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04\_12\_2024 DAILY CURRENT AFFAIRS

### TOPICS COVERED

1. India, China have set ties on right track: Jaishankar ( भारत और चीन ने संबंधों को सही दिशा में रखा है: जयशंकर (GS Paper-II: India-China)
2. Dhaka summons Indian envoy after breach at Agartala mission  
अगरतला मिशन में सुरक्षा उल्लंघन के बाद ढाका ने भारतीय राजनयिक को तलब किया (GS Paper-II: India-Bangladesh)
3. Reflections on Baku's 'NCQG Outcome'/ बाकू के 'एनसीक्यूजी परिणाम' पर विचार (GS Paper-III: Environment)
4. Rethinking 'Representation' for a Meaningful COP30  
COP30 के लिए 'प्रतिनिधित्व' पर पुनर्विचार (GS Paper-III: Environment)
5. Power of Pardon / क्षमादान की शक्ति (GS Paper-II: Pardoning Power)
6. Local action amidst global inertia / वैश्विक निष्क्रियता के बीच स्थानीय कार्रवाई (GS Paper-III: Environment)
7. Unpredictable rainfall makes farming in Marathwada even harder / मराठवाड़ा में कृषि को और कठिन बनाती अप्रत्याशित वर्षा (GS Paper-III: Disaster Management)





8. The salience of the Places of Worship Act / पूजास्थल  
(विशेष प्रावधान) अधिनियम की महत्ता (GS Paper-I:  
Communalism)
9. Controversies Around Pardoning Power / पाईनिंग पावर के  
चारों ओर विवाद (GS Paper-II: Pardoning Power)
10. Justice Manmohan appointed judge of Supreme  
Court  
सुप्रीम कोर्ट में न्यायमूर्ति मनमोहन की नियुक्ति (PCS)
11. Bank Bill passes LS, allows one account, 4  
nominees  
बैंक विधेयक लोकसभा में पास, एक खाता, 4 नामांकित व्यक्तियों  
की अनुमति (GS Paper-III)
12. More cases led under SC/ST Act due to awareness,  
says Minister / SC/ST अधिनियम के तहत अधिक मामले  
जागरूकता के कारण बढ़े, मंत्री का कहना है (GS Paper-I:  
Society)
13. World Wildlife Day: Making a Clarion Call to Protect  
India's Critically Endangered Species / विश्व वन्यजीव  
दिवस: भारत की संकटग्रस्त प्रजातियों की रक्षा के लिए एक  
आह्वान (GS Paper-III: Environment)



# India, China have set ties on right track: Jaishankar

Jaishankar cites 'continuous diplomatic engagement' with Beijing for disengagement along the Line of Actual Control; Lok Sabha Speaker disallows questions from Opposition on the matter

GS Paper II: India-China

Suhasini Haidar  
NEW DELHI

India and China have set ties in the "direction of some improvement", External Affairs Minister S. Jaishankar told Parliament on Tuesday, crediting "continuous diplomatic engagement" and a step-by-step approach with Beijing in achieving disengagement in border areas, where he said the situation had been "abnormal" since 2020 as a "result of Chinese actions".

"We have been very clear that the restoration of peace and tranquillity would be the basis for the rest of the relationship to move forward," Mr. Jaishankar said.

In a 20-minute *suo motu* statement to the Lok Sabha, he recounted steps

## Next steps

With disengagement 'fully achieved' at the India-China border, Minister Jaishankar details the developments to follow as per agreement between the two countries

■ Talks on de-escalation along Line of Actual Control (LAC)

■ Discussions on management of border and confidence-building measures

■ Meeting of Special Representatives Ajit Doval and Wang Yi

■ Meeting of Foreign Secretary Vikram Misri and his Chinese counterpart

We have been very clear that the restoration of peace and tranquillity would be the basis for the relationship to move forward

S. JAISHANKAR  
External Affairs Minister



leading to the agreement announced on October 21, in which the Indian Army and People's Liberation Army (PLA) forces agreed to disengage troops at Demchok and Depsang, and work towards de-escalating tensions along the Line

of Actual Control (LAC).

Lok Sabha Speaker Om Birla refused requests from the Opposition for any questions or clarifications to the statement.

"As a result of this recent understanding, arrived at after intensive ne-

gotiations, resumption of patrolling to the traditional areas is under way," Mr. Jaishankar said, adding that patrols had conducted the "verification of disengagement on the ground" as well.

He said that disengagement from all friction points at the LAC has now been "fully achieved", and that the next priority would be de-escalation, or the withdrawal of troops from the area. He said the Special Representatives and Foreign Secretaries of the two countries would meet soon to take ties forward.

He said the government's stance during negotiations had been "firm and principled".

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## India, China have set ties on right track: Jaishankar

### भारत और चीन ने संबंधों को सही दिशा में रखा है: जयशंकर

External Affairs Minister S. Jaishankar stated in Parliament that India and China have set ties in the "direction of some improvement."

विदेश मंत्री एस. जयशंकर ने संसद में कहा कि भारत और चीन ने संबंधों को "कुछ सुधार की दिशा" में स्थापित किया है।

He credited **continuous diplomatic engagement** and a **step-by-step approach** for

achieving disengagement in border areas.

उन्होंने निरंतर कूटनीतिक संपर्क और चरणबद्ध दृष्टिकोण को सीमा क्षेत्रों में गतिरोध समाप्त करने में सफल होने का श्रेय दिया।

He mentioned that the situation had been "abnormal" since 2020 due to "Chinese actions."

उन्होंने कहा कि स्थिति 2020 से "असामान्य" रही है क्योंकि यह "चीनी गतिविधियों" का परिणाम है।

## Steps towards improvement

### सुधार की दिशा में कदम

Mr. Jaishankar emphasized that the **restoration of peace and tranquillity** is the basis for improving the overall relationship.

श्री जयशंकर ने जोर देकर कहा कि शांति और स्थिरता की बहाली संबंधों में सुधार का आधार है।

In his **20-minute suo motu statement to the Lok Sabha**, he detailed the agreement announced on **October 21** for **disengagement at Demchok and Depsang**.

