, raises concerns

about proportionality and escalation.

- Just War Theory requires that retaliation be measured, discriminate between combatants and civilians, and avoid unnecessary harm—principles difficult to verify amid conflicting battlefield reports.
- Analysts suggest the Taliban's response may have exceeded initial plans, indicating poor control and miscalculation, which further destabilizes the region.

Humanitarian Impact

- The conflict has caused significant civilian suffering, with border communities in Kurram and Bajaur experiencing displacement and sporadic violence.
- Pakistan's deportation of over a million Afghan refugees since 2024 has exacerbated humanitarian crises, drawing criticism for targeting vulnerable populations.
- Both states bear ethical responsibility under international humanitarian law to minimize harm to non-combatants, yet military actions appear to prioritize strategic goals over civilian welfare.

Ethics of Blame and Narrative

- Pakistan blames Afghanistan for harboring TTP militants, while Afghanistan accuses Pakistan of externalizing its internal security failures.
- Constructivist ethics critique the use of nationalist narratives to justify violence, urging transparency and dialogue instead of blame-shifting.
- The Taliban fears internal revolt if it moves against the TTP, given ideological and personal ties, complicating its ability to act as a responsible sovereign—yet this does not absolve it of ethical obligations.

India's Ethical Role

- India's diplomatic outreach, including Foreign Minister S. Jaishankar's visit to Kabul, signals a shift in regional engagement, contrasting with Pakistan's isolation.
- India faces ethical choices: whether to mediate, provide humanitarian aid, or leverage the crisis for strategic advantage.
- A constructive role—such as facilitating dialogue or supporting refugee relief—would position India as a regional stabilizer, while opportunism could deepen instability.

In sum, the conflict reflects a breakdown in ethical statecraft, where security concerns override norms of sovereignty and humanitarian protection. Sustainable peace requires not only military restraint but also ethical accountability, transparent dialogue, and regional cooperation grounded in shared responsibility.

National Food Security Act: Legal Framework, Role, and Challenges

The National Food Security Act (NFSA), enacted in 2013, aims to provide food and nutritional security by ensuring access to adequate quantity of quality food at affordable prices, enabling people to live with dignity.

Key Highlights

- The NFSA beneficiary will get free rations vis-à-vis ₹1/2/3 for coarse cereals, wheat etc. for 1 year.
- The government has discontinued the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) due to
 - Reduced food grain stock.
 - Increased economic costs.
- Under PMGKAY government provided additional rations free of cost to curb impact of Covid-19.

The NFSA, 2013

- NFSA 2013, provides food and nutritional security to beneficiary households.
- Covers 75% of the rural and up to 50% of the urban population.
- Eligibility → 2 categories
 - Households under Antyodaya Anna Yojana (AAY).
 - Priority Households (PHs) by State Governments.
- Key Provisions-
 - 35kgs free food grains per month to each AAY household.
 - 5 Kgs subsidized food grains per person per month to PHs.
 - ₹6,000 Meal-maternity benefit to pregnant women and lactating mothers (during pregnancy+6 months post-delivery).
 - Food security allowance if non-supply of entitled food grains or meals.
 - Grievance redressal mechanisms at the district and state level.

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20 YEARS
483 OFFICERS

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Coverage

- Covers up to 75% of rural and 50% of urban populations (about two-thirds of India's population).
- Beneficiaries receive subsidized food grains under the Targeted Public Distribution System (TPDS).

Key Provisions

Subsidized Food Grains

- Government supplies subsidized food grains monthly to beneficiaries identified by state governments.
- Beneficiaries categorized into:
 - Antyodaya Anna Yojana (AAY): 35 kg food grains/month per household.
 - Priority Households (PHH): 5 kg per member/month (rice at ₹3/kg, wheat at ₹2/kg, coarse grains at ₹1/kg).

Nutritional Support

- Children aged 6 months to 14 years receive free nutritious meals via Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes.
- Pregnant women and lactating mothers receive maternity benefit of ₹6,000 over six months.

Institutional Framework

- State Food Commissions for monitoring.
- District-level grievance redressal mechanisms.
- Mandatory social audits to ensure transparency.

Significance

Legal Right to Food

- Marks shift from welfare to a legal rights-based approach, obliging the government to provide food.
- Citizens can seek judicial recourse if denied entitlements.

Food & Nutritional Security

- Ensures affordable access to staples, reducing hunger and vulnerability to food price shocks.
- Supports marginalized communities including SC/STs, women, and children.

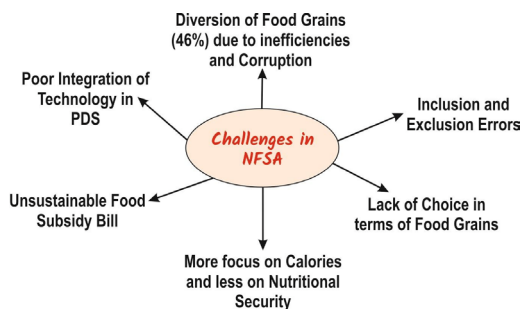
Economic Impact

- Food subsidy frees household income for other needs, aiding poverty reduction.
- Acts as crisis management tool (e.g., during COVID-19).

PDS Reforms

- Boosted adoption of technology (e-PDS, biometric authentication).
- Enhanced grievance redressal and accountability.
- Portability through One Nation, One Ration Card (ONORC) scheme benefits migrants.

Challenges



Leakage and Inefficiency

- Foodgrain diversion, corruption, and beneficiary identification errors persist.

Quality and Nutrition Deficits

- Often poor-quality grains; limited provisions for pulses, oils, and dietary diversity.

Fiscal Sustainability

- High subsidy burden strains finances.
- Storage and buffer stock maintenance costly.

Infrastructure Gaps

- Poor logistics and inadequate storage facilities cause wastage.

Inclusion and Exclusion Errors

- Eligible households left out; ineligible often included.
- Migration and urbanization issues insufficiently addressed.

Implementation Weaknesses

- Poor enforcement of grievance mechanisms.
- Transparency and accountability need strengthening.

Way Forward

- Update beneficiary coverage based on latest population data.
- Use dynamic, tech-driven criteria for beneficiary identification.
- Universalize and improve ONORC infrastructure.
- Mandate fortification of distributed grains.
- Integrate local fresh produce into food distribution.

- Modernize supply chain with computerized, improved storage.
- Transform NFSA into a nutrition-sensitive, transparent social security pillar.

Green crackers

Green crackers are an eco-friendlier alternative to traditional firecrackers, developed to reduce pollution and health hazards during celebrations like Diwali.

Harmful Firecrackers

- Firecrackers are very harmful to human life as well as to the environment also.
- Firecrackers can develop several severe health effects in people such as breathing problems, heart diseases and nervous system disorders.
- Firecrackers increase the level of noise pollution very high which is also a dangerous thing for human health. Noise pollution due to firecrackers can cause restlessness, high blood pressure, permanent or temporary hearing loss, and a sleeping disorder. It can also cause poor cognitive development in children.
- Firecrackers are composed of substances such as carbon monoxide, cadmium, nitrates, chromium, aluminium, magnesium, lead, copper, potassium, sodium, zinc oxide, manganese dioxide etc. which can affect health very badly if inhaled or ingested. Sometimes accidents happen due to fireworks.
- One can lose his or her eyesight or hearing capacity.
- The accidents during bursting crackers also include major burns.

Chemicals Used in Green Crackers

Green crackers eliminate or sharply reduce aluminium, barium, potassium nitrate, and carbon, which are commonly found in conventional crackers. Instead of barium nitrate, which is harmful and commonly used for green coloration, green crackers deploy safer alternatives or significantly lower amounts of barium compounds.

Nitrogen-based compounds, eco-safe oxidizers, and additives like zeolite and iron oxide are used to further reduce emissions and particulate matter.

Water-releasing agents and dust suppressants are incorporated to reduce air pollution, along with binders such as dextrin made from starch.

- **Potassium Nitrate (KNO_3):** Used as an oxidizer, but in reduced quantities compared to traditional crackers.
- **Activated Carbon:** Helps absorb pollutants and reduce emissions.
- **Zeolite:** A microporous mineral that traps toxic gases like sulfur dioxide and nitrogen oxides.
- **Magnesium and Aluminum:** Used in minimal amounts to produce bright sparks without excessive smoke.
- **Binders and Stabilizers:** Eco-friendly compounds that help maintain the shape and stability of the cracker without releasing harmful fumes.
- **Safe Thermite Compositions:** Used in STAR (Safe Thermite Cracker) variants to produce heat and light with lower emissions.

These crackers avoid banned substances like **barium nitrate**, which is a major pollutant in conventional

fireworks.

HOW GREEN ARE THE GREEN CRACKERS?

NEED FOR GREEN CRACKERS

- Conventional firecrackers made with **barium nitrate**, antimony and a range of **metals** that are linked to **respiratory diseases**, and even cancer
- In 2019, the Supreme Court **banned** conventional firecrackers

GREEN SPARKLERS

- 32% | Potassium nitrate
- 40% | Aluminium powder
- 11% | Aluminium chips
- 17% | Proprietary additives

Reduce particulate matter PM10 and PM2.5 by 30%

SAFE WATER RELEASER BOMB

- 72% | Proprietary additive
- 16% | Potassium nitrate oxidiser
- 9% | Aluminium powder
- 3% | Sulphur

Reduces PM10 and PM2.5 by 30%

GREEN FLOWER POT

- One of the most popular fireworks. Mixture of **water and lime** chemical-ly stored in the cracker
- When lit, the effulgence also triggers water. **Makers** claim that the moisture wets the dust-and-smoke particles

FINDING GREEN CRACKERS

Available with companies approved by PESO and listed on its website. The companies registered with Neeri listed on its website

Identifying green crackers
Green logo of Neeri and encrypted QR codes on packs

AIR QUALITY MATTERS

No to crackers if air quality is poor. Use only green crackers if air quality is moderate or below

NEERI PROCESS

- Substituted barium nitrate with potassium nitrate and zeolite
- Lab tests show nearly 30% drop in particulate matter. Sulphur dioxide and nitrous oxide emissions too dipped
- Neeri website states bursting green crackers emits similar level of sound (100-10dBA) like conventional crackers

POLICE ACTION

Special police squads will be deployed to ensure non-green or foreign crackers are not sold. City police have issued permission to around 950 cracker shops as per guidelines. MPCB experts will accompany the squads. Crackers without green logos will be seized and traders will face action

How Colors Are Produced?

The distinct **colors in firecrackers** are produced by **metal nitrate and chloride salts** that emit characteristic hues when heated during combustion.

When these metal salts are heated, their atoms become excited and then release energy as visible light upon returning to a stable state. The wavelength of this emitted light determines the color observed.

Common Compounds and Colors

Color	Metal	Common Nitrate/Chloride Salts Used	Example Formula
Red	Strontium	Strontium nitrate or carbonate	$Sr(NO_3)_2$, $SrCO_3$
Orange	Calcium	Calcium nitrate or chloride	$Ca(NO_3)_2$, $CaCl_2$
Yellow	Sodium	Sodium nitrate	$NaNO_3$
Green	Barium	Barium nitrate or	$Ba(NO_3)_2$, $BaCl_2$

		chloride	
Blue	Copper	Copper nitrate or chloride	$Cu(NO_3)_2, CuCl_2$
Violet	Potassium/Rubidium	Potassium nitrate or rubidium nitrate	$KNO_3, RbNO_3$
White/Silver	Magnesium, Aluminium, Titanium	Metallic powders	Mg, Al, Ti

Role of Nitrate Salts

Most firecrackers use **nitrate salts as oxidizers**, supplying the oxygen necessary for combustion while also serving as **color producers** when combined with metals such as strontium (red) or barium (green). The specific emission wavelength from each metal ion results in the colorful displays seen in pyrotechnics.

9884 554 654 COLOURS OF HAZARD

Chemical compounds used as colourants in fireworks, and their impact on health

BLAZING REDS	Lithium compounds	Toxic, irritating fumes when burnt
GLITTERING GREENS	Barium nitrate	Can irritate respiratory tract, have possible radioactive fallout
BRILLIANT WHITES	Aluminium	Contact dermatitis, bioaccumulation
BLUES	Copper compounds	Cancer risk, bioaccumulation
GLITTER EFFECTS	Antimony sulphide	Toxic smoke, possible carcinogen

SULPHUR DIOXIDE	Acid rain
POTASSIUM NITRATE	Carcinogenic, toxic dust
AMMONIUM/POTASSIUM PERCHLORATE	Contaminate ground water, may cause thyroid problems
LEAD DIOXIDE/NITRATE/CHLORIDE	Development danger for unborn children, poisonous
MERCURY	Toxic heavy metal, bioaccumulation
NITRIC OXIDE	Toxic if inhaled
NITROGEN DIOXIDE	Highly toxic if inhaled
OZONE	Greenhouse gas
STRONTIUM COMPOUNDS	Can replace calcium in body, toxic

Minimal Aluminum), and STAR (Safe Thermite Cracker), each tailored to minimize specific pollutants.

SWAS, SAFAL, STAR

- **SWAS – Safe Water Releaser**
 - **Function:** Releases water vapor during combustion to suppress dust and dilute gaseous emissions.
 - **Pollution Control:** Reduces particulate matter and gaseous pollutants like SO_2 and NO_x .
 - **Noise Level:** Maintained below 125 decibels.

Merits of Green Crackers

- **Lower Emissions:** They emit 30–40% less particulate matter compared to conventional firecrackers.
- **Reduced Noise Pollution:** Designed to produce less noise, typically below 125 decibels, which is safer for humans and animals.
- **Less Harmful Chemicals:** They avoid the use of banned substances like barium and reduce the release of sulfur dioxide and nitrogen oxides.
- **Government Approved:** Certified by agencies like CSIR-NEERI and PESO, ensuring safety and compliance with environmental standards.
- **Types Available:** Includes varieties like SWAS (Safe Water Releaser), SAFAL (Safe

- **Chemical Composition:** Avoids harmful chemicals like barium nitrate.
- **SAFAL – Safe Minimal Aluminium**
 - **Function:** Uses minimal aluminium in the composition, reducing the release of metal oxides.
 - **Pollution Control:** Controls emissions of particulate matter and heavy metals.
 - **Noise Level:** Also kept below 125 decibels.
 - **Chemical Composition:** Uses safer oxidizers and binders.
- **STAR – Safe Thermite Cracker**
 - **Function:** Uses thermite-based compositions to produce sound and light with lower emissions.
 - **Pollution Control:** Designed to minimize release of toxic gases and particulate matter.
 - **Noise Level:** Within permissible limits.
 - **Chemical Composition:** Thermite reactions are more controlled and cleaner than traditional firework reactions.
- All three brands of green crackers **can currently only be produced by licensed manufacturers, approved by the CSIR**. Additionally, the **Petroleum and Explosives Safety Organisation (PESO)** is tasked with certifying that the crackers are made without arsenic, mercury, and barium, and are not loud beyond a certain threshold.
- Furthermore, green crackers can be differentiated from conventional crackers in retail stores by a **green logo printed on their boxes**, along with a Quick Response (QR) coding system.

Petroleum and Explosives Safety Organisation

PESO is an office under the Department for Promotion of Industry and Internal Trade, **Ministry of Commerce and Industries**.

- It was established in 1898 as a nodal agency for **regulating safety of substances such as explosives, compressed gases and petroleum**.
- Its head office is located in **Nagpur, Maharashtra**.

Demerits of Green Crackers

- **Still Polluting:** Despite reduced emissions, they still release ultrafine particles that can affect respiratory health, especially in polluted cities.
- **Limited Availability:** Not as widely available as traditional crackers, and often more expensive due to specialized manufacturing.
- **Short-Term Impact:** Their benefits are marginal if used in large volumes or in areas with already high pollution levels.
- **Public Awareness:** Many people are unaware of how to identify genuine green crackers, leading to misuse or purchase of mislabeled products.