उन्होंने लोकसभा में अपने 20 मिनट के स्वतः संज्ञान बयान में 21 अक्टूबर को घोषित डेमचोक और डेपसांग से सैन्य वापसी के समझौते का विवरण दिया।





## Disengagement Achieved

### गतिरोध समाप्त किया गया

- He stated that disengagement from all **friction points at the Line of Actual Control (LAC)** has been fully achieved.  
उन्होंने कहा कि वास्तविक नियंत्रण रेखा (LAC) पर सभी संवेदनशील बिंदुओं से गतिरोध को पूरी तरह समाप्त कर दिया गया है।
- The next priority is **de-escalation** or troop withdrawal from the area.  
अगली प्राथमिकता तनाव कम करना या क्षेत्र से सैनिकों की वापसी है।
- Patrolling to the **traditional areas** has resumed, with verification of disengagement on the ground.  
पारंपरिक क्षेत्रों में गश्त फिर से शुरू हो गई है, और जमीनी स्तर पर गतिरोध समाप्ति की पुष्टि की गई है।

## Future Steps

### भविष्य के कदम

- Special Representatives and Foreign Secretaries of the two countries will meet soon to take ties forward.  
दोनों देशों के विशेष प्रतिनिधि और विदेश सचिव जल्द ही संबंधों को आगे बढ़ाने के लिए मिलेंगे।
- The government maintained a **"firm and principled"** stance during negotiations.  
सरकार ने वार्ता के दौरान "दृढ़ और सैद्धांतिक" दृष्टिकोण बनाए रखा।

## Lok Sabha Proceedings

### लोकसभा की कार्यवाही

- Lok Sabha Speaker **Om Birla** disallowed Opposition requests for questions or clarifications on the matter.  
लोकसभा अध्यक्ष **ओम बिड़ला** ने इस मुद्दे पर विपक्ष के सवाल या स्पष्टीकरण के अनुरोधों को अस्वीकार कर दिया।
- Mr. Jaishankar highlighted that the understanding was reached after **intensive negotiations**.  
श्री जयशंकर ने बताया कि यह समझौता गहन वार्ताओं के बाद हुआ।

## Developments in India-China Diplomatic Relations

### भारत-चीन कूटनीतिक संबंधों में प्रगति

- The Minister stated that **tensions were driven by the "unstable" local situation** and its impact on the bilateral relationship.





मंत्री ने कहा कि "अस्थिर" स्थानीय स्थिति और इसके द्विपक्षीय संबंधों पर प्रभाव ने तनाव को जन्म दिया।

- The negotiations included **17 meetings of the WMCC (Working Mechanism for Cooperation and Coordination)** and **21 rounds of SHMC (Senior Highest Military Commanders meeting)** since 2020.

वार्ताओं में 2020 से WMCC (वर्किंग मैकेनिज्म फॉर कोऑपरेशन एंड कोऑर्डिनेशन) की 17 बैठकें और SHMC (सीनियर हाईएस्ट मिलिट्री कमांडर्स मीटिंग) के 21 दौर शामिल थे।

- The **October 21 agreement** followed two meetings between Jaishankar and **Chinese Foreign Minister Wang Yi** in July, and one meeting between **NSA Ajit Doval and Wang Yi** in September.

21 अक्टूबर के समझौते से पहले जुलाई में जयशंकर और चीनी विदेश मंत्री वांग यी के बीच दो बैठकें हुईं, और एक बैठक सितंबर में एनएसए अजीत डोवाल और वांग यी के बीच हुई।

- Since the agreement, **PM Narendra Modi met Chinese President Xi Jinping**, and **Defence Minister Rajnath Singh** and Foreign Ministers met during various conferences.

समझौते के बाद, प्रधानमंत्री नरेंद्र मोदी ने चीनी राष्ट्रपति शी जिनपिंग से मुलाकात की, और रक्षामंत्री राजनाथ सिंह और विदेश मंत्रियों ने विभिन्न सम्मेलनों के दौरान मुलाकात की।

- Focus since **September 2022** has been on **Demchok and Depsang**, the two remaining friction points after disengagement on five points, including **Pangong Tso Lake and Hot Springs area**.

सितंबर 2022 से ध्यान डेमचोक और डेपसांग पर केंद्रित रहा है, जो पांच स्थानों से विघटन के बाद बची हुई दो विवादित बिंदु हैं, जिनमें पेंगोंग त्सो झील और हॉट स्प्रिंग्स क्षेत्र शामिल हैं।

- Without directly referring to buffer zones, Mr. Jaishankar stated that **temporary and limited steps** were taken to avoid further friction, revisitable as the situation demands. बफर जोन का सीधे जिक्र किए बिना, श्री जयशंकर ने कहा कि **अस्थायी और सीमित कदम** आगे के विवाद से बचने के लिए उठाए गए हैं, जो स्थिति के अनुसार पुनः मूल्यांकन योग्य हैं।
- The **October 21 agreement** has raised concerns among former officials about restoring the **status quo ante** without dismantling the buffer zones.

21 अक्टूबर के समझौते ने पूर्व अधिकारियों के बीच यह चिंता बढ़ाई है कि बफर जोन को हटाए बिना स्थिति यथावत (status quo ante) कैसे बहाल की जाएगी।

- Mr. Jaishankar emphasized India's **national security**, upheld by three key principles:
  - Both sides should **strictly respect and observe the LAC**.
  - **Neither side should unilaterally alter the status quo**.
  - Past agreements and understandings must be **fully abided by in their entirety**.श्री जयशंकर ने भारत की **राष्ट्रीय सुरक्षा** पर बल दिया, जिसे तीन मुख्य सिद्धांतों द्वारा सुनिश्चित किया गया:
  - दोनों पक्षों को **LAC का सख्ती से सम्मान और पालन करना चाहिए**।
  - **कोई भी पक्ष स्थिति यथावत (status quo) को एकतरफा बदलने का प्रयास नहीं करेगा**।
  - पिछले समझौतों और सहमतियों का पूरी तरह पालन होना चाहिए।





- **Pangong Tso** is an endorheic (closed basin) lake situated in **eastern Ladakh** (India) and **West Tibet** (China) at an elevation of **4,225 meters (13,862 feet)**.  
पेंगोंग त्सो एक अंतर्देशीय (बंद बेसिन) झील है, जो **पूर्वी लद्दाख** (भारत) और **पश्चिमी तिब्बत** (चीन) में स्थित है, जिसकी ऊँचाई **4,225 मीटर (13,862 फीट)** है।
- The lake is **134 kilometers (83 miles)** long and is divided into five sub-lakes: **Pangong Tso, Tso Nyak, Rum Tso** (twin lakes), and **Nyak Tso**.  
झील **134 किलोमीटर (83 मील)** लंबी है और इसे पांच उप-झीलों में बाँटा गया है: **पेंगोंग त्सो, त्सो न्याक, रुम त्सो** (जुड़ी हुई झीलें), और **न्याक त्सो**।
- **50% of the lake's length** lies in Tibet, under Chinese administration, while **40%** is in India-administered Ladakh, and **10%** is a disputed zone, serving as a de facto buffer between India and China.  
झील की **50% लंबाई** तिब्बत में स्थित है, जो चीन के प्रशासन में है, जबकि **40%** भारत-प्रशासित लद्दाख में है, और **10%** एक विवादित क्षेत्र है, जो भारत और चीन के बीच एक वास्तविक बफर के रूप में कार्य करता है।
- The lake's width is **5 kilometers (3.1 miles)** at its broadest point, and it covers a total area of nearly **700 square kilometers**.  
झील की चौड़ाई इसके सबसे चौड़े बिंदु पर **5 किलोमीटर (3.1 मील)** है, और इसका कुल क्षेत्रफल लगभग **700 वर्ग किलोमीटर** है।
- In winter, the lake freezes completely, despite being saline water.  
सर्दियों में यह झील पूरी तरह से जम जाती है, हालांकि इसका पानी खारा होता है।
- The lake has a **land-locked basin**, separated from the **Indus River basin** by a small elevated ridge. It is believed to have been part of the Indus River basin in prehistoric times.  
झील का एक **बंद बेसिन** है, जिसे **इंडस नदी बेसिन** से एक छोटे से ऊँचे पहाड़ी रिज द्वारा अलग किया गया है। ऐसा माना जाता है कि यह प्रागैतिहासिक समय में इंडस नदी बेसिन का हिस्सा था।



# Dhaka summons Indian envoy after breach at Agartala mission

GS Paper II:  
India-Bangladesh

NEW DELHI

The Ministry of Foreign Affairs (MoFA) of Bangladesh summoned the Indian envoy on Tuesday to convey Dhaka's concerns about the breach of security at the Assistant High Commission of Bangladesh in Agartala. Indian High Commissioner Pranay Verma was called to meet Acting Foreign Secretary Riaz Hamidullah even as Bangladesh suspended consular and visa activities at its mission in Agartala.

Bangladesh Foreign Ministry, in an announcement, cited "security situation" declaring, "all visa and consular services in the Assistant High Commission of Bangladesh will remain suspended till further notice".

"We have wide-ranging, multi-faceted relationship and you cannot reduce it to one issue and one agenda. We have so many interdependencies and we



Police guard the Indian High Commission after a call for anti-India protests, in Dhaka.

want to build on those interdependencies. A number of positive developments in the relationship in the last few months, like trade, power transmission, supply of essential commodities have taken place," Mr. Verma said after the meeting.

"We are interested in working with the Government of Bangladesh to fulfil our shared aspirations for peace, security and development," he added.

Sources said the meeting was "cordial".

On Tuesday, protests against alleged atrocities

targeting minority Hindus in Bangladesh continued in Agartala, Assam, and West Bengal. The Sanatani Yuba, a right-wing youth organisation, held a protest rally in Agartala under heavy security presence. Anti-Bangladesh sentiment was on display across Assam. Congress members gathered outside the Bangladesh mission in Guwahati to protest against atrocities targeting minority Hindus in Bangladesh. Protests were staged by the members of Lok Jagran Manch in the State's Nalbari, Chirang, Hojai, and Jorhat districts.

Bangladesh had reacted angrily on Monday after a group of people, who were protesting against the arrest of minority community leader Chinmoy Krishna Das's arrest in Dhaka, broke into the Agartala mission and tore the Bangladesh flag.

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## Dhaka summons Indian envoy after breach at Agartala mission

### अगरतला मिशन में सुरक्षा उल्लंघन के बाद ढाका ने भारतीय राजनयिक को तलब किया

• The Ministry of Foreign Affairs (MoFA) of Bangladesh summoned the Indian envoy on Tuesday to convey concerns about the breach of security at the Assistant High Commission of Bangladesh in Agartala.

बांग्लादेश के विदेश मंत्रालय (MoFA) ने मंगलवार को अगरतला में बांग्लादेश के

सहायक उच्चायोग में सुरक्षा उल्लंघन को लेकर भारतीय राजदूत को तलब किया।

• Indian High Commissioner Pranay Verma was called to meet Acting Foreign Secretary Riaz Hamidullah.

भारतीय उच्चायुक्त प्रणय वर्मा को कार्यवाहक

विदेश सचिव रियाज हमीदुल्लाह से मिलने के लिए बुलाया गया।

- Bangladesh suspended **consular and visa activities** at its mission in Agartala. बांग्लादेश ने अगरतला मिशन में वाणिज्यिक और वीजा गतिविधियों को निलंबित कर दिया।
- The Bangladesh Foreign Ministry cited a "**security situation**" and announced that all **visa and consular services** would remain suspended until further notice. बांग्लादेश विदेश मंत्रालय ने "सुरक्षा स्थिति" का हवाला देते हुए घोषणा की कि सभी वीजा और वाणिज्यिक सेवाएं अगले आदेश तक निलंबित रहेंगी।
- **Pranay Verma** said India is interested in working with the Government of Bangladesh to fulfill shared aspirations for **peace, security, and development**. प्रणय वर्मा ने कहा कि भारत बांग्लादेश सरकार के साथ शांति, सुरक्षा और विकास के साझा लक्ष्यों को पूरा करने के लिए काम करने का इच्छुक है।
- Protests against alleged atrocities targeting **minority Hindus** in Bangladesh were reported in Agartala, Assam, and West Bengal.