Green crackers are thus a step forward but not a complete solution. They help reduce the environmental impact of festivities, but responsible use and broader pollution control measures are still essential.

E-crackers/Electronic crackers

E-crackers, or **electronic crackers**, are a modern, eco-friendly alternative to traditional firecrackers.

Instead of relying on chemical combustion, they use electronic components to simulate the sound and light effects of fireworks—without the harmful emissions.

- Operate using **LED lights, speakers, and remote controls**.
- Often shaped like traditional firecrackers (e.g., ladi, chakri) but contain no explosive materials.

Merits of E-Crackers

- **Zero pollution:** No smoke, toxic gases, or particulate matter.
- **Safe for all ages:** No risk of burns or injuries.
- **Reusable:** Can be used multiple times, making them cost-effective in the long run.
- **Pet and environment friendly:** No loud bangs or harmful residues.

Demerits of E-Crackers

- **Lack of authenticity:** May not fully replicate the thrill of traditional fireworks.
- **Initial cost:** Higher upfront cost compared to regular crackers.
- **Limited availability:** Not yet widely adopted or available in all regions.

Green crackers and e-crackers represent a significant shift toward **eco-conscious celebrations**. While green crackers reduce harmful emissions by using safer chemicals and controlled combustion, e-crackers go a step further by **eliminating pollution altogether** through electronic simulation.

- **Green Crackers** offer a compromise between tradition and sustainability, with reduced noise and chemical pollutants. However, they still contribute to air quality concerns if used excessively.
- **E-Crackers** are the cleanest option, ideal for urban areas and sensitive groups, though they may lack the sensory thrill of traditional fireworks.

Every step toward cleaner celebration helps protect our health, climate, and future.

Policy Analysis and Strategic Implications of Development Initiatives in Great Nicobar

Great Nicobar Island, located in the southernmost part of the Nicobar archipelago, is a globally significant biodiversity hotspot and ecological treasure of India. Covering over 103,000 hectares, this island is characterized by extensive tropical evergreen rainforests, rich marine ecosystems including coral reefs and seagrass meadows, and a wide variety of endemic and endangered flora and fauna. It serves as a vital carbon sink and natural buffer against natural disasters like tsunamis, given its location in a highly seismic zone. The island is also home to indigenous tribes such as the Shompen and Nicobarese, who depend closely on its forests and coastal resources for their livelihood and cultural identity. Against this backdrop, India's ambitious Great Nicobar development project aims to transform the island into a strategic economic and defense hub, raising intense debates about balancing developmental gains with conserving fragile ecosystems and tribal rights.

Ecological Significance of Great Nicobar Island

- Great Nicobar is one of India's richest biodiversity zones, with over 85% covered in tropical rainforest acting as crucial carbon sinks.
- The island hosts unique flora and fauna including endangered species like the Nicobar megapode and leatherback sea turtles.
- It is part of a biodiversity hotspot and plays a vital global role in climate regulation.
- The island's coastal areas, including coral reefs and mangrove belts, provide natural defenses

against tsunamis and storms.

- Great Nicobar lies in a high seismic zone prone to earthquakes and tsunamis, increasing its ecological vulnerability.

Developmental Ambitions and Project Components

- The government plans a mega infrastructure project including a transshipment port, township, greenfield airport, and power plants.
- Out of the island's vast area, 166 square kilometers have been allocated for development.
- The project aims to boost strategic, economic, and connectivity benefits for India, especially near vital trade routes like the Malacca Strait.

Environmental Concerns and Challenges

- Massive deforestation is a key issue, with approximately 9.6 to over 18 million trees expected to be cut, destroying 130 sq km of primary rainforest.
- The loss of pristine forests threatens biodiversity, including the habitats of endangered species and vital marine ecosystems.
- There is significant concern over destruction of coral reefs, seagrass meadows, and turtle nesting beaches due to dredging and port construction.
- Coastal Regulation Zone (CRZ 1a) protections have allegedly been bypassed or altered to permit development in ecologically sensitive areas.
- Compensatory afforestation plans involve planting trees in degraded areas far from Nicobar, which cannot replicate lost biodiversity.
- Geological and climatic risks include the island's vulnerability to earthquakes, tsunamis, heavy rainfall, and the impacts of climate change like sea-level rise.

Social and Tribal Impact

- The project affects the Shompen and Nicobarese tribes, classified as Particularly Vulnerable Tribal Groups (PVTGs), who rely on the forest ecosystem for food, shelter, and cultural identity.
- Forced relocation and dismantling of socio-ecological balance raise serious humanitarian and rights concerns.

Legal and Institutional Controversies

- Confidential reports clearing the project have been challenged for lack of transparency and inadequate environmental impact assessment.
- Legal challenges continue over environmental clearances, especially regarding violations of coastal zone regulations.
- The National Green Tribunal has intervened to reassess the project's environmental impact.

Balancing Development and Conservation

- The government claims the project incorporates environmental safeguards and consultations with scientific institutions.
- Measures like limited land allocation, compensatory afforestation, and species-specific conservation plans are proposed.
- Experts emphasize the need for phased, ecologically sensitive development that includes tribal

participation and scientific monitoring.

- Continuous post-project environmental assessment is necessary to ensure mitigation measures' effectiveness.

The Great Nicobar Project exemplifies the global tension between development and ecological preservation. While promising strategic and economic gains, the project endangers a unique ecosystem of immense biodiversity and cultural heritage. Thoughtful, inclusive, and scientifically guided approaches are essential to protect the island's nature while pursuing India's development priorities, reviving crucial discussions about the legal rights of nature in balancing human progress and environmental stewardship.

Is the fiscal architecture of municipalities flawed?

The fiscal architecture of municipalities in India is flawed primarily due to excessive dependence on state government transfers and weak own-source revenues such as property tax. Despite the 74th Constitutional Amendment (1992) that aimed to empower urban local bodies (ULBs), municipalities have limited financial autonomy because most major taxes like GST are centralized at the state and central government levels. This centralization restricts municipalities' capacity to independently raise adequate revenue and finance infrastructure projects. Many municipalities also suffer from poor tax assessment and collection systems, further limiting their revenue base.

Issues

Erosion of Municipal Revenue Post-GST

- **Pre-GST:** Cities collected octroi, entry tax, and local surcharges.
- **Post-GST:** These were subsumed, leading to a 19% drop in municipal own-source revenue.
- **Result:** Cities became heavily dependent on state and central transfers.

Centralization vs. Decentralization

- **Paradox:** Power is centralized (taxation), but responsibility is decentralized (service delivery).
- **Implication:** Cities are expected to deliver on solid waste, housing, climate resilience, etc., without adequate funds.

Municipal Bonds – A Flawed Solution?

- **Policy Push:** NITI Aayog and others promote municipal bonds.
- **Challenges:**
 - Creditworthiness judged narrowly by “own revenue” (property tax, user fees).
 - Grants and transfers are wrongly treated as “non-recurring” or “charity.”
- **Constitutional View:** Grants are entitlements under the 74th Amendment, not favors.

Critique of “User Pays” Model

- **Problem:** Over-reliance on property tax and user fees.
- **Equity Concern:** Burdens low-income residents; commodifies public goods like water and sanitation.
- **Revenue Reality:** Property tax forms only 20–25% of potential revenue and is politically constrained.

Scandinavian Model

- **Example:** Denmark, Sweden, Norway allow municipalities to levy income tax.
- **Benefits:**
 - Transparent citizen-government fiscal relationship.
 - Long-term planning and accountability.
 - Grants treated as part of a shared fiscal ecosystem.

Reimagining Fiscal Federalism

- **Recognize Grants as Legitimate Income:** Include them in creditworthiness assessments.
- **Reform Rating Systems:** Factor in governance capacity (transparency, audits, citizen participation).
- **Leverage GST Compensation:** Allow cities to use it as collateral for borrowing.
- **Ensure Predictable, Adequate, Untied Transfers:** Both own-source and constitutional transfers.

Reforming the fiscal federal structure to devolve more stable and untied revenue sources to municipalities is crucial for them to fulfill their expanded urban development roles effectively.

Unlocking Innovation: Lessons for India from Nobel-Winning Ideas

The 2025 Nobel Prize in Economics was awarded to Joel Mokyr, Philippe Aghion, and Peter Howitt for their work on the role of knowledge in economic growth, particularly the concept of “creative destruction.” Their insights offer vital lessons for India’s ambition to become a global knowledge power.

Takeaways

- **Knowledge as an Evolutionary Process:** Growth is not just about incentives or markets—it’s about institutions, culture, and the capacity to respond to necessity. Knowledge creation is cumulative and path-dependent.
- **Creative Destruction:** Innovation thrives when outdated systems are dismantled. India must build legal, regulatory, and social frameworks that allow new ideas to flourish while ensuring social cohesion.
- **Structural Disconnects in India:**
 - Fragmented research ecosystems
 - Weak links between academia, industry, and policy
 - Overemphasis on rote learning over critical thinking
 - Inadequate investment in foundational research
- **Beyond Economic Reductionism:** Mokyr emphasizes that knowledge cannot be “switched on” by market forces alone. It requires nurturing intellectual curiosity, institutional support, and long-term vision.

Policy Implications for India

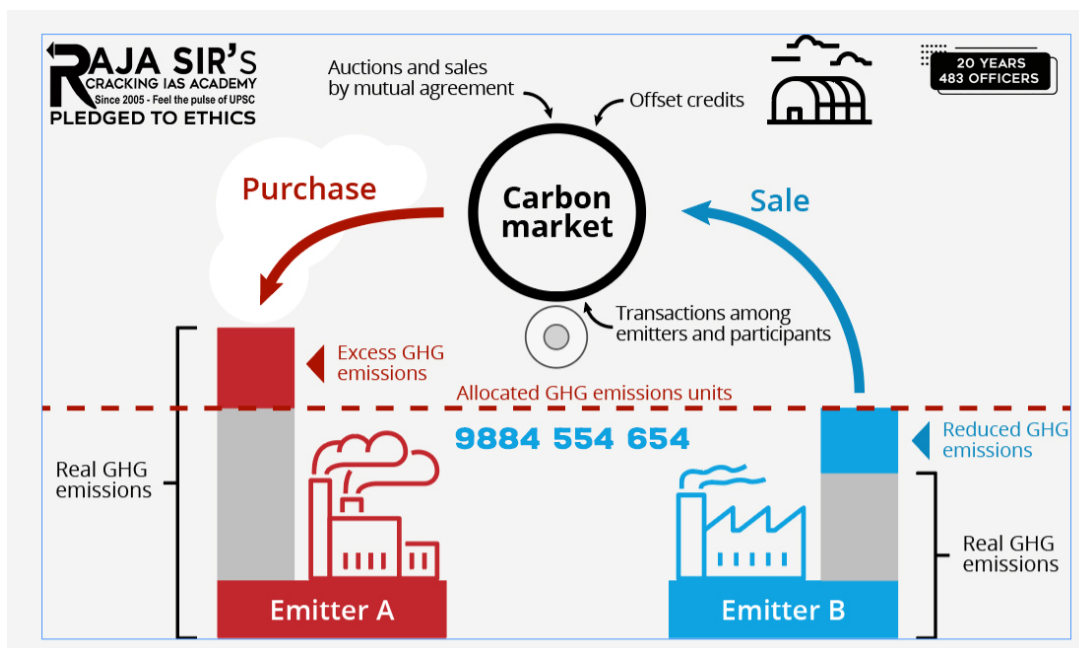
- **Strengthen Knowledge Institutions:** Reform universities and research bodies to foster interdisciplinary collaboration and autonomy.
- **Incentivize Innovation:** Create robust IP regimes, reduce bureaucratic hurdles, and support risk-taking in science and technology.
- **Invest in Human Capital:** Prioritize education reforms that promote inquiry, creativity, and lifelong learning.

- **Bridge the Knowledge-Policy Gap:** Encourage evidence-based policymaking and integrate academic insights into governance.

To truly harness its demographic dividend and intellectual potential, India must go beyond superficial reforms and invest in building a cohesive knowledge ecosystem. This entails strengthening academic-industry linkages, reforming education to foster inquiry, and nurturing institutions that support long-term innovation. The Nobel laureates' message is clear: knowledge is not a commodity—it is a culture. If India can bridge its internal disconnects, it will not only accelerate economic growth but also emerge as a beacon of intellectual leadership in the 21st century.

India's Carbon Market: A Pathway to Sustainable Growth

The conventional growth model, driven by industrialization, has pushed planetary boundaries beyond safe limits. To ensure sustainable development, economic growth must be decoupled from environmental degradation. Carbon markets provide financial incentives to industries for reducing greenhouse gas emissions while continuing economic expansion.



A carbon market enables entities to buy and sell carbon credits, each representing the removal or reduction of one ton of CO₂-equivalent emissions from the atmosphere. Credits are generated through activities like renewable energy, reforestation, agroforestry, or biochar production. Companies purchase these credits to offset their emissions as they transition towards cleaner technologies.

India's Carbon Market Framework

Carbon Credit Trading Scheme (CCTS)

- Established under the Energy Conservation (Amendment) Act, 2022.
- Includes both compliance (mandatory) and voluntary mechanisms aligned with Article 6 of the Paris Agreement.
- Overseen by the National Designated Authority comprising 21 members, ensuring transparency and accountability.
- Implemented operationally by the Bureau of Energy Efficiency (BEE), which sets emission

intensity benchmarks and monitors compliance.

- A national registry and trading platform track transactions, supported by approved methodologies spanning biomass, compressed biogas, and low-emission agriculture.

Key Features of India's Carbon Market

- **Emission Intensity Targets:** Legally binding limits for energy-intensive sectors such as aluminium, cement, pulp and paper, chlor-alkali, iron and steel, petrochemicals, and textiles.
- **Trading Mechanism:** Entities exceeding reduction targets can sell surplus credits to those falling short, encouraging cost-effective decarbonization.
- **Global Alignment:** Supports India's updated Nationally Determined Contributions (NDCs) to reduce emission intensity by 45% by 2030 (relative to 2005 levels).

Challenges and Safeguards

Land Rights and Community Consent

- Many offset projects involve land use changes impacting local communities, especially tribal and marginalized groups.
- The current framework lacks sufficient focus on securing informed consent and protecting land rights, risking dispossession and livelihood disruption.

Equitable Benefit Sharing

- Carbon revenues must be fairly distributed, ensuring marginalized farmers and tribal communities share financial gains.

Transparency and Accountability

- Past global experiences warn against greenwashing—superficial environmental claims with no real emission reductions.
- Opaque contracts and power imbalances increase exploitation risks, underscoring the need for clear, community-centric agreements.

Environmental Integrity

- Robust monitoring, reporting, and verification (MRV) systems are essential to confirm genuine emission reductions and prevent carbon leakage.

Learning from the Kenyan Experience

- The Kenyan carbon project highlights risks if socio-environmental safeguards are ignored—disrupting customary land use and local livelihoods under a “green veneer.” This example underscores the importance of integrating land rights and equitable revenue sharing in India's carbon market.

The Way Forward: Balanced and Transparent Regulation

- Avoid overregulation while preventing exploitative practices.
- Embed free, prior, and informed consent (FPIC) and formalize benefit-sharing arrangements.
- Promote community oversight and stakeholder consultations.
- Develop robust MRV systems to maintain environmental integrity and build trust.

A Just and Sustainable Carbon Market

India's carbon market offers a strategic tool to meet climate goals while supporting economic growth. However, its success hinges on inclusive policies that empower vulnerable communities and safeguard

ecological integrity. Ethical safeguards are crucial to transform carbon markets into instruments of climate justice rather than instruments of inequality.

Life-Saving or Misleading? The ORS Controversy Unbottled

India has launched a nationwide crackdown on fake ORS (Oral Rehydration Solution) products following widespread concerns about misleading health claims and public health risks.