बांग्लादेश में अल्पसंख्यक हिंदुओं के खिलाफ कथित अत्याचारों के विरोध की खबरें अगरतला, असम और पश्चिम बंगाल से आईं।

- **Sanatani Yuba**, a right-wing youth organization, held a protest rally in **Agartala** under heavy security presence.

सनातनी युवा, एक दक्षिणपंथी युवा संगठन, ने अगरतला में भारी सुरक्षा के बीच विरोध प्रदर्शन किया।

- Anti-Bangladesh sentiment was visible across **Assam**, with protests in districts like **Nalbari, Chirang, Hojai**, and **Jorhat**.

असम के विभिन्न जिलों, जैसे नलबाड़ी, चिरांग, होजई, और जोरहाट में बांग्लादेश विरोधी भावना स्पष्ट रूप से दिखाई दी।

- **Congress** members protested outside the **Bangladesh mission** in **Guwahati** against atrocities targeting **minority Hindus**.

कांग्रेस सदस्यों ने गुवाहाटी में बांग्लादेश मिशन के बाहर अल्पसंख्यक हिंदुओं पर अत्याचारों के खिलाफ विरोध प्रदर्शन किया।

- On **Monday**, a group protesting the **arrest of Chinmoy Krishna Das** in **Dhaka** broke into the **Agartala mission** and tore the **Bangladesh flag**.

सोमवार को, ढाका में चिन्मय कृष्ण दास की गिरफ्तारी का विरोध कर रहे लोगों के एक समूह ने अगरतला मिशन में घुसकर बांग्लादेश का झंडा फाड़ दिया।

## Student Activist's Criticism of India

### छात्र कार्यकर्ता की भारत पर आलोचना

- **Nahid Islam**, student activist and adviser to the interim government of **Bangladesh**, criticized India on **Tuesday** and called **West Bengal Chief Minister Mamata Banerjee's** suggestion to deploy **UN forces** in Bangladesh a “**baseless remark**”.

नाहिद इस्लाम, जो बांग्लादेश की अंतरिम सरकार के सलाहकार और छात्र कार्यकर्ता हैं, ने मंगलवार को भारत की आलोचना की और पश्चिम बंगाल की मुख्यमंत्री ममता बनर्जी के बांग्लादेश में संयुक्त राष्ट्र बलों की तैनाती के सुझाव को "आधारहीन टिप्पणी" बताया।

- Mr. Islam stated, “**Her misplaced concern is ironic, given the vandalism of our Assistant High Commission in Agartala.**”

श्री इस्लाम ने कहा, "अगरतला में हमारे सहायक उच्चायोग में तोड़फोड़ के मद्देनजर उनकी गलत चिंता विडंबनापूर्ण है।"

## Bangladesh's Uprising and Criticism of Indian Policies

### बांग्लादेश का विद्रोह और भारतीय नीतियों की आलोचना

- Mr. Islam, who became prominent during the **July-August student-people uprising** that overthrew the **Sheikh Hasina government**, described Indian people as “**friends**” but accused **India's ruling elite and Hindutva forces** of undermining democratic harmony.

श्री इस्लाम, जिन्होंने जुलाई-अगस्त के छात्र-जन विद्रोह के दौरान प्रसिद्धि हासिल की, जिसने शेख





हसीना सरकार को उखाड़ फेंका, ने भारतीय लोगों को "मित्र" बताया, लेकिन भारत के सत्तारूढ़

अभिजात वर्ग और हिंदुत्व बलों पर लोकतांत्रिक सद्भाव को कमजोर करने का आरोप लगाया।

- He said, "India must not forget that its stability and integrity are closely interlinked with the stability and integrity of Bangladesh."

उन्होंने कहा, "भारत यह न भूले कि उसकी स्थिरता और अखंडता बांग्लादेश की स्थिरता और अखंडता से गहराई से जुड़ी हुई है।"

- He further added, "Anti-Bangladesh and anti-Muslim politics will not serve India's national interest or contribute to its unity."

उन्होंने आगे कहा, "बांग्लादेश विरोधी और मुस्लिम विरोधी राजनीति न तो भारत के राष्ट्रीय हित की सेवा करेगी और न ही उसकी एकता में योगदान देगी।"

## Security Breach at Agartala Mission

### अगरतला मिशन में सुरक्षा उल्लंघन

- **Three police sub-inspectors** in Tripura were suspended for negligence after the **security breach** at the **Bangladesh mission** in **Agartala**.  
त्रिपुरा में तीन पुलिस उप-निरीक्षकों को अगरतला में बांग्लादेश मिशन में सुरक्षा उल्लंघन के बाद लापरवाही के लिए निलंबित कर दिया गया।
- **Seven protesters** from the **Hindu Sangharsh Samiti** were arrested in connection with the incident.  
इस घटना के संबंध में हिंदू संघर्ष समिति के सात प्रदर्शनकारियों को गिरफ्तार किया गया।
- **Security agencies** are reviewing **CCTV footage** and **social media posts** to identify those involved.  
सुरक्षा एजेंसियां दोषियों की पहचान के लिए सीसीटीवी फुटेज और सोशल मीडिया पोस्ट की जांच कर रही हैं।

## Enhanced Security Measures at Agartala Mission

### अगरतला मिशन में सुरक्षा के उपाय बढ़ाए गए

- Following **New Delhi's assurance**, **CRPF** and **Tripura State Rifles** have been deployed outside the mission.  
नई दिल्ली के आश्वासन के बाद मिशन के बाहर सीआरपीएफ और त्रिपुरा राज्य राइफल्स तैनात कर दिए गए हैं।
- **Two security checkpoints** have been set up outside the mission, with **two additional checkpoints** created on the **Akhaura Road** leading to the **Agartala Integrated Check Post**.  
मिशन के बाहर दो सुरक्षा चौकियां स्थापित की गई हैं, और अगरतला एकीकृत चेक पोस्ट की ओर जाने वाले अखौरा रोड पर दो अतिरिक्त चौकियां बनाई गई हैं।