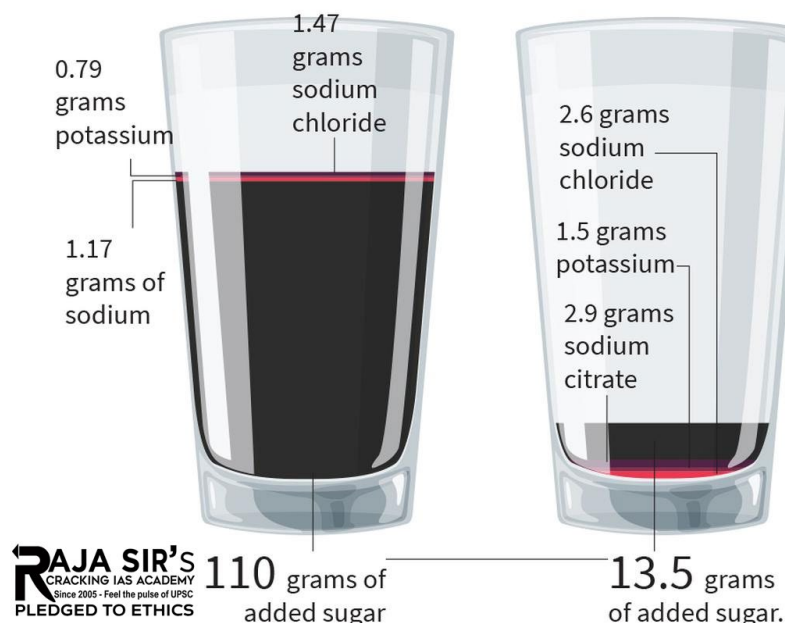
Risky choice **9884 554 654**

20 YEARS
483 OFFICERS

High-sugar drinks should not be used in place of ORS -- a life-saving therapy that has saved millions of lives

In comparison, an ORS packet produced by pharmaceutical organisations and sold in the market contains approximately total sugar content of

The World Health Organisation (WHO) recommends an Oral Rehydration Solution (ORS) with a total osmolarity of 245 mOsm/L. This standard formula contains



FSSAI's Ban on Misleading "ORS" Labels

- On October 14, 2025, the Food Safety and Standards Authority of India (FSSAI) issued a directive prohibiting all food and beverage companies from using the term "ORS" on product names, trademarks, or labels—even with a prefix or suffix—unless the formulation matches the World Health Organisation (WHO)-approved oral rehydration solution formula.
- The move came after investigations revealed that many companies were marketing sweetened, fruit-flavored beverages and powders as "ORS drinks," misleading consumers into believing they were medically approved rehydration products.

Composition and Consumer Deception

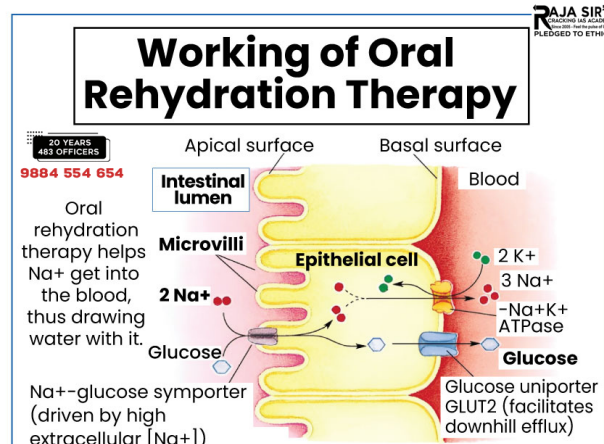
- Authentic ORS, as per WHO standards, must contain precise amounts of **glucose anhydrous (13.5 g), sodium chloride (2.6 g), potassium chloride (1.5 g), and trisodium citrate (2.9 g) per liter.**
- Fake ORS products on the market often replaced glucose with cheaper sugars, added artificial

flavors and colors, and lacked the balanced electrolytes essential for safe rehydration—posing health risks, especially for sick children or dehydrated patients.

How does oral rehydration solution work?

ORS typically contains a precise mix of:

- **Glucose (sugar)**
- **Sodium and potassium salts**
- **Citrate or bicarbonate (a base)**
- **Clean water**
- **Sodium-Glucose Co-Transport:** The magic lies in how sodium and glucose work together. In the small intestine, glucose helps sodium get absorbed into the bloodstream through a co-transport mechanism. Water follows this absorption due to osmosis, rapidly rehydrating the body.
- **Electrolyte Replenishment:** Sodium and potassium are essential electrolytes lost during dehydration. ORS restores their balance, helping maintain nerve function, muscle contractions, and fluid balance.
- **Acid-Base Balance:** Some ORS formulations include a base (like citrate) to counteract acidosis, a condition where the body becomes too acidic due to severe diarrhea.



- ORS is absorbed even when vomiting or diarrhea is ongoing.
- It's simple, inexpensive, and can be administered without medical supervision.
- It prevents and treats dehydration effectively, reducing the need for intravenous fluids in many cases.

Campaign and Legal Action

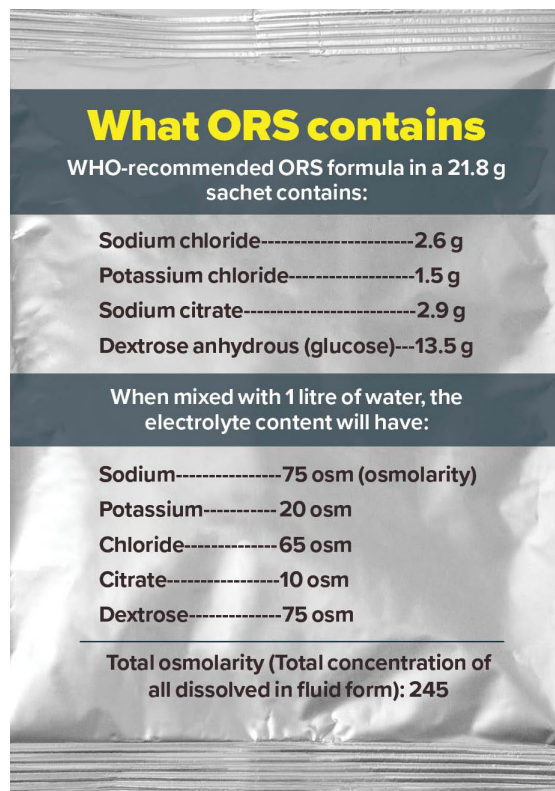
- This regulatory action marks the culmination of an eight-year public campaign led by Hyderabad-based pediatrician Dr. Sivaranjani Santosh, who exposed how sugary drinks branded as “ORS” worsened dehydration in children suffering from diarrhea. Her efforts were supported by the Endocrine Society of India, and a related case is pending before the Telangana High Court to curb deceptive health marketing practices.

Enforcement Measures

- FSSAI has directed all state and UT food safety commissioners to immediately remove “ORS” tags from food or drink products and enforce stringent penalties for violations under Sections 52 and

53 of the Food Safety and Standards Act, 2006.

- Only pharmaceutical-grade ORS solutions meeting WHO's therapeutic formula can continue to use the label "ORS" in India.



What ORS contains	
WHO-recommended ORS formula in a 21.8 g sachet contains:	
Sodium chloride-----	2.6 g
Potassium chloride-----	1.5 g
Sodium citrate-----	2.9 g
Dextrose anhydrous (glucose)---	13.5 g
When mixed with 1 litre of water, the electrolyte content will have:	
Sodium-----	75 osm (osmolarity)
Potassium-----	20 osm
Chloride-----	65 osm
Citrate-----	10 osm
Dextrose-----	75 osm
Total osmolarity (Total concentration of all dissolved in fluid form): 245	

Significance of the Ban

- This ban aims to protect public health and restore consumer trust by ensuring that "ORS" — a life-saving medical product for dehydration — is no longer misused as a marketing gimmick by beverage companies.
- Health experts have called it a landmark step toward curbing deceptive advertising and safeguarding vulnerable populations such as children and diabetics from misleading products.

Ethical theories Applied

Producing fake ORS products can be ethically analyzed through several moral theories that explain the motivations and wrongness of such conduct. The most relevant ones are **ethical egoism**, **utilitarianism**, and **deontological ethics**.

Ethical Egoism

Ethical egoism holds that an action is morally right if it serves one's self-interest. Companies manufacturing fake ORS often prioritize profit motives over consumer safety—an outcome consistent with egoistic thinking. In this view, the unethical producers act from greed, choosing actions that benefit their market share or brand reputation at the expense of public health. Although egoism can drive innovation in capitalism, unrestrained self-interest becomes morally corrupt when it endangers lives and misleads consumers.

Utilitarian Perspective

From a utilitarian framework (Bentham and Mill), producing fake ORS is unethical because its

consequences lead to greater harm than good. The fake products—high in sugar and lacking proper electrolytes—worsen dehydration and health outcomes, particularly in children suffering from diarrhea. Thus, the overall suffering and potential fatalities far outweigh the profit or pleasure of a few manufacturers.

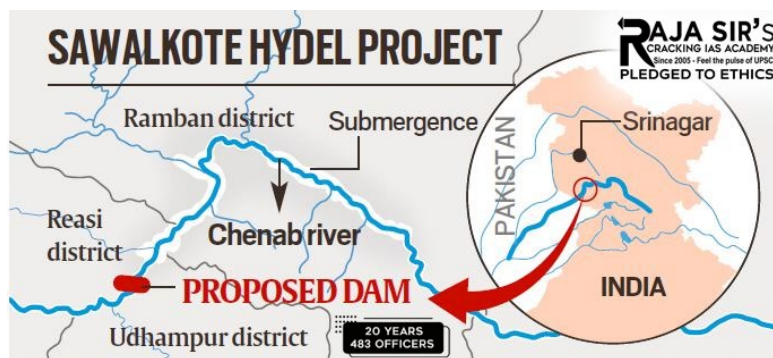
Deontological Ethics

Deontological (Kantian) ethics emphasizes moral duty and truthfulness. Producing fake ORS violates the categorical imperative by treating consumers merely as means to profit rather than as ends deserving honesty and safety. Mislabeling energy drinks or hiding warnings in unreadable disclaimers directly contradicts a business's moral duty to be transparent and respect human dignity.

The act of producing fake ORS is hence best explained by **ethical egoism** as the driving force behind the behavior, but condemned by **utilitarianism** and **deontology** for its harmful consequences and moral deceit. India's decisive action against fake ORS products is a landmark example of ethical governance balancing commercial interests with societal welfare. It ensures that "ORS" remains a trusted life-saving solution, thereby safeguarding health, restoring public trust, and enforcing justice for the most vulnerable.

The Sawalkote Dilemma - Hydropower vs. Himalayan Fragility: A Governance Crossroads

The Sawalkote Hydroelectric Project is a planned 1.8-GW scheme on the Chenab River. It has gained geopolitical significance, especially post the Pahalgam attack, which led to India unilaterally suspending the Indus Waters Treaty (IWT). This project is part of a larger hydropower corridor on the Chenab, which already includes Dulhasti, Baglihar, and Salal projects.



Concerns

Strategic Push vs. Environmental Prudence

Despite its strategic importance, the project raises environmental concerns such as:

- Ignoring the cumulative impact on sediment loads and slope instability.
- The proposed gravity dam will create a reservoir of over 50,000 crore litres, functioning closer to a storage dam rather than a run-of-river scheme.
- Rehabilitation costs are minimal, accounting for just 0.6% of total expenditure, even though it will affect nearly 1,500 families and divert 847 hectares of forests.
- The project's strategic timing reflects India's intent to utilize its entitlement over western rivers after the IWT suspension.
- Proceeding with large projects without cooperative mechanisms could lead to international scrutiny, particularly by Pakistan which has challenged the suspension's legality.

Ecological Fragility

The Chenab already hosts multiple hydropower projects (Dulhasti, Baglihar, Salal), forming a “bumper-to-bumper” corridor. Ignoring cumulative impacts risks sediment overload, slope instability, and long-term ecological damage.

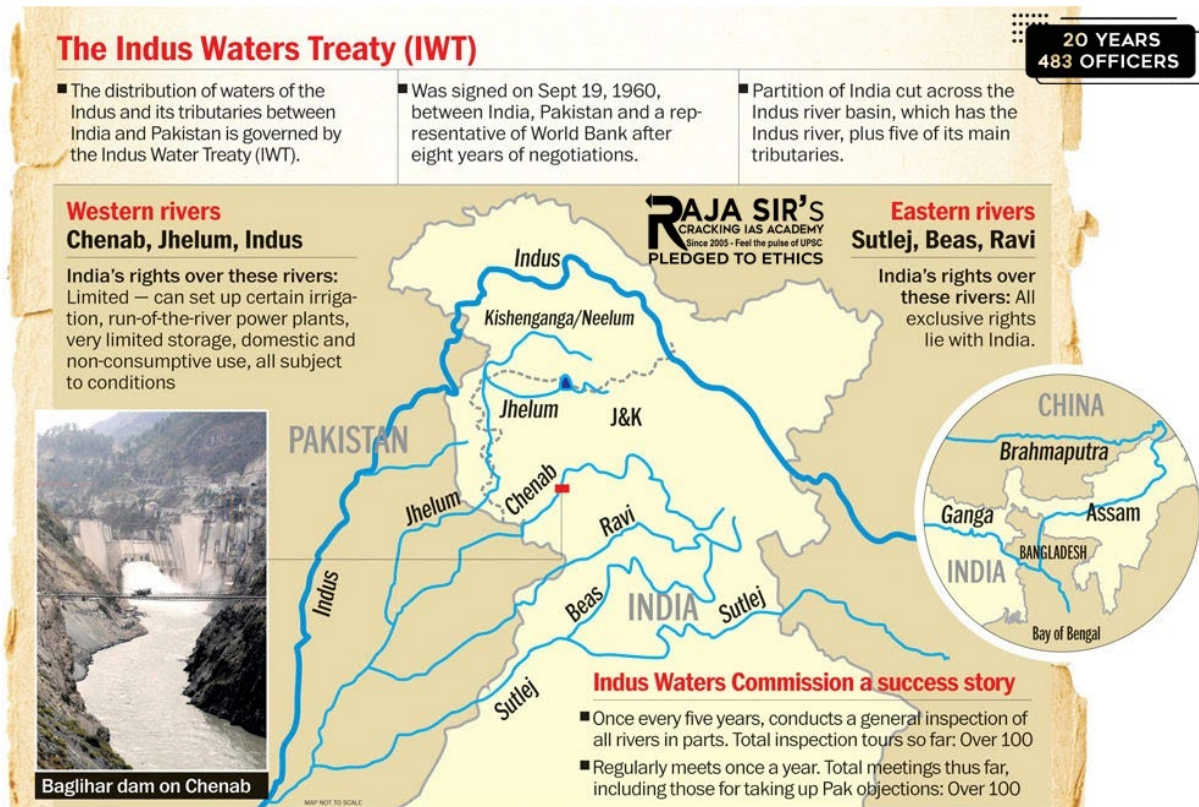
Governance Test

National security and ecological responsibility must reinforce—not undermine—each other. Fast-tracking without due diligence reflects poor governance.

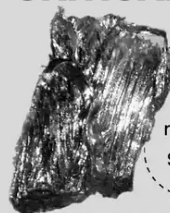
Road ahead

- **Cumulative Impact Assessment:** Mandatory for all Himalayan hydropower corridors.
- **Transparent Decision-Making:** Public consultations and scientific reviews must guide approvals.
- **Integrated River Basin Management:** A long-term strategy balancing energy needs with ecological sustainability.

The legacy of the Sawalkote project will depend on India's ability to balance strategic needs with ecological responsibilities, ensuring that national security and environmental stewardship reinforce each other.



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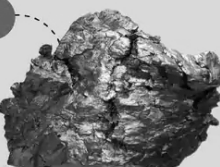


Samarium

Used in: Headphones, nuclear reactors, weapons – Samarium-cobalt magnets

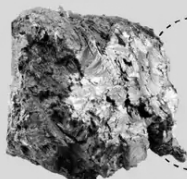
Gadolinium

Used in: MRI machines, nuclear reactors, radar systems.



Terbium

Used in: LED screens, lighting, naval sensors, high-temperature magnets.



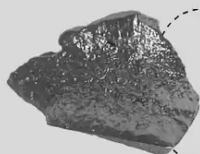
Dysprosium

Used in: Iron-boron magnets, generators, nuclear reactors, high-risk drives.



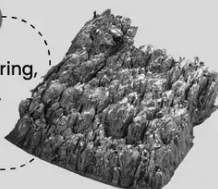
Lutetium

Used in: Petroleum refineries, cancer scanning, memory devices, electronics.



Scandium

Used in: Alloy manufacturing, sports bicycle frames, aerospace tools.



Yttrium

Used in: Radar systems, superconductors, electronics, camera lenses.



From Abundance to Relevance: India's Critical Mineral Challenge

India is endowed with 95 minerals, making it a mineral-rich country; however, it has not yet established a significant footprint in the critical minerals sector. Critical minerals such as lithium, cobalt, nickel, rare earth elements, graphite, and others are essential for emerging technologies, clean energy, electric vehicles, and advanced manufacturing. India is heavily dependent on imports for these critical minerals, facing about 100% import dependence for many including rare earths and lithium.

Recognizing this strategic vulnerability, the Government of India launched the National Critical Mineral Mission (NCMM) in January 2025, with an outlay of approximately Rs. 34,300 crores over seven years (2024-31). The Mission aims to promote extensive exploration, domestic production, sustainable mining, and recycling of critical minerals to reduce import dependence and strengthen supply chains. The NCMM includes:

- Fast-tracking exploration projects conducted by the Geological Survey of India and other stakeholders.
- Incentive schemes (approved Rs. 1,500 crore) to boost recycling capacity of critical minerals like lithium, cobalt, nickel, and rare earths.
- Promotion of private sector participation and overseas acquisition of critical mineral assets.
- Launching auctions for offshore mineral blocks such as polymetallic nodules.
- Legal and regulatory reforms under the Mines and Minerals (Development and Regulation) Amendment Bill, 2025, including prioritizing critical minerals mining under national security.
- Encouraging sustainable mining and addressing environmental and social concerns through updated regulatory frameworks.

Despite having a rich mineral base, India currently lags in critical mineral extraction and processing capabilities. The government is focusing on building an integrated ecosystem encompassing exploration, beneficiation, processing, and recycling of these minerals, aiming to ensure self-reliance and strategic autonomy, especially critical for India's clean energy and green technology

ambitions. The country is also investing in developing rare earth elements, currently dominated by China, to become a credible alternative global supplier.

IISc's Role

The Indian Institute of Science (IISc) is playing a pivotal role in advancing India's position in critical minerals crucial for future technologies.

IISc's Legacy and Innovations

- **Legacy in Mineral Technology:** IISc has developed 57 flow-sheets for various minerals and successfully translated basic research into industry-scale solutions.
- **Bioprocessing Innovations:** Demonstrated bioreactor technology has significantly improved gold and silver recoveries from 40% to over 90%.
- **Unique Contributions:** Prof. Brahm Prakash's work on hafnium–zirconium separation has prominently supported India's atomic energy programs.

Collaborations and Future Goals

- **Partnerships:** Collaborating with the Ministry of Mines and ANRF to advance the Critical Minerals Mission.
- **Translational Research:** Focus on aligning foundational science with industry needs to achieve national mission goals.
- **Centre of Excellence Potential:** Suggested as a key player in the National Critical Minerals Mission.

Government and Institutional Support

- **Secretary's Address:** Piyush Goyal emphasized IISc's potential to lead in refining technologies for lithium, cobalt, nickel, and rare earths.
- **Talent Development:** IISc will train future material scientists and engineers, ensuring a robust talent pipeline.
- **R&D Coordination:** Expected to coordinate research networks across various institutions to foster innovation and promote a circular economy.

Commitments and Future Plans

- **Administrative Cooperation:** Commitment to overcome procedural barriers for seamless partnerships.
- **Upcoming Meetings:** Plans for a focused meeting in Bangalore to showcase progress and deepen collaboration.

While India has vast mineral resources, including critical minerals, it is in the early stages of creating a footprint in the sector. The comprehensive National Critical Mineral Mission and associated policy reforms represent strategic steps toward securing sustainable and self-reliant critical minerals supply chain, thereby supporting India's energy security and industrial growth goals.

Reimagining Indian Diplomacy in a Fragmented World

India's foreign policy, once rooted in moral leadership and non-alignment, now faces a turbulent global landscape marked by **transactional alliances**, **declining multilateralism**, and **regional instability**. The editorial critiques India's diplomatic inertia and calls for a strategic overhaul.

Challenges

Erosion of Multilateralism

- The global shift toward unilateralism—especially post-Trump era—has weakened collaborative

platforms.

- India's continued reliance on Nehruvian idealism (non-alignment, moral diplomacy) appears outdated in this new geopolitical reality.

Diminishing Influence in West Asia

- India was excluded from the Gaza peace process, led by the U.S., Türkiye, Egypt, and Qatar.
- A low-level delegation to reconciliation events further signaled India's waning regional clout.

Strategic Myopia in the Neighbourhood

- India's passive stance on Taliban resurgence and instability in Pakistan, Nepal, and Sri Lanka reflects a lack of proactive regional engagement.
- Viewing Taliban attacks on Pakistan as "justice" is seen as dangerously shortsighted.

Fragile Engagement with China

- Diplomatic gestures mask unresolved border tensions post-Galwan.
- India's underestimation of China's hegemonic ambitions under Xi Jinping risks long-term strategic setbacks.

Way Forward

- **Strategic Renewal:** Move beyond rhetorical assertions of autonomy; align economic strength with geopolitical relevance.
- **Pragmatic Diplomacy:** Embrace flexibility, regional sensitivity, and realpolitik.
- **Civilisational Confidence:** Leverage India's cultural identity to build soft power and global partnerships.

A Committee for Minorities—In Name Only?

India's minority rights framework hinges on a delicate balance between constitutional promises and the institutions meant to uphold them. The National Commission for Minorities (NCM), envisioned as a guardian of inclusion and equality, now faces questions about its relevance and effectiveness. Its decline—marked by vacancies, limited autonomy, and weak statutory powers—signals deeper flaws in institutional design, where advisory bodies lack the teeth to enforce accountability.

National Commission for Minorities

- It is a **statutory body** established under the **National Commission for Minorities Act, 1992**, with the vision to **safeguard and protect the interests of minority communities**.
 - The first statutory Commission was constituted on **17th May 1993**.
- **Genesis:** The **Minorities Commission (MC)** was established in **1978** through a **Ministry of Home Affairs Resolution** and was moved to the newly created **Ministry of Welfare** in **1984**.
 - In **1988**, the **Ministry of Welfare** excluded **linguistic minorities** from the Commission's **jurisdiction**.
- **Composition:** It consists of a **Chairperson**, a **Vice-Chairperson**, and **five Members**, all **nominated by the Central Government**, but the **absence of a full body** has led to concerns over **inefficiency**.
 - Each member must belong to one of the **six notified minority communities: Muslim, Christian, Sikh, Buddhist, Parsi, and Jain**.
- **Powers and Tenure:** It has **quasi-judicial powers**, and each member serves a **three-year term** from

the date they assume office.

- **Removal:** The Central Government may remove the **Chairperson or any Member** of the NCM if they:
 - Are **adjudged insolvent**,
 - Take up **paid employment** outside their duties,
 - **Refuse or become incapable** of acting,
 - Are declared of **unsound mind** by a court,
 - **Abuse their office**, or
 - Are **convicted** of an offence involving **moral turpitude**.

Demographics

- Minorities constitute ~19.3% of India's population (Census 2011)

Constitutional Safeguards for Minorities

The Constitution of India does not explicitly define the term 'minority,' but it does recognize both religious and linguistic minorities. According to the NCM Act of 1992, a minority is defined as a community notified as such by the Central Government. In 1993, the Government of India recognized five religious communities—Muslims, Christians, Sikhs, Buddhists, and Parsis—as minority communities. Later, in 2014, Jains were also notified as a minority community.

As per the Census of 2011, minorities constitute approximately 19.3% of India's total population. The Constitution provides several safeguards for minorities, including:

- Article 29: The right of any section of citizens to conserve their distinct language, script, or culture.
- Article 30: The right of minorities to establish and administer educational institutions.
- Article 347: Special provisions relating to the language spoken by a section of the population of any State.
- Article 350-A: Provision for instruction in the mother tongue at the primary stage.
- Article 350-B: Provision for a Special Officer for Linguistic Minorities and his duties

Challenges Undermining the NCM

- *Operational Inactivity* - The NCM is currently non-operational due to vacancies in both the Chairperson and Member positions. The Delhi High Court, responding to a Public Interest Litigation (PIL), has directed the Central Government to reconstitute the Commission, highlighting concerns over administrative inaction and the erosion of institutional efficacy
- *Lack of Constitutional Status* - Since its inception in 1978, the Commission has not been granted constitutional status, which has limited its institutional support and authority. Efforts to strengthen its legal framework have remained inconclusive, leaving it as a statutory body with restricted powers.
- *Limited Statutory Powers* - Under the NCM Act of 1992, the Commission's powers are limited to those of a civil court, which significantly curtails its enforcement capacity. The establishment of the National Commission for Minority Educational Institutions (NCMEI) in 2004 further narrowed the NCM's functional scope, especially in education-related matters.
- *Lack of Autonomy* - The NCM operates under the administrative control of the executive, which limits its autonomy. There is inadequate follow-up on its reports and recommendations, reflecting a weak

implementation framework and low prioritization of minority welfare issues.

- *Symbolic vs Substantive Impact* - Despite its long existence and substantial annual budget, the NCM's impact on improving minority welfare remains limited. It is often perceived as a symbolic institution rather than a substantive one, raising serious questions about its efficiency and accountability.

Pathways to Reform

To enhance the effectiveness of the National Commission for Minorities, several reforms are necessary.

- *Elevate to Constitutional Status* - First, the NCM should be granted constitutional status, as recommended in its annual reports. This would ensure permanence, autonomy, and parity with other watchdog institutions like the National Commission for Scheduled Castes under Article 338. Amendments to the NCM Act of 1992 could expand its quasi-judicial powers and enforcement capacity.
- *Institutional Autonomy* - Second, the NCM must operate with greater institutional autonomy. It should have independent funding, staffing, and a reporting structure that reduces its dependence on the executive. Drawing inspiration from the Protection of Human Rights Act of 1993, the NCM could adopt transparent appointment procedures and annual reporting mechanisms similar to the National Human Rights Commission (NHRC) model.
- *Strengthen Coordination* - Third, coordination between the NCM and State Minority Commissions should be strengthened through the creation of a structured NCM-State Commissions Coordination Council. This would help streamline policy implementation and monitor minority welfare schemes such as the Prime Minister's New 15-Point Programme and the Multi-Sectoral Development Programme (MSDP).
- *Empower Through Education and Economy* - Fourth, the NCM should focus on educational and economic empowerment. In line with the recommendations of the Sachar Committee (2006) and the Ranganath Misra Commission (2007), the Commission should promote educational inclusion through the modernization of madrasas, expansion of higher education scholarships, and skill-based training. Collaboration with the NCMEI can ensure institutional synergy.
- *Data-Driven Governance* - Finally, the NCM should institutionalize data-driven monitoring mechanisms. A Minority Welfare Dashboard, similar to the National Judicial Data Grid (NJDG), could be developed to track fund utilization, scheme coverage, and outcomes for each minority community. Evidence-based policymaking would improve transparency, efficiency, and public trust in minority welfare governance.

The National Commission for Minorities was conceived as a guardian of India's pluralistic spirit and a protector of minority rights. Over time, however, it has drifted into symbolic relevance, constrained by limited powers, vacancies, and weak institutional will. Revitalizing its autonomy, constitutional backing, and accountability is essential to transform it from a passive observer into an active defender of justice and inclusion. A commission that lacks real authority cannot safeguard rights—it merely adorns the architecture of governance without strengthening it.

India's global leadership on climate change

Global momentum on climate change is waning. The U.S. withdrawal from the Paris Agreement, the EU's cautious stance, and Brazil's focus on implementation have created a leadership vacuum. India, backed by consistent domestic policies and credible renewable achievements, is being viewed as a stabilising force in

climate negotiations.

Current Global Context and India's Position

- **Leadership Vacuum:** Developed economies show declining enthusiasm for climate leadership due to economic pressures and energy insecurity.
- **India's Steady Role:** India maintains policy continuity and cross-party consensus on climate goals, avoiding divisive politics.
- **Emerging 'Axis of Good':** Expanding partnerships with Europe, Brazil, and developing nations for climate technology and forest cooperation.
- **Implementation Emphasis:** COP30 expected to focus on execution of existing commitments rather than new pledges.

The Financing Challenge and Implementation Gap

- **Adaptation Finance Deficit:** Global climate finance needs estimated at **\$1.3 trillion annually by 2035**, highlighting dependence on private and multilateral funding.
- **Means of Implementation:** Finance, technology transfer, and capacity building remain central to effective execution.
- **Blended Finance Approach:** Encourages combining public, private, and philanthropic resources for adaptation sectors like agriculture and water.
- **Pipeline Creation:** Necessitates project, ready mechanisms at the national and state levels to attract investments.

India's Achievements and Strategic Leverage

- **Emission Stabilisation:** Power sector emissions plateaued as renewable integration expands.
- **Renewable Leadership:** Non-fossil fuel sources account for **~50% of installed power capacity**.
- **Decoupling Trend:** Energy demand growth no longer proportional to emissions growth, indicating structural change.
- **Green Industry Shift:** Corporate groups (Adani, Reliance) invest heavily in green hydrogen, solar, and renewables driven by market value creation.

Adaptation, Driven Growth and Dual Benefit Projects

- **Integrated Projects:** Initiatives like **PM-KUSUM** use solar energy in agriculture, reducing diesel dependence and improving income security.
- **Co-benefit Design:** Projects combining **adaptation (resilience)** and **mitigation (emission reduction)** yield long-term sustainability.
- **Sectoral Innovation:** Solar powered, cold chain storage and electric buses illustrate scalable, cost-efficient climate solutions.
- **Aggregation Advantage:** National-scale schemes can reduce costs, increase service access, and enhance local resilience.

Nationally Determined Contributions (NDCs) and Adaptation Planning

- **Current Commitment:** 50% of power capacity from non-fossil sources by 2030; aligned with Paris Agreement goals.
- **Green Hydrogen Linkage:** Recognition of renewable energy's role in hydrogen production can

strengthen India's NDC profile.

- **Industrial Decarbonisation:** Industry identified as a “hard to abate” sector; emphasis on electrification, alternative materials, and carbon markets.
- **Adaptation Priority List:** Proposal for a “wish list” of adaptation projects under carbon markets, adaptable by States.
- **Carbon Market Strategy:** Promotes participation in high value areas (solar + storage) rather than single-stream credits.

Should India Lead Globally?

- **Moral Credibility:** Low per capita emissions and proactive domestic policy lend legitimacy to India's global stance.
- **Strategic Interest:** Leadership enhances India's role in shaping financial flows and green technology frameworks.
- **Implementation Expertise:** India's experience with renewable deployment and welfare, linked schemes adds operational credibility.
- **Risk and Responsibility:** Global leadership must balance ambition with developmental imperatives for energy access and equity.