### ISKCON (International Society for Krishna Consciousness)

- ISKCON, also known as the International Society for Krishna Consciousness, is a **global organization founded in 1966 by A.C. Bhaktivedanta Swami Srila Prabhupada.**
- It is dedicated to the **teachings of the Bhagavad Gita and the promotion of the practice of Bhakti Yoga**, which involves devotion to Lord Krishna.  
ISKCON, जिसे अंतर्राष्ट्रीय कृष्ण चेतना समाज के नाम से भी जाना जाता है, एक वैश्विक संगठन है जिसकी स्थापना 1966 में श्रील प्रभुपाद द्वारा की गई थी। यह भगवद गीता की शिक्षाओं और भक्ति योग के अभ्यास को बढ़ावा देने के लिए समर्पित है, जिसमें भगवान श्री कृष्ण की भक्ति शामिल है।
- ISKCON is **best known for its devotional practices, community outreach programs, temples, and educational institutions that teach the philosophy of the Bhagavad Gita.**
- The organization emphasizes the importance of spiritual life, focusing on chanting the Hare Krishna mantra, a form of meditation and prayer.  
ISKCON अपनी भक्ति प्रथाओं, सामुदायिक outreach कार्यक्रमों, मंदिरों और शैक्षिक संस्थानों के लिए प्रसिद्ध है, जो भगवद गीता के दर्शन को सिखाते हैं। यह संगठन आध्यात्मिक जीवन के महत्व को बल देता है, जिसमें "हरे कृष्णा" मंत्र का जाप, ध्यान और प्रार्थना की एक विधि है।

### Important Points:

- **Founder:** ISKCON was founded by A.C. Bhaktivedanta Swami Prabhupada in 1966 in New York City. His mission was to spread the teachings of the Bhagavad Gita and the Vedic tradition across the world.  
**संस्थापक:** ISKCON की स्थापना 1966 में न्यूयॉर्क सिटी में श्रील प्रभुपाद द्वारा की गई थी। उनका उद्देश्य भगवद गीता और वेदिक परंपरा की शिक्षाओं को दुनिया भर में फैलाना था।
- **Philosophy:** The core philosophy of ISKCON is based on the Bhagavad Gita and the Srimad Bhagavatam. The organization emphasizes the importance of devotion to Lord Krishna, and its members practice Bhakti Yoga.  
**दर्शन:** ISKCON का मूल दर्शन भगवद गीता और श्रीमद्भागवतम पर आधारित है। संगठन भगवान श्री कृष्ण की भक्ति के महत्व को बल देता है, और इसके सदस्य भक्ति योग का अभ्यास करते हैं।
- **Temples:** ISKCON has temples in over 50 countries around the world. The most famous temple is in Vrindavan, India, considered the birthplace of Lord Krishna.  
**मंदिर:** ISKCON के दुनिया भर के 50 से अधिक देशों में मंदिर हैं। सबसे प्रसिद्ध मंदिर भारत के वृंदावन में है, जिसे भगवान श्री कृष्ण का जन्मस्थान माना जाता है।
- **Hare Krishna Movement:** ISKCON is popularly known for its "Hare Krishna" mantra, which is chanted as a form of meditation. The mantra is: "Hare Krishna, Hare Krishna, Krishna Krishna, Hare Hare; Hare Rama, Hare Rama, Rama Rama, Hare Hare."  
**हरे कृष्णा आंदोलन:** ISKCON को इसके "हरे कृष्णा" मंत्र के लिए जाना जाता है, जिसे ध्यान की



एक विधि के रूप में जाप किया जाता है। यह मंत्र है: "हरे कृष्णा, हरे कृष्णा, कृष्ण कृष्णा, हरे हरे; हरे राम, हरे राम, राम राम, हरे हरे।"

## Reflections on Baku's 'NCQG Outcome'

# Reflections on Baku's 'NCQG outcome'

GS Paper III: Environment

The urgency of climate change has never been more evident. The Intergovernmental Panel on Climate Change (IPCC) has highlighted the need for significantly stronger commitments to limit global warming to 1.5°C above pre-industrial levels. Current policies, if continued globally, are expected to lead to a temperature rise of up to 3.1°C. The increasingly visible impacts of climate change across geographies, apart from the growing body of scientific evidence, serve as a constant reminder of the need to accelerate climate action. Cleaner fuels and technological solutions are emerging across sectors and could be increasingly accessed and deployed with adequate focus on the means of implementation.

Against this backdrop with COP 29 (in Baku, Azerbaijan, in November 2024) branded as the "Finance COP", the hope was to see an ambitious outcome (specifically related to the NCQG or New Collective Quantified Goal) which strongly supported this understanding.

### Financing needs of the developing world

Finance is a critical component in accelerating the adoption of cleaner alternatives, especially in developing countries. While some of the renewable technologies pay off in the long run due to lower fuel and operational costs, the upfront costs of some of these technologies are much higher than the current options requiring government support to ensure affordability at the consumer end. Other green technologies may still be evolving and are associated with risks of failure that front-runners may need to bear. Given the pressure on government resources that need to be prioritised towards development activities, additional finance must be up-scaled urgently within this decade if transformational changes are to be expected in the adoption of clean and efficient alternatives in developing countries, as access to modern energy and infrastructure improves.

India's expenditure on green energy schemes encompass a wide range of initiatives aimed at expanding renewable energy infrastructure, promoting energy efficiency and clean fuel and technology innovations as part of its commitment to global climate goals. MNRE received its highest ever allocation of ₹19,100 crore in the Budget 2024-25, apart from about ₹40 crore being allocated for enhancing energy efficiency. In the transport sector, a subsidy of ₹5,790 crore has been provided to electric vehicle manufacturers under phase-II of Faster Adoption and



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It appears to have bypassed the principles of equitable burden sharing and climate justice, having failed to have recognised the financial needs of the global south

Manufacturing of (Hybrid) Electric vehicles (FAME) scheme.