India as a global leader in climate change efforts

- India's initiative for Coalition for Disaster Resilient Infrastructure is a model and can help other countries in the development of appropriate infrastructure to face the least developed and developing countries with natural calamities.
- Buildings contribute 30-40% of greenhouse gas (GHG) emissions. Smart Cities Mission focus on sustainability and climate resilience. In 2019, SCM launched the Climate Smart Cities Assessment Framework, a first-of-its-kind public assessment framework on climate-relevant parameters. Thus, India teaches other countries through formulation of greener policies and projects.
- India seeks to strike the perfect balance between growth and development. It simultaneously addresses social progress and environmental conservation. The achievements in the urban space not only reaffirm India's stature as a global leader around the normative frameworks on sustainability, but also indicate that India is walking the talk on climate action and setting global benchmarks vis-a-vis climate resilience and green growth.
- It's per-capita emissions are amongst the lowest in the world despite being the third largest economy in the world. Thus, Indian practices can teach a lot to the world about sustainable living.
- India is a conscious aspirant. It has shown leadership in combating climate change and meeting the Sustainable Developmental Goals (SDGs), as is reflected in many of its developmental schemes.
- India is one of the least wasteful economies. It has frequently been acknowledged by stakeholders for its cooperation and efforts to promote climate change mitigation, and environmental sustainability. This has been through policy measures, dialogue facilitation between nations, and taking decisive steps, especially after India emerged as a key player in shaping the Paris Agreement, along with adopting energy-efficiency measures.
- Sustainability has always been a core component of Indian culture. Its philosophy and values have

underscored a sustainable way of life. For example, the yogic principle of aparigraha, which is a virtue of being non-attached to materialistic possessions. Humans and nature share a harmonious relationship, which goes as far as a reverence for various flora and fauna. This has aided biodiversity conservation efforts.

- Yoga and Ayurveda are perhaps among the most well-known ways of holistic Indian living. Sustainable and environmentally friendly practices and psyches still continue to be part of the lifestyle and culture. India should teach world about these practices.
- Things which have absolutely no value, such as old newspapers and books, or utensils, can be easily sold off to a scrap dealers to be re-used or re-cycled. Bucket baths, sun-drying clothes, and hand-washing dishes are other widespread, sustainable practices. Culturally, there is also an aversion to wasting food. Rural communities, which constituted about 70% of the Indian population as of 2011, live close to nature and continue to live a simple and frugal lifestyle.
- Countries can learn through various Indian programs like National Action Plan on Climate Change (NAPCC), International Solar Alliance (ISA), FAME Scheme for E-mobility, UJALA scheme etc.
- India has emerged as a global leader in renewable energy, with investments in renewable energy topping fossil fuel investments. After adopting its National Electricity Plan (NEP) in 2018, India remains on track to overachieve its "2°C compatible" rated Paris Agreement NDC climate action targets.
- India's INDC goals target to achieve 40% non-fossil-based power capacity by 2030 more than a decade earlier than targeted. Given these positive signals, there is significant potential for the incoming government to increase the ambition of India's NDC to a 1.5°C compatible rating.
- India has recently banned complete use of single use plastic in various sectors and industries. This would pave a way not only to tackle air pollution but also would prevent climate change.

India's leadership on climate change is neither symbolic nor premature, it is pragmatic, equity-driven, and implementation oriented. With stable governance, scalable models, and growing private participation, India can anchor the next phase of global climate action by ensuring that commitments translate into outcomes.

The Future of the Global Financial Architecture

Global Financial Institutions are pivotal in shaping the global economic landscape. They play a crucial role in fostering global economic stability, facilitating trade, and promoting development in the present increasingly interconnected world. This article aims to study in detail International Economic Organizations, including the International Monetary Fund (IMF), the World Bank Group, and others such as the New Development Bank (NDB), etc.

- Global financial institutions (GFIs) are organizations established by international treaties to provide financial assistance, stability, and cooperation among member nations.
- They form the backbone of the international financial system, playing critical roles in development, crisis management, and promoting free trade.
- The institutions can be broadly categorized into those focused on **Global Stabilization and Regulation** and those focused on **Development Banking**.

Bretton Woods Conference

The Bretton Woods Conference, officially known as the **United Nations Monetary and Financial Conference** was organised in 1944 at Bretton Woods, New Hampshire (USA).

- **Purpose:** To agree upon a series of new rules for the **post-World War II** international monetary system.
 - Delegates from **44 nations** participated in it.
- **Key Outcomes:**
 - **Creation of the Bretton Woods Institutions: International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD),** now referred as **World Bank (WB)**.
 - **Fixed exchange rate regime:** Each member country was to set a **fixed value** the par value -of its currency in terms of **gold** or **US dollar**.
 - However, after the crisis of dollar exchange crises of 1971 (when USA suspended the dollar's convertibility into gold) and 1973, floating exchange rates was promoted.
 - **Promotion of Free Trade:** To ensues international prosperity and international peace.



International Monetary Fund (IMF)

- Established: 1944 (Bretton Woods Conference)
- Objective: To ensure the stability of the international monetary system through exchange rate surveillance, lending to countries in crises, and capacity development.
- Key Functions:
 - Provides short- and medium-term loans to member countries facing balance of payment difficulties.
 - Monitors global economic trends and provides policy advice.
 - Facilitates international trade by maintaining exchange rate stability.

World Bank Group	- Established: 1944 alongside IMF. - Objective: Long-term poverty reduction and economic development by financing infrastructure, education, and governance programs. - Components: 1. International Bank for Reconstruction and Development (IBRD) 2. International Development Association (IDA) 3. International Finance Corporation (IFC) 4. Multilateral Investment Guarantee Agency (MIGA) 5. International Centre for Settlement of Investment Disputes (ICSID) - Key Role: Provides long-term development loans, grants, and technical assistance to developing countries
World Trade Organization (WTO)	- Established: 1995 (replacing GATT). - Objective: To promote free and fair international trade through the reduction of tariffs and removal of trade barriers. - Functions: ○ Serves as a forum for trade negotiations. ○ Resolves trade disputes among member nations. ○ Oversees implementation of global trade agreements.
Regional Development Banks	- Asian Development Bank (ADB): Promotes economic growth and regional cooperation in Asia-Pacific. - African Development Bank (AfDB): Finances sustainable economic projects in Africa. - Inter-American Development Bank (IDB): Focuses on Latin America and the Caribbean. - European Bank for Reconstruction and Development (EBRD): Supports transition economies toward market-based policies.
New Development Bank (NDB)	Role: Established by the BRICS countries (Brazil, Russia, India, China, South Africa) as an alternative MDB. Significance: Focuses on funding infrastructure and sustainable development projects within BRICS countries and other emerging economies, aiming to reduce dependence on Western-dominated institutions.
Bank for International Settlements (BIS)	- Established: 1930. Role: Known as the "bank for central banks." The BIS is the world's oldest GFI, serving as a forum for monetary cooperation and a central bank for central banks. - Objective: Acts as a bank for central banks, fostering monetary and financial cooperation. Significance: It is crucial for financial stability as its standards ensure that

banks worldwide maintain enough capital to withstand financial shocks.

IMF vs World Bank

The World Bank and the IMF, often called the Bretton Woods Institutions, are twin intergovernmental pillars supporting the structure of the world's economic and financial order. Both have taken on expanding roles, and there have been renewed calls for additional expansion of their responsibilities, particularly in the continuing absence of a single global monetary agreement. The two institutions may seem to have confusing or overlapping functions.

Sphere	IMF	World Bank
Mandate	- Promotes global macroeconomic and financial stability. - Also provides short- and medium-term loans to help countries that are experiencing balance of payments problems.	Promotes long-term economic development and poverty reduction by providing technical and financial support to help countries implement reforms or projects, such as building schools, etc.
Membership and headquarter	190 Countries - Both organisations have their headquarter in Washington, D.C (USA)	189 Countries (India is member of both the organisations) - However, India is not member WB's International Centre for Settlement of Investment Disputes. - Countries must first join the IMF to be eligible to join the World Bank Group.

Significance of global financial institutions:

- Global Economic Stability:** GFIs maintain stability in the world economy by:
 - Providing emergency financial assistance:** The IMF supports countries facing balance of payments crises, currency collapses, or inflationary shocks, as seen during the global financial crisis and COVID-19 pandemic.
 - Ensuring exchange rate stability:** Through surveillance and consultation, the IMF promotes stable exchange systems and coordinated monetary policies across nations.
- Development Finance and Poverty Reduction:** Institutions such as the World Bank Group, Asian

Development Bank (ADB), and African Development Bank (AfDB) provide long-term financial and technical assistance for poverty alleviation and infrastructure development.

3. **Promotion of International Trade and Investment:** Global financial institutions foster an enabling environment for trade by:
 - Financing trade-related infrastructure and facilitating foreign direct investment (FDI) through entities like the International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA).
 - Supporting open and transparent market systems through policy advice and reform frameworks.
4. **Crisis Management and Reconstruction:** The IMF and World Bank spearheaded financial recovery mechanisms after major crises, such as the Asian financial crisis (1997) and Global financial crisis (2008–09), by providing liquidity, policy guidance, and reform programs.
5. **Support for Sustainable and Inclusive Growth:** GFIs fund renewable and climate-resilient projects, supporting the global transition toward low-carbon economies. They promote financial inclusion, ensuring access to credit for small enterprises and vulnerable populations.

Challenges associated with global financial initiatives:

1. **Resource and Funding Constraints:**
 - Many global financial institutions struggle with inadequate capital resources compared to the growing demand for development finance worldwide.
 - The financing gap for sustainable development and climate resilience is estimated in trillions of dollars annually, far exceeding the capacity of current international financial systems.
 - This limitation reduces their ability to respond effectively to crises such as the COVID-19 pandemic or natural disasters.
2. **Debt Sustainability Issues:**
 - Several developing countries face unsustainable debt burdens, making it difficult to participate in global financial initiatives.
 - Institutions like the IMF and World Bank are often criticized for offering loans instead of grants, leading to debt cycles in vulnerable economies.
3. **Conditionalities and Sovereignty Concerns:**
 - Lending programs by the IMF and World Bank often come with policy conditionalities, such as structural adjustment reforms demanding fiscal austerity or privatization.
 - These conditionalities sometimes undermine national sovereignty and local policy flexibility, particularly in low-income countries.
4. **Inequality and Unequal Representation:**
 - Decision-making within institutions like the IMF remains skewed toward developed nations, especially the US and European countries, which hold disproportionate voting power.
 - Developing nations often lack a strong voice in framing global financial governance and reform agendas.

5. Geopolitical Tensions and Fragmentation:

- Rising geopolitical competition between major powers (like the US, China, and Russia) has fragmented consensus on global economic coordination.
- Sanctions, trade wars, and foreign policy rivalries disrupt cooperation in financial and trade frameworks.

6. Climate Change and Sustainability Challenges:

- Current financial frameworks inadequately address environmental sustainability.
- Global financial institutions need to balance profit motives with financing green transitions under the Paris Agreement.

Way forward:

1. Democratizing Institutional Governance:

- **Greater Voice for Developing Countries:** Reform quota and voting systems at the IMF and World Bank to reflect the growing economic and demographic weight of the Global South. This includes introducing population and vulnerability criteria in quota formulas and expanding board representation.
- **Double-Majority Decision-Making:** Introduce systems requiring both a majority of voting shares and a majority of member states to ensure fairer outcomes.
- **Gender and Geographic Balance:** Promote inclusive leadership with equitable regional and gender representation at decision-making levels.

2. Debt Reform and Financial Resilience:

- **Comprehensive Debt Resolution Mechanism:** Establish a permanent, fair, and transparent sovereign debt restructuring framework involving multilateral, bilateral, and private creditors, especially for debt-distressed nations.
- **Debt Cancellation and Relief:** Provide targeted debt cancellation or restructuring for low-income and climate-vulnerable states to avoid recurrent crises.

3. Enhancing Development Finance:

- **Rebalancing Priorities of the World Bank:** Redirect focus to affordable energy, poverty reduction, and infrastructure development, particularly in least-developed and small island countries.
- **Expand Concessional and Green Finance:** Increase concessional lending and establish green financing windows through institutions like IDA and the Loss and Damage Fund to address climate adaptation needs.
- **Encourage Regional Collaboration:** Strengthen coordination among multilateral development banks (MDBs) and regional financial institutions to avoid duplication and ensure efficient resource utilization.

4. Promoting Transparency, Accountability, and Anti-corruption:

- Implement rigorous anti-corruption safeguards and governance standards in all financial assistance programs to build trust and ensure efficient use of public funds.
- Increase transparency in policy conditionalities to ensure that reforms support national ownership rather than impose external models.

5. Integrating Climate and Sustainability Goals:

- **Climate-linked Financing:** Institutionalize debt-for-climate swaps and integrate sustainability metrics into lending frameworks.
- **Green Transitions:** Lead global financing for renewable energy, resilient infrastructure, and sustainable agriculture, aligning objectives with the Paris Agreement.

Global financial institutions serve as the pillars of international economic order, providing monetary stability, developmental finance, and crisis recovery mechanisms. However, they need to focus on equal representation, sustainable financing, and transparent governance to make global financing democratic, resilient & inclusive.

Revitalizing India's Inland Waterways: Paving the Way for Viksit Bharat

- India's rivers, once the arteries of trade and cultural exchange, are being reimagined as engines of modern economic growth.
- As India Maritime Week 2025 approaches, the nation's focus on inland waterways reflects a shift towards green logistics, inclusive growth, and sustainable development.
- The government's efforts under the Inland Waterways Authority of India (IWAI) embody the vision of Viksit Bharat 2047, where ecological balance and economic efficiency coexist.

River Transport in India

- India's rivers were the **nation's first highways**, goods floated effortlessly from the **Ganga and Brahmaputra in the north** to the **Godavari and Krishna in the south**, carrying grain, salt, and stories downstream.
 - Ancient cities like **Varanasi and Kolkata** thrived as river ports, and colonial powers relied heavily on riverine routes for trade.
- But with time, **steel rails and asphalt** replaced these natural arteries, leaving rivers as silent witnesses to a bygone era of trade.
- Infrastructure neglect and sedimentation further reduced navigability, leaving this once-thriving network underutilized.

Strategic Shift Toward Waterways

- **India's vast network of 14,500 km** of navigable inland waterways is being positioned as a key pillar of sustainable infrastructure, which were historically underutilized. It includes:
 - **Jal Marg Vikas Project on the Ganga River** to enhance navigation from Haldia to Varanasi.
 - **Development of National Waterways**, with **over 100 declared routes**.
 - **Integration with PM GatiShakti**, the national master plan for multi-modal connectivity.

Economic and Environmental Advantages

- Waterways offer distinct advantages: lower fuel consumption, reduced emissions, and cost-effective logistics.
 - **Cargo Movement:** from 18 million tonnes (2013–14) to 145 million tonnes (2024–25);
 - **Target:** 200 million tonnes by 2030 and 450 million tonnes by 2047;
- These advantages are especially critical as India aims for 8–10% annual growth to meet its

development targets.

- Every litre of fuel can move 24 tonnes/km by road; 95 tonnes/km by rail; and 215 tonnes/km by inland waterway;
 - Thus, expanding inland shipping could save billions in fuel imports while slashing emissions, aligning with **India's commitment to net-zero by 2070**.
- **Reviving Riverine Economies:**
 - Boosting local employment through port development and logistics hubs.
 - Encouraging tourism and cultural exchange along heritage river routes.
 - Enhancing connectivity for remote regions, especially in the **Northeast and Eastern India**.