Another aspect of finance required for the transition relates to the source and type of finance. There are growing concerns regarding fiscal debt, which forms the basis of the ask, for part of the financial support from developed countries to be in the form of public grants rather than loans.

The pace and the scale of transitions are also affected by the higher cost of capital in developing countries. Financial flows from developed countries must ideally aim to strengthen fiscal capacities and enable the unlocking of financial markets in developing countries to support and accelerate their climate action. The use of debt instruments to access finance does not work well for developing countries since their high debt burdens limit their ability to successfully incentivise domestic private capital for climate action. It is well recognised that developing countries attract much higher lending rates as compared to developed countries and much of the global financial flows are restricted within the Organisation for Economic Co-operation and Development (OECD) countries. Therefore, ensuring the flow of climate finance to developing countries at affordable lending rates is important.

### Role of the NCQG

At Cancun, in 2010, developed countries had pledged to provide \$100 billion annually upto 2020. Further, at COP21 in Paris, the parties decided to establish an NCQG prior to 2025, with the Cancun commitment as the base point. The rationale for establishing the NCQG was pressing. The existing climate pledges have generally been criticised for their lack of specificity and accountability.

Therefore, the NCQG was intended to create a framework for shared climate goals, to establish clear and quantified objectives that nations could aim to achieve, with transparency and accountability at the forefront. At COP26 at Glasgow in 2021, an ad hoc work programme for NCQG discussions was established to run from 2022-24, culminating towards the discussions at COP29.

The Second Needs Determination Report by the Standing Committee on Finance under the United Nations Framework Convention on Climate Change (UNFCCC) estimated that

between \$5 trillion to \$7 trillion would be needed by 2030 to meet half the needs of 98 countries. Developing countries had put forward a conservative ask of \$1.3 trillion annually at COP 29 (largely from public sources to enable leveraging the rest through private finance).

However, the developed world has in the NCQG agreed to provide an abysmal figure of \$300 billion annually till 2035. This quantum is

not only miniscule but hardly represents any major change in real flows – probably a target that could be achieved even with current or minimally additional efforts, if we account for inflation. Further, the mobilisation of funds is expected through all sources of finance including private capital. Undoubtedly, therefore, there is disappointment with the NCQG outcome, both on the quantum and structure of finance since it does not support the narrative of transformative action. While the decision to triple the flow of public resources through various operating entities of the Financial Mechanism, the Adaptation Fund, the Least Developed Countries Fund, and the Special Climate Change Fund from the 2023 level by 2035 is a positive aspect, it could also see rather slow progress in the next few years (and not aligned to the narrative of the urgency in climate action).

### The road ahead

COP29 saw the finance commitment step up from the earlier commitment of \$100 billion a year to \$300 billion a year. While this is a step in the correct direction, it is clearly not as ambitious as expected given that climate change is clearly recognised as one of the greatest threats and challenges of our time. Overall, the NCQG outcome is rather disappointing and does not seem to have aligned well with the very core of why the goal was set up in the first place. It clearly bypasses the principles of equitable burden sharing and climate justice as it fails to recognise the financial needs of the global south.

The way forward is to keep the talks ongoing. Climate change has no geographical boundaries. Thus, it is imperative that the international community cooperates towards the global good, keeping climate justice at the core and respecting the principles of the Common but Differentiated Responsibilities and Respective Capabilities (CBDR and RC). Developing countries must stick together and ensure that any transition is just and fair in the real sense.





## बाकू के 'एनसीक्यूजी परिणाम' पर विचार

- The urgency of climate change has never been more evident.  
जलवायु परिवर्तन की तात्कालिकता पहले कभी इतनी स्पष्ट नहीं रही।
- The **IPCC (Intergovernmental Panel on Climate Change)** has highlighted the need for significantly stronger commitments to limit global warming to **1.5°C above pre-industrial levels**.  
आईपीसीसी (जलवायु परिवर्तन पर अंतर-सरकारी पैनल) ने वैश्विक तापमान को औद्योगिक युग से पहले के स्तर से 1.5°C तक सीमित करने के लिए मजबूत प्रतिबद्धताओं की आवश्यकता पर जोर दिया है।
- Current policies, if continued globally, are expected to lead to a temperature rise of up to **3.1°C**.  
वर्तमान नीतियों के जारी रहने पर वैश्विक तापमान में 3.1°C तक वृद्धि होने की संभावना है।
- The increasingly visible impacts of climate change across geographies and the growing body of scientific evidence remind us to accelerate climate action.  
भौगोलिक क्षेत्रों में जलवायु परिवर्तन के स्पष्ट प्रभाव और बढ़ते वैज्ञानिक साक्ष्य हमें जलवायु कार्रवाई में तेजी लाने की याद दिलाते हैं।
- **Cleaner fuels and technological solutions** are emerging and could be accessed with adequate focus on the **means of implementation**.  
स्वच्छ ईंधन और तकनीकी समाधान उभर रहे हैं, जिन्हें कार्यान्वयन के उचित साधनों पर ध्यान केंद्रित करके अपनाया जा सकता है।

## Financing Needs of the Developing World

### विकासशील देशों की वित्तीय आवश्यकताएं

- Finance is a **critical component** in accelerating the adoption of cleaner alternatives, especially in developing countries.  
वित्त स्वच्छ विकल्पों को अपनाने में तेजी लाने का एक महत्वपूर्ण घटक है, विशेष रूप से विकासशील देशों में।
- **While renewable technologies often pay off in the long run, the upfront costs are higher, requiring government support for affordability**.  
यद्यपि नवीकरणीय तकनीकें लंबी अवधि में लाभ देती हैं, उनकी प्रारंभिक लागत अधिक होती है, जिससे उपभोक्ताओं के लिए सरकारी सहायता की आवश्यकता होती है।
- Some green technologies are still evolving and carry risks of failure, which front-runners must bear.  
कुछ हरित प्रौद्योगिकियां अभी भी विकसित हो रही हैं और विफलता के जोखिम रखती हैं, जिन्हें अग्रणी देशों को उठाना पड़ता है।
- Additional finance must be **up-scaled urgently within this decade** to bring transformational changes in adopting clean alternatives.