Initiatives

- **Jal Marg Vikas Project (JMVP):** It is supported by the **World Bank**, aims to restore the **Ganga** as a viable economic corridor, spanning **1,390 km from Varanasi to Haldia**.
 - Its terminals at **Varanasi, Sahibganj, Kalughat, and Haldia** handle cargo.
 - It complements the **Eastern Waterway Grid Connectivity Project**, linking the **Ganga, Brahmaputra, and Barak** rivers into a seamless network.
- **Inland Waterways Authority of India (IWAI):** It has spearheaded a revival — rediscovering, reimagining, and rejuvenating India's rivers as sustainable transport routes.
 - India now boasts **111**, covering **14,500 km** of navigable channels, from just **5 national waterways in 2014**. Of these, **32 are operational**, marking a tenfold expansion in less than a decade.
- **Ro-Ro, Ro-Pax & Smart River Systems:** The introduction of **Ro-Ro and Ro-Pax** services in **Assam, Kerala, Bihar, and West Bengal** has created **floating bridges** for passengers and vehicles, reshaping daily commutes.
 - Meanwhile, **digital tools** like:
 - **Jal Samridhi Portal:** streamlines approvals for jetties and terminals;
 - **Naudharshika:** a real-time river traffic monitoring system, acting as India's maritime GPS;
 - These innovations ensure safety, transparency, and efficiency across India's waterways.
- **Cruise Tourism:** River tourism has surged from just **5 vessels a decade ago to 25 cruise ships** across **13 waterways**.
 - The **Ganga, Brahmaputra, and Kerala backwaters** host luxury cruises equipped with electric shore power and 24-hour navigation systems.
 - Future plans include:
 - **Cruise tourism** on the Narmada and Yamuna;
 - **Eco-tourism circuits** along Ravi, Chenab, and Jhelum;
 - **Urban water metros** in 18 cities, modeled on Kochi's Water Metro, integrating sustainability with everyday life.
- **Key Legislation and Green Innovation:** India's legislative reforms have modernized the inland waterways ecosystem:

- **National Waterways Act (2016):** expanded the network;
- **Inland Vessels Act (2021):** standardized safety and certification;
- **Harit Nauka Guidelines (2024):** promoted hybrid and green vessels;
- **Jalvahak Scheme:** incentivizes modal shift from road to water, exploring **carbon credits**;
- The **Cochin Shipyard** has launched **India's first hydrogen-fuel-cell vessel** in **Varanasi**.
- **Hybrid and electric barges** are being deployed to reduce emissions, while digital systems like **CAR-D**, **PANI**, and **Vessel Tracker** enhance logistics management.
- **Building Skills for a Blue Economy:** Reviving river highways means nurturing a new generation of skilled professionals — **navigators, engineers, and environmentalists**.
 - To bridge this gap, IWAI has established training hubs such as:
 - **National Inland Navigation Institute**, Patna;
 - **Centre of Excellence**, Bogibeel (Assam);
 - These institutions are preparing India's workforce for a **blue economy** built on innovation and ecological balance.

Strengthening India's Waterways Transport

- The Union Ministry of Ports, Shipping and Waterways recently announced that India is targeting **₹80 lakh crore in maritime investments** and the **creation of 1.5 crore jobs by 2047**. It includes:
 - Expansion of port capacity across all 12 major ports;
 - Development of National Waterways, with over 100 declared routes;
 - Integration with PM GatiShakti for multimodal logistics;
- India's rediscovery of its waterways is more than a logistics reform — it's a civilizational reconnection.
- As Viksit Bharat 2047 envisions a high-income, sustainable economy, rivers are reasserting their role as catalysts of inclusive development.
- Inland waterways could transform the way India moves, trades, and thrives, with policy continuity, digital navigation systems, and private participation.

The UN Turns 80: Between Idealism and Reality

On **October 24th**, as the world observes **United Nations Day**, we pause to reflect on the enduring significance of this indispensable institution. It is a moment to honour the foundational principles of **peace, justice, and human dignity enshrined in its Charter**, and to critically assess the path forward in an increasingly complex global landscape. The UN remains the paramount forum where nations, despite their differences, **convene to deliberate and seek solutions for the challenges that transcend borders**.

Vision and Inception

The **world of 1945** was scarred, exhausted, and desperately seeking a new architecture for peace. The **UN Charter, signed by 50 nations in 1945**, was a foundational text of hope, built on the premise that collective security, human rights, and development were inseparable pillars of lasting peace. It laid the groundwork for a system designed **not just to prevent World War III, but to address the root causes of**

conflict: poverty, injustice, and lack of human dignity.

"More than ever before in human history, we share a common destiny. We can master it only if we face it together. And that, my friends, is why we have the United Nations." — Kofi Annan, Former United Nations Secretary-General

The **United Nation General Assembly** was established as the main deliberative body, granting every Member State, regardless of size, one vote, ensuring a platform for universal representation. Crucially, the **Security Council (SC)** was tasked with the primary responsibility for maintaining international peace and security, notably comprising **five permanent members (P5) with veto power**, a design reflecting the immediate post-World War II power dynamics.

Simultaneously, the **Economic and Social Council (ECOSOC)** was created to coordinate the economic, social, and humanitarian work of the UN system. Furthermore, the **International Court of Justice (ICJ)** provided the judicial framework, the **Secretariat** carried out the day-to-day administration under the **Secretary-General**, and the **Trusteeship Council** was instituted to oversee dependent territories' transition to self-governance.

The Triumphs

The early decades of the UN system achieved profound, often quiet, triumphs that fundamentally reshaped the global order. Foremost among these was spearheading **decolonisation**: through the **Trusteeship Council** and the powerful **1960 Declaration on Decolonisation**, the UN actively supported the self-determination of nations, leading to **over 80 former colonies gaining independence** since 1945. This legal and political pressure dismantled colonial structures, a monumental victory for global equality.

Concurrently, the **Universal Declaration of Human Rights (UDHR)**, adopted in **December 1948** and championed by figures like India's **Dr. Hansa Mehta**, established an indivisible, universal moral and legal compass for humanity. The UN's impact on human welfare expanded through Specialized Agencies like the **World Health Organisation (WHO)** and UNICEF, which drove **significant declines in child and maternal mortality rates** globally and contributed to rising life expectancy well before the modern Sustainable Development Goals (SDGs).

Critically, despite Cold War tensions, the UN fulfilled its central mandate by preventing regional conflicts from escalating into a third global conflict. The diplomatic intervention during the **1956 Suez Crisis** pioneered the concept of **international peacekeeping (UNEF I)**, and the swift action during the **Korean War (1950-1953)** created the **UN Command (UNC)**, marking the world's first attempt at collective security. These actions solidified the UN's indispensable role as a bridge for dialogue and a key driver of global development, culminating in the current **17 Sustainable Development Goals (SDGs)**, the world's most ambitious blueprint for inclusive global progress.

Present Challenges

Despite its foundational achievements, the United Nations is currently at a **critical juncture**, facing a multi-layered crisis where the spirit of **multilateralism** is stressed by rising nationalism and global challenges.

The most debilitating structural flaw is the **Ineffective Veto Power** held by the **P5** in the Security Council, which allows a single member to unilaterally block resolutions, leading to diplomatic **gridlock**. This is

evident in Russia's repeated vetoes regarding the **war in Ukraine** and the US's historical use of the veto to block resolutions critical of **Israel**.

This inertia is compounded by the **Outdated Structure and Unrepresentative Membership** of the Security Council, which reflects the power dynamics of 1945, not the 21st century. As **Secretary-General António Guterres** noted, this necessitates reform to include rising powers like **India** and other members of the **Global South**.

The systemic failings result in a consistent **Inability to Address Modern Conflicts and Humanitarian Crises**, with peacekeeping missions often too weak or under-resourced to prevent atrocities, tragically seen in the estimated **300,000 civilian deaths in Darfur**.

Furthermore, the organization is plagued by **Bureaucratic Inefficiency and Lack of Accountability**, with issues like **procurement fraud and sexual misconduct** eroding public trust, as highlighted by a recent UNDP Audit reporting **434 new investigations**. Finally, the rise of **Competing Global and Regional Institutions** like the **G20** and **BRICS** further sidelines the UN, as these groups are increasingly seen as more agile in coordinating global issues, such as the response to economic crises.

These powerful constraints have been starkly articulated by leaders from the **Global South**, who bear the disproportionate burden of global instability and climate change.

As **India's External Affairs Minister, S. Jaishankar**, has noted:

"The very concept of multilateralism is under attack... The cost of delaying much needed reforms is starkly visible today."

This powerful call highlights that the path forward cannot be one of maintaining the status quo. It demands a revitalized, more democratic multilateral system that genuinely reflects the current world order, giving greater voice and responsibility to underrepresented regions like Africa, Asia, and Latin America.

Bridging Divides: Reviving the Spirit of Multilateralism

The future relevance of the United Nations is not a question of **if we need it, but how we make it work better**. In an age where pandemics, climate change, and artificial intelligence transcend all borders, global problems require truly global solutions. No single nation, however powerful, can insulate itself from these forces.

The way forward lies in embracing a **reformed multilateralism**: one that is inclusive, networked, and effective. This means accelerating the implementation of the ambitious **Pact for the Future**, a **consensus document agreed by world leaders at the UN**, which proposes transformative action on peace, sustainable development, and global governance reform. It means supporting UN initiatives that focus on tangible deliverables: **financing the energy transition in developing countries, building resilient supply chains, and leveraging digital public infrastructure for inclusive growth**.

"It isn't enough to talk about peace. One must believe in it. And it isn't enough to believe in it. One must work at it." — **Eleanor Roosevelt, Former U.S. Delegate to the United Nations**

It requires a deliberate effort to strengthen the three pillars of the UN system. **Peace and Security**, by pursuing Security Council reform and investing more heavily in conflict prevention and mediation. **Development and Human Rights**, by doubling down on the Sustainable Development Goals

and protecting fundamental freedoms everywhere. **Climate and the Global Commons**, by ensuring binding commitments to save our planet and equitably share the benefits of the ocean and outer space.

UN@80 and India@AmritKaal: A Shared Vision for Inclusive Global Governance

India, as a nation deeply committed to **multilateralism and a major contributor to UN mandates**, is **uniquely positioned to drive the necessary institutional reforms**. Leveraging its democratic credentials, its status as the world's most populous nation, and its role as a leading voice for the Global South, India advocates forcefully for a comprehensive overhaul to make the UN more representative and effective.

Central to this agenda is India's rightful claim to a **permanent seat in an expanded Security Council**, viewing reform as essential for legitimacy and accountability in global governance. By advocating for greater inclusivity for Africa and other underrepresented regions, India is championing a truly democratic multilateral system that can genuinely address 21st-century challenges. As a bridge between developed and developing nations, **India's diplomacy provides the vital impetus to transform the UN from a relic of 1945 into a robust institution fit for the contemporary world order.**

Carrying Forward the Promise of Unity and Peace

As the sun sets on this United Nations Day, let us remember the original pact: **a pledge to move from the logic of unilateral power to the ethic of shared responsibility**. The world is divided, yes, but the spaces where we can still **meet, debate, and collaborate**, often the very halls of the UN, are sacred. They are the bulwarks against a complete breakdown of order.

Let the Charter's promise, of a world built on peace, dignity, and equality, continue to be the shared horizon toward which all of humanity sails. **The future is not pre-written; it is a collaborative masterpiece we must paint together.**

In the words of the late UN Secretary-General Dag Hammarskjöld:

"Everything will be all right - you know when? When people, just people, stop thinking of the United Nations as a weird Picasso abstraction and see it as a drawing they made themselves."

This sentiment captures the essence of the challenge: **the UN is not an external entity; it is the collective will of its Member States**. On this UN Day, the call is for all nations to strengthen their resolve, embrace inclusive multilateralism, and provide the tools, the trust, the political will, and the resources, to enable the United Nations to fully deliver on its historic mandate for a more peaceful, just, and sustainable world.

Way Forward:

- **UNSC Reform:** Expand permanent membership to include **India, Brazil, Japan, and African representation** for legitimacy and balance.
- **Financial Stability:** Ensure **timely contributions**, explore **innovative funding models**, and enhance transparency.
- **Digital Transformation:** Use **AI, big data, and real-time monitoring** to improve peacekeeping and humanitarian responses.
- **Empower Field Missions:** Decentralise decision-making, giving **regional offices autonomy** to

respond swiftly to crises.

- **Moral Renewal:** Reclaim its **ethical authority** by upholding justice, human rights, and accountability without political bias.

At eighty, the United Nations remains **flawed but foundational** — a mirror of global contradictions and aspirations. Its renewal depends on reform, representation, and political will. In a divided world, the UN endures as humanity's best hope for dialogue over domination and cooperation over chaos.

India-EU Carbon Market Linkage: A Strategic Step Toward North-South Climate Cooperation

On **September 17, 2025**, India and the **European Union (EU)** announced a **New Strategic Agenda** with five pillars, including *prosperity, sustainability, and global issues*. A key highlight: the **linkage of India's Carbon Market (ICM)** with the **EU's CBAM**, allowing carbon prices paid in India to be deducted from CBAM levies at the EU border.

Opportunities for cooperation

- **Access to Climate Finance and Technology:** A rules-based international market allows developing countries in the Global South to attract significant climate finance from developed nations. This funding can be channelled toward renewable energy projects, energy efficiency upgrades, and other sustainable infrastructure. It also facilitates the transfer of advanced, low-carbon technologies.
- **Mobilizing Investments for Green Projects:** Developed countries with ambitious emission-reduction targets can purchase cost-effective carbon credits generated by projects in developing nations. For countries like India, this creates an additional revenue stream for green initiatives like afforestation, sustainable agriculture, and renewable energy development.
- **Cost-Effective Mitigation:** A global carbon market could lower the overall cost of climate action. According to the World Bank, Article 6 could cut the cost of achieving Nationally Determined Contributions (NDCs) by over 50%, potentially saving \$250 billion annually by 2030.
- **Enhanced Global Collaboration:** As envisioned in Article 6.8, non-market-based cooperation can facilitate capacity-building, technology transfer, and knowledge sharing. This enables a broader range of climate collaboration beyond just carbon trading.

Challenges hindering cooperation

- **Concerns over "Carbon Colonialism":** Developing nations are wary of carbon projects that replicate exploitative power structures. Projects could displace local and indigenous communities, seize control over land, and result in unequal benefit-sharing, where developed nations benefit more than the host community.
- **Risk of "Greenwashing":** Developed nations and corporations could be tempted to buy cheap, low-quality carbon credits to offset their emissions rather than implementing genuine decarbonization efforts at home. This can undermine environmental integrity and delay systemic changes.
- **Measurement and Verification Issues:** Ensuring the credibility and integrity of carbon credits is a major challenge. Issues of **double-counting**, inflated baselines, and inadequate monitoring can compromise the environmental claims of carbon offset projects. This is especially true for sectors like forestry.

- **Diverging National Interests:** Persistent tensions exist between developed and developing nations regarding the design and rules of the international carbon market. Key areas of contention include:
 - **"Corresponding Adjustments":** Rules governing how countries account for carbon credits transferred internationally to prevent double-counting.
 - **Flexibility and Transparency:** The level of flexibility allowed in carbon market rules versus the need for transparent, robust accounting.
- **Capacity Gap:** Many developing nations lack the institutional capacity and technical expertise to effectively design, implement, and govern complex carbon pricing and trading mechanisms. This includes robust Monitoring, Reporting, and Verification (MRV) systems.

India's position and way forward

India has been proactive in setting up its domestic **Carbon Credit Trading Scheme (CCTS)**, aligning with its commitment to achieve Net Zero by 2070. For effective North-South cooperation, India's path involves:

- **Ensuring Market Integrity:** Establishing robust and transparent MRV systems and ensuring the additionality and credibility of credits to prevent accusations of greenwashing.
- **Integrating Domestic and International Markets:** Linking India's domestic carbon market with international mechanisms under Article 6 to attract foreign investment and increase market size.

Acts of Adjustment

UK's Carbon Border Adjustment Mechanism (CBAM) expected to come into force from Jan 1, 2027

Applies to imported products from industries like iron & steel, hydrogen, cement, etc



According to draft CBAM regulations, tax applies to goods from outside UK only



EU also has CBAM regulations; expected to kick in from Jan 1, 2026

EU's CBAM tax may range between **20% and 35%**

- **Balancing Development and Equity:** Designing carbon market projects with strong safeguards to protect community land rights and ensure fair benefit-sharing for vulnerable groups, especially in forestry and agricultural projects.
- **Promoting South-South Cooperation:** Using the experience gained from its domestic market to foster collaboration and technology transfer among developing countries.
- **Advocating for Fair Global Rules:** Taking a leadership role in international climate negotiations (e.g., at COPs) to shape the global architecture of carbon markets, ensuring the rules are equitable and beneficial to developing nations.

The proposed linkage between India's Carbon Market and the EU's CBAM marks a pivotal moment in global climate cooperation. While it offers a pathway to harmonize trade and climate goals, its success

hinges on India's ability to build a credible, transparent, and resilient carbon pricing framework. For India, this is not just a trade adjustment—it's a strategic opportunity to lead the Global South in shaping equitable climate governance. A well-negotiated and robust carbon market can transform India's climate diplomacy from reactive to proactive, ensuring that sustainability becomes a lever for competitiveness rather than a constraint.

From Sink to Source: The Changing Carbon Role of Rainforest

- Tropical rainforests are among the Earth's most vital ecosystems — they absorb large amounts of **carbon dioxide (CO₂)** and help regulate the planet's climate.
- For decades, they have acted as "**carbon sinks**", mitigating greenhouse gas emissions and serving as buffers against climate change.
- However, **new research** (published in *Nature* by scientists in Australia, October 2025) reveals that some **tropical rainforests are now releasing more CO₂ than they absorb**, effectively becoming **net carbon emitters**.

Key Findings of the New Research (Australia Study, 2025)

- The study, spanning nearly **five decades** of forest-data from Queensland, shows:
 - The **woody biomass** (tree trunks, branches, and stems) in tropical rainforests has changed from being a carbon absorber to a carbon source.
- The principal cause identified is **higher tree mortality** — more trees are dying than regenerating.
- **Extreme heat, drought stress, and cyclones** are increasing both the rate and severity of tree deaths.
- Scientists describe this phenomenon as a "**canary in the coal mine**", warning that similar transitions could occur in other tropical forests worldwide.
- The study challenges current **carbon-cycle models**, which might be **overestimating** tropical forests' capacity to offset fossil-fuel emissions.

Global Context: Forest Decline Worldwide

- **2025 Forest Declaration Assessment Report**
 - In 2024 alone, **8.1 million hectares** of forest were lost worldwide.
 - This loss is **63% higher** than the path required to end deforestation by **2030**, a goal set at **COP26 (Glasgow, 2021)**.
 - The rate of destruction of **humid primary tropical forests** — the most carbon-dense — remains alarmingly high.
 - **Agricultural expansion** (86 % of deforestation) and **forest fires** are the top causes.
 - Forest degradation (from logging, fire, fragmentation) affected another **8.8 million ha** in 2024.
- **Global Implications**
 - The combined effect of **forest-area loss** and **declining carbon-sink function** signals an accelerating breakdown of natural carbon regulation systems.
 - Countries' pledges to **restore degraded land and forests** — including India's Bonn Challenge commitments — are falling short of targets.

Implications of Rainforests Becoming Net Emitters

- **For Climate Change and Carbon Budgets**
 - Tropical forests have historically absorbed **~30% of anthropogenic CO₂ emissions**.
 - If they now become sources instead of sinks, the **global carbon budget tightens** drastically.
 - Climate models that project temperature increases based on current sink capacities might **underestimate future warming**.
 - The transition undermines global goals to achieve **net-zero by mid-century**.
- **For Biodiversity and Ecosystem Services**
 - Rainforests regulate rainfall, prevent soil erosion, and stabilise local temperatures.
 - Their degradation disrupts rainfall patterns across regions (e.g., Amazon dieback could affect Indian monsoon circulation).
 - Biodiversity loss accelerates when canopy gaps expand and invasive species colonise disturbed areas.
 - Collapse of keystone species (e.g., pollinators, seed dispersers) can cause cascading ecological failures.
- **For Indigenous and Local Communities**
 - Over 1.6 billion people globally depend on forests for livelihoods.
 - Deteriorating forest health threatens food security, traditional medicine, and cultural identity.
 - Reduced forest productivity increases poverty and migration pressures among forest-fringe populations.
- **For Global South and India**
 - India's tropical and subtropical forests (Western Ghats, Northeast, Andaman) could face similar stress.
 - A decline in global forest carbon sinks raises the urgency of **India's afforestation and restoration programmes**.
 - Indian forests are also important for **monsoon regulation**, soil moisture retention, and biodiversity conservation.
 - National programmes like the **Green India Mission** and **National Forest Policy (2023 Draft)** must now integrate **forest resilience and mortality data** into planning.

Way Forward

- **Policy and Governance Measures**
 - **Halt Deforestation:** Enforce moratoriums on primary-forest clearing; strengthen laws against illegal logging.
 - **Strengthen Monitoring:** Move beyond mere "forest cover" data to include **forest vitality, carbon fluxes, and mortality rates**.
 - **Integrate Climate and Forest Policies:** Align national climate action plans (NDCs) with biodiversity and forest policies.
 - **Empower Local Communities:** Involve indigenous people in forest management; grant

legal land rights and benefit-sharing mechanisms.

- **Scientific and Technological Steps**

- **Enhance Long-Term Observation Networks:** Expand permanent forest plots across continents to track mortality and regeneration trends.
- **Improve Carbon-Cycle Models:** Include temperature thresholds, drought stress, and cyclone impacts in Earth System Models.
- **Develop Climate-Resilient Species Mix:** Promote reforestation using native, drought- and heat-resistant species.



- **Financial and Economic Reforms**

- **Redirect Subsidies:** Shift from agriculture-driven deforestation subsidies toward forest conservation funding.
- **Increase Climate Finance:** Double international support for forest-rich developing nations under mechanisms like REDD+.
- **Valuing Ecosystem Services:** Incorporate forest carbon and biodiversity into **natural capital accounting** frameworks.

- **India-Specific Measures**

- **Implement the Green Credit Programme:** Incentivise private entities to fund verified forest restoration.

- **Use Remote-Sensing for Forest Health:** Monitor not just area but carbon density, canopy stress, and biodiversity indices.
- **Link with National Adaptation Plans:** Recognise forests as **natural infrastructure for climate resilience** — flood prevention, water regulation, and temperature moderation.
- **Public Awareness and Education**
 - Promote understanding that **forests are not infinite carbon absorbers**; human emissions must decline sharply.
 - Encourage sustainable consumption: reduced meat intake, less deforestation-linked commodities, and re-greening urban spaces.

Winding up the clock of India-Nepal economic ties

India and Nepal share deep **economic interlinkages** in trade, remittances, tourism, and connectivity. The **RBI's October 2025 reforms** permitting **Indian banks to lend in INR to Nepalese entities** aim to enhance **cross-border investment** and **reduce currency volatility**, strengthening Nepal's financial stability. However, **political instability, trade imbalances, infrastructure gaps, and geopolitical competition** continue to challenge bilateral growth. Strengthened **strategic and economic cooperation** is crucial to harnessing mutual potential and advancing **regional integration**.

RBI's 2025 Reforms Aimed at Strengthening India-Nepal Economic Cooperation

- **INR Lending to Non-Residents: Authorised Dealer (AD) Banks in India** are now permitted to **lend Indian Rupees (INR)** to **non-resident entities** in **Nepal, Bhutan, and Sri Lanka** for legitimate cross-border transactions.
 - This measure is expected to ease trade financing, reduce dependency on foreign currencies, and improve liquidity for Nepalese businesses engaged in trade with Indian firms.
 - It also strengthens the **use of INR as a regional trade currency**, enhancing monetary cooperation in South Asia.
- **Expanded Use of Special Rupee Vostro Accounts (SRVAs):** The RBI has allowed **Special Rupee Vostro Accounts** to be used for **investments in corporate bonds and commercial papers**, in addition to **central government securities**.
 - This provides **foreign banks and financial institutions in Nepal** with broader investment options within India.
 - It promotes **capital market linkages** and enhances **financial interdependence** between the two countries.
- **Transparent Currency Reference Rates:** RBI will now publish **reference rates for currencies** of India's major trading partners, including the Nepalese Rupee.
 - This aims to make **INR-based trade more transparent, reliable, and predictable**, reducing currency volatility in bilateral transactions.
 - It improves **price discovery** and **confidence** among traders and investors in both countries.

Major Factors that have Shaped India-Nepal Relations Over Time

- **Historical and Civilizational Foundations:** The foundation of India–Nepal relations lies in deep **civilizational and religious bonds**.
 - The two nations share a 1,751 km open border and intertwined cultural roots through Hinduism and Buddhism.
 - Sacred sites such as Pashupatinath Temple (Kathmandu) and Lumbini (birthplace of the Buddha) serve as spiritual bridges connecting their people.
 - The **India-Nepal Treaty of Peace and Friendship (1950)**, completing 75 years in 2025, has been the cornerstone of bilateral relations, shaping cultural, economic, and strategic cooperation between the two nations—often described as the “Roti-Beti Ka Rishta”, symbolising deep people-to-people and familial ties.
 - Over **8 million Nepalis live and work in India**, contributing significantly to Nepal’s **remittance economy**, while **32,000 Nepali soldiers** serve in the **Indian Gorkha regiments**, symbolising military and emotional trust.
 - This **people-to-people interdependence** has ensured that political fluctuations seldom undermine the enduring social fabric between the two nations.
- **Economic Interdependence: India is Nepal’s largest trade and investment partner**, providing transit for nearly all of Nepal’s third-country trade.
 - Major Indian exports include **petroleum, iron & steel, automobiles, machinery, and cereals**. The **open border** and **connectivity projects** have significantly boosted **bilateral trade**, with **Indian exports accounting for nearly 16% of Nepal’s GDP**.
 - India accounts for about two-thirds of Nepal’s merchandise trade, one-third of trade in services, and one-third of total FDI.
 - **Nepal is India’s 14th largest export destination (2024–25)**, rising from the **28th position in 2014**.
 - The **bilateral trade framework** between India and Nepal is anchored in the **India–Nepal Treaty of Trade** and the **Agreement of Cooperation to Control Unauthorised Trade (2009)**, which together facilitate **free trade, customs cooperation, and measures to curb illegal cross-border commerce**.
 - India and Nepal also share a **Treaty of Transit**, which grants **mutual transit rights** through each other’s territory via **designated routes and modalities**, facilitating smoother **cross-border trade and connectivity**.
- **Energy and Hydropower Cooperation:** Energy cooperation forms a **strategic pillar** of mutual interdependence.
 - Nepal possesses an estimated hydropower potential of 40,000 MW, while India faces rising electricity demand.
 - India and Nepal have signed a **long-term power trade agreement to export 10,000 MW of electricity** from Nepal to India over the **next decade**, marking a major step in **energy cooperation and regional integration**.
 - **MoUs** were signed between **National Hydroelectric Power Corporation (NHPC)**,

India and Vidyut Utpadan Company Ltd, Nepal for the development of the **Phukot Karnali Hydroelectric Project** and the **Lower Arun Hydroelectric Project**, strengthening **bilateral cooperation in the hydropower sector**.

- This cooperation not only strengthens Nepal's revenue base but also contributes to India's **clean energy transition**, creating a **win-win interdependence**.
- **Connectivity and Infrastructure:** India's investments in **cross-border connectivity**—including **railways (Jayanagar–Kurtha, Jogbani–Biratnagar)**, **highways**, **Integrated Check Posts (Birgunj, Bhairahawa)**, and **petroleum pipelines**—have enhanced Nepal's access to **sea routes and global trade**.
 - The **Motihari–Amlekhgunj Pipeline**, South Asia's **first cross-border petroleum pipeline** (69 km from Bihar, India to Amlekhgunj, Nepal), supplies **cleaner and more affordable fuel** by **cutting transport costs** and reducing risks of **pilferage, adulteration, and supply disruptions**.
 - These initiatives, under India's **Neighbourhood First** and **Act East** policies, position Nepal as a **gateway between South and Central Asia**.
- **Strategic and Security Cooperation:** Close defence and security cooperation underpins bilateral stability.
 - Joint military exercises such as **Surya Kiran**, **intelligence sharing**, and **border management coordination** maintain trust and ensure peace along the porous frontier.
 - The reciprocal conferring of the **honorary rank of General** between army chiefs reflects mutual respect.
 - Security interdependence is vital for combating **cross-border crime, smuggling, and terrorism**, enhancing overall regional stability.
- **Development Partnership and Humanitarian Cooperation:** India has been Nepal's **largest development partner**, contributing over **USD 1.5 billion since 2008** for projects in **health, education, rural electrification, and water sanitation**.
 - **Nepalese nationals** in conflict zones have been **evacuated alongside Indians** under the Government of India's missions such as '**Operation Ajay**' and '**Operation Ganga**', reflecting India's **commitment to regional solidarity and humanitarian cooperation**.
 - The **Government of India (GoI)** provides over **1,500 scholarships annually** to **Nepalese students** for pursuing courses in **India and Nepal** across diverse **academic disciplines**, strengthening **educational and cultural linkages** between the two nations.
 - **India** has been a **longstanding partner of Nepal** during **emergencies and natural disasters**.
 - Following the **2015 earthquake**, India's "**Operation Maitri**" provided immediate relief and reconstruction assistance.
 - During the **COVID-19 pandemic**, India supplied **vaccines, oxygen, and medicines**, demonstrating humanitarian interdependence in crises.

Major Challenges Affecting India–Nepal Relations Today

- **Political Instability and Governance Deficits:** Nepal's **political landscape** experienced intense unrest in **2025**, catalysed by **youth-led protests** against **corruption, unemployment, and suppression of dissent**.
 - This unrest escalated to **violent clashes**, the **resignation of the Prime Minister**, and **delayed elections**.
 - Such instability disrupts **policy continuity**, affecting **India–Nepal bilateral projects and cooperation**.
- **Territorial dispute and Anti-India Sentiments:** The rise of **nationalist narratives** in Nepal has introduced **diplomatic strains**.
 - Particularly, the **2020 territorial dispute over Kalapani, Lipulekh, and Limpiyadhura** has magnified perceptions of **Indian territorial encroachment**.
 - Political actors in Nepal have sometimes used **anti-India rhetoric** to galvanise **domestic support**, framing India as an **obstructive external force**.
 - Conversely, India perceives Nepal's **closer ties with China** and **review demands** on longstanding treaties (e.g., the **1950 Treaty of Peace and Friendship**) as challenges to its **regional influence**.
- **Economic and Trade Imbalance:** Nepal's **persistent trade deficit** with India remains a pressing challenge.
 - **The unofficial economic blockades**, notably during the **2015 Nepal blockade** (perceived as **Indian tacit support**), have caused **deep resentment** and **strained bilateral relations**.
 - While India supplies over **64% of Nepal's imports**, Nepal's exports to India constitute less than **10% of bilateral trade**, making Nepal **economically dependent and vulnerable**.
 - This imbalance hinders **Nepal's economic sovereignty** and **productive capacity**.
 - Furthermore, **tariff and non-tariff barriers** restrain Nepal's access to Indian markets, and **delays in cross-border electricity imports** detract from the full potential of **energy cooperation**.
- **China's Expanding Influence and Strategic Competition:** Nepal's **diversification of foreign partnerships**, particularly through engagement with **China's Belt and Road Initiative (BRI)**, has introduced a new dimension of **regional competition**.
 - **Chinese investments**, including **large infrastructure projects** and **connectivity options**, provide Nepal with **alternatives** to Indian-dominated trade and development links.
 - This **strategic realignment** complicates India's traditional **hegemony in Nepal** and poses concerns over **security near sensitive Himalayan borders**.
- **Water Resource Management and Environmental Concerns:** Shared **river basins** create opportunities for **hydropower and irrigation cooperation** but also generate **disputes and challenges**.