इस दशक के भीतर अतिरिक्त वित्त को तेजी से बढ़ाना आवश्यक है, ताकि स्वच्छ विकल्पों को अपनाने में परिवर्तनकारी बदलाव लाए जा सकें।

- India's **MNRE (Ministry of New and Renewable Energy)** received its highest-ever allocation of **₹19,100 crore** in **Budget 2024-25**, along with ₹40 crore for energy efficiency.

भारत के नवीन और नवीकरणीय ऊर्जा मंत्रालय (एमएनआरई) को बजट 2024-25 में ₹19,100 करोड़ का अब तक का सबसे बड़ा आवंटन मिला, साथ ही ₹40 करोड़ ऊर्जा दक्षता के लिए।

## Concerns Over Financing Models

### वित्तीय मॉडल पर चिंताएं

- There are growing concerns that **financial support from developed countries** should include **public grants rather than loans**.  
यह चिंता बढ़ रही है कि विकसित देशों से वित्तीय सहायता में ऋण के बजाय सार्वजनिक अनुदान शामिल होना चाहिए।
- **Higher cost of capital in developing countries slows the pace of transition**.  
विकासशील देशों में पूंजी की उच्च लागत संक्रमण की गति को धीमा कर देती है।
- Financial flows must strengthen **fiscal capacities** and enable unlocking financial markets in developing nations.  
वित्तीय प्रवाह को राजकोषीय क्षमताओं को मजबूत करना चाहिए और विकासशील देशों में वित्तीय बाजारों को सुलभ बनाना चाहिए।
- **Developing countries face higher lending rates** compared to developed countries, **restricting global financial flows to OECD countries**.  
विकासशील देशों को विकसित देशों की तुलना में उच्च उधारी दरों का सामना करना पड़ता है, जिससे वैश्विक वित्तीय प्रवाह ओईसीडी देशों तक सीमित हो जाता है।
- Ensuring **affordable lending rates** for climate finance in developing countries is essential.  
विकासशील देशों में जलवायु वित्त के लिए सस्ती उधारी दरों को सुनिश्चित करना आवश्यक है।

## Role of the NCQG

### NCQG की भूमिका

- At **Cancun in 2010**, developed countries pledged to provide **\$100 billion annually** up to 2020.  
2010 में कंकुन में, विकसित देशों ने 2020 तक प्रति वर्ष \$100 बिलियन प्रदान करने का वादा किया।
- At **COP21 in Paris**, the parties decided to establish an **NCQG prior to 2025**, using the **Cancun commitment as the base point**.  
पेरिस में COP21 में, पक्षों ने 2025 से पहले NCQG स्थापित करने का निर्णय लिया, जिसमें कंकुन प्रतिबद्धता को आधार बिंदु बनाया गया।





- The **rationale** for establishing the NCQG was to address criticism about **lack of specificity and accountability in existing climate pledges**.  
NCQG स्थापित करने का औचित्य मौजूदा जलवायु वादों में विशिष्टता और जवाबदेही की कमी को संबोधित करना था।
- NCQG aimed to create a framework for **shared climate goals**, establish **clear and quantified objectives**, and ensure **transparency and accountability**.  
NCQG का उद्देश्य साझा जलवायु लक्ष्यों के लिए ढांचा बनाना, स्पष्ट और परिमाणित उद्देश्यों की स्थापना करना, और पारदर्शिता और जवाबदेही सुनिश्चित करना था।
- At **COP26 in Glasgow (2021)**, an ad hoc work programme for **NCQG discussions** was established to run from **2022-24**, culminating at **COP29**.  
ग्लासगो में COP26 (2021) में, NCQG चर्चाओं के लिए एक अस्थायी कार्य कार्यक्रम शुरू किया गया, जो 2022-24 तक चलेगा और COP29 में समाप्त होगा।

## The Second Needs Determination Report

### दूसरी आवश्यकताओं की निर्धारण रिपोर्ट

- The report by the **Standing Committee on Finance** under the **UNFCCC** estimated a need of **\$5 trillion to \$7 trillion by 2030** to meet half the needs of 98 countries.  
UNFCCC के तहत स्थायी वित्त समिति की रिपोर्ट में 2030 तक 5 से 7 ट्रिलियन डॉलर की आवश्यकता का अनुमान लगाया गया है ताकि 98 देशों की आधी जरूरतें पूरी हो सकें।
- **Developing countries at COP29 requested \$1.3 trillion annually, largely from public sources to leverage private finance**.  
विकासशील देशों ने COP29 में \$1.3 ट्रिलियन प्रति वर्ष की मांग की, मुख्य रूप से सार्वजनिक स्रोतों से ताकि निजी वित्त को प्रोत्साहित किया जा सके।

## Disappointing Outcome of NCQG

### NCQG का निराशाजनक परिणाम

- The **developed world agreed to provide an abysmal \$300 billion annually till 2035, a minuscule figure compared to the actual needs**.  
विकसित देशों ने 2035 तक प्रति वर्ष केवल \$300 बिलियन प्रदान करने पर सहमति दी, जो वास्तविक जरूरतों की तुलना में बहुत कम है।
- The mobilization of funds includes **private capital**, which adds to the concern of lack of **transformative action**.  
धन जुटाने में निजी पूंजी भी शामिल है, जो परिवर्तनकारी कार्रवाई की कमी के प्रति चिंता बढ़ाती है।
- The **decision to triple public resource flows** through funds like the **Adaptation Fund and Special Climate Change Fund** by 2035 is a positive step but progress could be slow.  
2035 तक अनुकूलन कोष और विशेष जलवायु परिवर्तन कोष जैसे कोषों के माध्यम से सार्वजनिक