- Stalled treaties like the **Mahakali Treaty** and disagreements over **water-sharing** exacerbate bilateral tensions.
- Additionally, **climate change-induced flooding** in Nepal's **Terai region**, which also affects **Indian border states**, demands **coordinated disaster management** and **infrastructure development**.
- **Border Security and Infrastructure Gaps:** The open **1,770 km India-Nepal border** facilitates **cultural and economic integration** but also presents serious **security challenges**.
 - **Underinvestment, bureaucratic delays, and political instability** hamper **timely project completion**.
 - These **bottlenecks** limit Nepal's **access to international markets** and constrain **bilateral trade and investment flows**.
 - **Unregulated crossings** contribute to **smuggling, human trafficking, and infiltration risks**.
 - **Terrorist organisations** such as **LeT, Indian Mujahideen, and Northeast insurgent groups** have been **exploiting the open border** to facilitate their operations — including **movement of trained cadres, circulation of fake Indian currency, terror financing through Nepalese banks, and smuggling of small arms, explosives, and narcotics**.
 - Despite several **connectivity projects** like **cross-border railways, Integrated Check Posts, and petroleum pipelines**, **development gaps** persist.

India's Key Foreign Policy Initiatives

- **Neighbourhood First Policy:** The policy emphasises **stronger physical, digital, and cultural connectivity** with neighbouring countries such as **Bhutan, Nepal, Sri Lanka, Maldives, Myanmar, Bangladesh, and Afghanistan**.
 - It is guided by the principles of **respect, dialogue, peace, and prosperity**, with **India's support spanning from major infrastructure initiatives to grassroots development projects**.
- **Act East Policy:** The **Act East Policy**, upgraded in **2014** from the earlier **Look East Policy**, broadens **India's engagement with Southeast Asia and the Indo-Pacific**.
 - With **ASEAN at its core**, the policy promotes **economic partnerships, cultural exchanges, and security cooperation**.
 - India has simultaneously **strengthened bilateral ties** and taken an **active role in regional forums** such as the **East Asia Summit, QUAD, and ASEAN Defence Ministers Meeting Plus**, reinforcing its strategic and diplomatic presence in the region.
- **Security and Growth for All in the Region (SAGAR) Initiative:** Launched in **2015**, **SAGAR** aims to strengthen **India's maritime cooperation and security engagement with Indian Ocean littoral states**.
- **BIMSTEC and SAARC Revitalisation:** India pushes for **revitalising regional groupings**

like SAARC and promoting **sub-regional cooperation** through **BIMSTEC** with **institutionalised summits and dialogues** to foster **structured, predictable, and sustained regional diplomacy**.

- **Digital Diplomacy and Connectivity:** India has introduced **cross-border digital payment interoperability** (e.g., **UPI acceptance by Nepal**), shares open-source governance platforms, and promotes capacity building in cybersecurity to build tech-enabled, people-centric regional connectivity and economic integration.
- **Defence and Strategic Partnerships:** Initiatives like **joint military exercises, capacity building in defence manufacturing** under '**Innovation for Defence Excellence (iDEX)**', and **security cooperation** with neighbours enhance **regional stability** and counter **external influences**.
- **Development Partnership and Humanitarian Assistance:** India remains the **largest development partner** in the region, providing **credit, grants, disaster relief, vaccines, and evacuation support** during crises. (e.g., **2015 Nepal earthquake aid, COVID-19 vaccine sharing, Operation Ganga**).

Strengthening Bilateral Relationship with Nepal

- **Strengthen Democratic Institutions and Political Stability:** India's support for **Nepal's democratic processes**, including **electoral assistance** and **capacity building for federal governance**, is crucial.
 - Given **Nepal's political instability** culminating in the **2025 youth-led protests** and **delayed elections**, India must deepen **technical cooperation** and continue **youth diplomacy programs** to nurture a **stable and inclusive political landscape**.
 - Helping **institutionalise democratic norms** will secure **bilateral projects** and reduce **regional security risks**.
- **Deepen Economic Engagement Through Diversified Trade and Investment:** Expanding cooperation beyond **traditional sectors** to include **IT, tourism, and agro-processing** will create **employment** and reduce **Nepal's economic dependence**.
 - Negotiating a comprehensive **Bilateral Economic Partnership Agreement (BEPA)** that covers **services, e-commerce, and better market access** can address **Nepal's trade deficit**. (NPR 237.45 billion in FY 2024–25)
 - The increasing export of **Nepalese hydropower**, catalysed by long-term agreements like the **400 kV Dhalkebar–Muzaffarpur line**, exemplifies the potential for **mutually beneficial economic integration**.
- **Accelerate Connectivity and Infrastructure Projects:** Priority should be given to operationalising **cross-border railway lines** such as **Jayanagar–Kurtha** and **Jogbani–Biratnagar**, upgrading **Integrated Check Posts (ICPs)** at **Birgunj** and **Bhairahawa**, and expanding **road networks** like the **Terai Hulaki Highway**.
 - These efforts will enhance **Nepal's access to sea routes** and **regional markets**, linking it more firmly with India's **Act East Policy** and boosting **regional supply chains, trade,**

and tourism.

- **Enhance Defence and Border Security Cooperation:** The open 1,770 km border must be managed through **high-tech joint patrols, biometric monitoring, and e-border posts** to combat **smuggling, human trafficking, and infiltration**.
 - Strengthening **military cooperation** via joint exercises such as 'Surya Kiran' and expanding the **recruitment and welfare services for Gurkha soldiers** will reinforce **trust and security** under the framework of the **1950 Treaty of Peace and Friendship**.
- **Manage Geopolitical Competition Through Transparent and Balanced Engagements:** India should increase **grant-based development assistance** and viable **economic alternatives** to converging **Chinese BRI projects in Nepal**, which currently exceed \$3 billion in loans.
 - Promoting **trilateral dialogue** among **India, Nepal, and China**, while leveraging frameworks such as **BIMSTEC**, will help avert **zero-sum rivalries** and maintain **regional equilibrium**, ensuring the **sovereignty and developmental priorities of Nepal** are respected.
- **Collaborate on Climate Change and Disaster Resilience:** With both countries prone to **climate-induced floods and earthquakes**, institutionalising **joint disaster response, coordinated water resource management** (e.g., revisiting the **Mahakali Treaty**), and **sustainable environmental practices** will safeguard **shared resources** and protect **vulnerable populations**.
 - Ensuring **rapid humanitarian assistance** and **capacity-building** will also foster **trust and regional solidarity**.
- **Expand Socio-Cultural and People-to-People Outreach:** Strengthening **soft power** is essential for **enduring partnerships**. India should increase **scholarships** beyond the current **1,500 annually**, enhance **pilgrim circuit tourism** centred on **Buddhist and Hindu sites**, and promote **cultural festivals and language programs**.
 - These initiatives help build **grassroots goodwill** and nurture the **civilizational ties** underpinning **India-Nepal relations**.

As the **Indian Prime Minister** said for the enduring **India-Nepal relationship**, "*Given the situation throughout the world, our deepening friendship will benefit the entire humanity, and the devotion and faith of both our countries in Lord Buddha bind us in one thread, making us members of the same family.*" Moving forward, **India** should prioritise **inclusive political engagement, economic diversification, enhanced connectivity, and balanced geopolitical diplomacy** to ensure **mutual growth and resilience** in a **complex geopolitical environment**.

Paris Plus Ten: The Green Shift Gains Speed

Paris Accord



- **Legal Foundation:** A legally binding treaty adopted by 195 Parties at COP21 (Paris, 2015) and in force since 4 November 2016, with ratifications tracked by the UN Treaty Depository under the UN Secretary-General.
- **Core Temperature Goal:** Seeks to limit global warming well below 2°C and pursue 1.5°C, as breaching this threshold risks severe droughts, heatwaves, and floods.
- **Scientific Urgency:** The IPCC warns that to stay below 1.5°C, emissions must peak before

2025 and decline 43% by 2030, demanding immediate action.

- **Universal Participation:** For the **first time**, all countries agreed to a **common legal framework** for mitigation and adaptation, balancing **global ambition with national flexibility**.
- **Operational Cycle (NDC Framework):** Works on a **five-year ratchet cycle** where nations submit **Nationally Determined Contributions (NDCs)** with progressively higher targets guided by science.
- **Long-Term Strategies (LT-LEDS):** Encourages nations to adopt **long-term low-emission strategies** linking **short-term NDCs** with sustainable and **net-zero goals**.
- **Support Architecture:** Provides for **finance, technology, and capacity-building**, with **developed nations funding** mitigation and **developing nations receiving support** for resilience.
- **Transparency and Global Stocktake:** Through the **Enhanced Transparency Framework (ETF)**, countries report progress from **2024**, feeding into a **five-year Global Stocktake** to assess and raise collective ambition.

Impact and Progress of the Paris Agreement

- Before the Agreement, global warming was projected to reach 4°C-5°C by century's end. Now, it's adjusted to 2°C-3°C due to collective actions.
- The Agreement emphasizes fairness, justice, and international solidarity, recognizing diverse national circumstances.
- Globally, the economic transition to low-carbon energy is underway, with renewable energies like wind and solar leading growth and job creation.

Technological Advancements and International Cooperation

- Electric vehicle sales now represent nearly 20% of new car sales worldwide, driven by advances in battery technology.
- The **International Solar Alliance (ISA)**, launched by India and France, showcases international cooperation in promoting solar energy.

India's Leadership in Climate Action

- India achieved 50% of its installed electricity capacity from non-fossil sources ahead of the 2030 target.
- The nation aims for a low-carbon pathway and net-zero emissions by 2070.

COP & Year	Venue	Key Outcomes and Achievements
COP21 (2015)	Paris, France	Adoption of the legally binding Paris Agreement by 195 Parties; global temperature goal set to well below 2°C with efforts to limit to 1.5°C ; introduction of Nationally Determined Contributions (NDCs) ; establishment of a five-year cycle to raise ambition; recognition of equity and Common but Differentiated Responsibilities (CBDR) .
COP22	Marrakech,	Initiation of the Marrakech Partnership for Global Climate

(2016)	Morocco	Action linking governments, businesses, and civil society; agreement on timelines to develop the Paris Rulebook for implementation.
COP23 (2017)	Bonn, Germany (Presided by Fiji)	Launch of the Fiji Momentum for Implementation ; emphasis on adaptation and resilience for small island developing states; progress on Loss and Damage and climate finance .
COP24 (2018)	Katowice, Poland	Adoption of the Katowice Climate Rulebook outlining operational guidelines for implementing the Paris Agreement; finalisation of rules for NDCs, transparency, and the Global Stocktake ; inclusion of a just transition framework for workers.
COP25 (2019)	Madrid, Spain	Reaffirmation of global commitment to the Paris goals; limited progress on carbon markets (Article 6) ; recognition of the oceans-climate nexus as a critical area of action.
COP26 (2021)	Glasgow, United Kingdom	Adoption of the Glasgow Climate Pact ; first global call to phase down unabated coal and end fossil-fuel subsidies ; reaffirmation of the 1.5°C goal ; announcement of India's Net Zero by 2070 and Panchamrit strategy .
COP27 (2022)	Sharm El-Sheikh, Egypt	Establishment of the Loss and Damage Fund for vulnerable nations; recognition of just transition pathways ; decision to revisit and strengthen NDCs by 2023 to align with the 1.5°C goal.
COP28 (2023)	Dubai, United Arab Emirates	Completion of the first Global Stocktake (GST) ; recognition of the need to transition away from fossil fuels ; operationalisation of the Loss and Damage Fund with over \$700 million pledged .
COP29 (2024)	Baku, Azerbaijan	Agreement on the New Collective Quantified Goal (NCQG) to replace the \$100 billion annual finance target post-2025; focus on enhanced adaptation funding and technology transfer mechanisms.
COP30 (2025)	Belém, Brazil	Marking 10 years of the Paris Agreement ; review of first GST outcomes; reaffirmation of multilateralism; emphasis on five global priorities —emission reduction, just transition, protection of natural sinks, empowerment of non-state actors, and defense of climate science.

Challenges to the Paris Agreement

- **Warming Overshoot and Weak Implementation:** Global emissions remain on a **2.7°C trajectory**, exceeding the Paris **1.5°C limit**, as many nations delay updating or meeting their **NDCs**, reflecting the absence of **binding compliance mechanisms** and weakening global decarbonisation efforts.
- **Finance Deficit and Diluted Commitments:** Developing nations require around **\$6 trillion**

annually till 2030, yet finance flows remain inadequate.

- The **Baku Deal (2025)** raised the long-standing **\$100 billion** target to only **\$300 billion from 2035**, while disputes under the **NCQG** over fund sources, contributors, and grant-loan balance stalled climate finance reform.
- **Inequitable Burden and Erosion of Trust:** The **Global South**—especially **South Asia, Africa, and small island nations**—faces the worst climate losses despite minimal emissions, while developed countries' efforts to **dilute historical responsibility** and the possibility of another **U.S. withdrawal** deepen mistrust in multilateral mechanisms.
- **Technical and Institutional Bottlenecks:** Unresolved issues under **Article 6 on Corresponding Adjustments** and **Share of Proceeds** block carbon market operations; the **Global Goal on Adaptation** lacks measurable indicators; and weak **transparency frameworks** hinder accountability and effective progress assessment.
- **Geo-Economic and Trade Frictions:** The EU's **CBAM** imposes carbon tariffs acting as **non-tariff barriers** for developing nations; the **U.S. Inflation Reduction Act (IRA)** has triggered a **green subsidy race**, prompting India's **PLI schemes**.
 - Also the competition for **critical minerals** like lithium, cobalt, and nickel has reshaped global **resource geopolitics**.
- **Domestic Transition and Fiscal Strain (India):** India faces dual challenges of ensuring a **just transition** in coal-dependent regions and addressing **hard-to-abate sectors** like steel and cement, as high costs of **Carbon Capture, Utilisation and Storage (CCUS)** and **Green Hydrogen**, along with limited fiscal space, demand **green budgeting, carbon pricing**, and innovative financing such as **green bonds**.
- **Legal, Ethical, and Information Challenges:** The **Vanuatu-led UNGA resolution (2024)** seeking an **ICJ advisory opinion** links climate obligation to **human rights and intergenerational justice**, while widespread **climate misinformation** and politicisation of science erode **evidence-based policymaking** and global consensus.

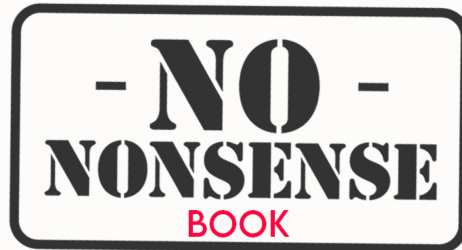
Road ahead

- The world must **accelerate collective emission reduction efforts** and adopt ambitious, science-based national targets.
- There should be a **just and inclusive transition**, prioritising adaptation, resilience, and support for vulnerable communities through mechanisms like the **Green Climate Fund, Loss and Damage Fund, and CDRI**.
- **Protection of natural carbon sinks**, including forests, mangroves, and oceans, must become a central strategy in global climate action.
- **Empowering local governments, businesses, and civil society** is essential to translating climate goals into action on the ground.
- **Defending climate science** and strengthening institutions like the **IPCC** are vital to combat disinformation and ensure evidence-based policy.
- Developed nations should ensure **predictable and equitable climate finance** to bridge the

implementation gap.

The Paris Agreement's transformation path is deemed *unstoppable* due to the necessity of adaptation, irreversible industrial investments, sustainable local policies, and the resilience of multilateralism. Benoît Faraco, France's Special Envoy for Climate Negotiations, emphasizes the continued importance of coordinated global efforts to address climate change.

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