संसाधनों के प्रवाह को तीन गुना करने का निर्णय सकारात्मक है, लेकिन प्रगति धीमी हो सकती है।

## The Road Ahead

### आगे का रास्ता

- At **COP29**, the finance commitment increased from **\$100 billion to \$300 billion annually**, but it remains insufficient given the **urgency of climate action**.  
**COP29** में, वित्तीय प्रतिबद्धता को **\$100 बिलियन** से बढ़ाकर **\$300 बिलियन प्रति वर्ष** किया गया, लेकिन यह **जलवायु कार्रवाई की तात्कालिकता** के लिए अपर्याप्त है।
- The NCQG outcome bypasses **equitable burden sharing** and fails to recognize the financial needs of the **Global South**.  
**NCQG का परिणाम समान भार साझा करने को दरकिनार करता है और वैश्विक दक्षिण की वित्तीय जरूरतों को मान्यता देने में विफल है।**
- The way forward is to continue talks with **climate justice** at the core, respecting **CBDR and RC principles**.  
आगे का रास्ता **जलवायु न्याय** को केंद्र में रखकर बातचीत जारी रखना है, और **CBDR और RC सिद्धांतों** का सम्मान करना है।
- Developing countries must ensure that any **transition** is **just and fair** in the real sense.  
विकासशील देशों को यह सुनिश्चित करना चाहिए कि कोई भी **संक्रमण न्यायपूर्ण और उचित** हो





# Rethinking 'representation' for a meaningful COP30

GS Paper III: Environment

**F**rustration over the slow progress made during COP29 negotiations in Baku is hardly new. History has repeatedly shown us that the politics of climate change and the forces of nature rarely align. Adding to this challenge is the absence of a unified global authority to address the urgency of the issue. There is no world government or state to act on behalf of the planet. Compounding this challenge is the lack of a universal metric system capable of reconciling the diverse political, economic, and social interests of nation-states. While the jury is still out on whether COP29 was a "disappointment", "failure", or "disaster", critics have often pointed out that 'business as usual' does not work. As Brazil prepares to host COP30 in Belém next year, here is an alternative suggestion on the concept of 'representation' for them.

This innovative methodology was pioneered by Bruno Latour, Emeritus Professor at Sciences Po, and Laurence Tubiana, France's Climate Change Ambassador and Special Representative for the 2015 COP21 in Paris. In the lead-up to COP21, in May 2015, there was a week-long public event, hosted by Sciences Po, called the 'Theatre of Negotiations' at Nanterre-Amandiers on the outskirts of Paris. This experiment brought together 200 students from 143 universities worldwide to role play and reimagine a life-sized COP. The goal of this bold pedagogical initiative was to transform the traditional framework of climate negotiations. At its core was a radical rethinking of 'representation'.

As Irish author Sally Rooney writes, "When American colonists famously rebelled against the practice of 'taxation without representation,' [how] is environmental devastation without representation any different? Even if carbon emissions were thoroughly democratically determined – which they are not – why should voters in the world's richest countries have the right to poison the air, sea, soil, and rivers for the entire population of Earth?" People living on Polynesian islands or in Africa have no right to vote in American or European elections. Yet, they



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Future climate change conferences can achieve meaningful outcomes only if there is honest representation, actionable commitments, and a transparency of intentions

often bear the brunt of the resulting environmental damage.

## Granting equal rights

In the approach to representation, humans and non-humans – such as the atmosphere, oceans, and soil – were granted equal rights in negotiations. The idea was to give voice and agency to these non-human entities, allowing them to express their stakes in climate negotiations. Unlike conventional COP meetings, this assembly did not defer to the authority of science or nature, as these too were subjects of negotiation. The aim was to simulate a truly inclusive and representative process.

The theatre setting at Nanterre-Amandiers encouraged dynamic and creative reinterpretations of negotiation. Delegates dramatised and de-dramatised issues, explored alternative spatial-temporal perspectives, and allowed non-speaking entities to 'represent' or 'speak' through proxies. This flexibility opened new avenues for addressing climate challenges, from reframing territorial sovereignty to dramatising the interdependence of ecosystems and nations. For example, the 'Ocean' imposed conditions on the 'United States,' while the 'Atmosphere' directly addressed 'China' regarding greenhouse gas emissions. These novel interactions forced participants to reconsider the boundaries of sovereignty and territorial responsibility. This writer, who was a part of the Philippines delegation, represented a civil society organisation, voicing the concerns of indigenous, rural, and coastal communities. Each delegation comprised a diverse mix of actors – state and non-state representatives, scientists, business leaders, and civil society members – thus ensuring a broad range of perspectives.

The week-long simulation yielded profound insights. For delegates, it underscored the critical need for clear communication of interests, values, and territorial concerns. For organisers, it highlighted the logistical and resource

mobilisation challenges required to facilitate a process of this scale. For students, it revealed alternative pathways for advancing the climate agenda, recognising the limitations of existing negotiation frameworks. As simulators, we achieved our goal of creating a dynamic, inclusive, and scientifically informed pedagogical tool for climate action.

One could argue that the prevailing global governance system does not allow for such 'representation', or critique it from an anthropocentric point of view. While there are gaps in the existing legal-cum-institutional framework to govern and/or implement rights, the recurrent tendency to give representation of non-humans via courts (in the case of India, Pakistan), parliament (Ecuador, New Zealand) or other institutions (Canada) is to only enlarge its legal and political agency. Such tendency stems from the fact that non-humans are 'interest bearers' having moral standing and deserving political and legal representation.

## There needs to be transparency

So, if future COPs are to achieve meaningful outcomes, honest representation and actionable commitments must be paired with a transparency of intentions. Hosting COPs in economies which are heavily reliant on oil, sends mixed signals, particularly when the host nation simultaneously promotes investment in state-run oil and gas enterprises. Such contradictions erode trust and undermine genuine progress.

It would be a significant step forward if COP30, held in Belém - the heart of the Amazon, gave representation to the 'Amazon' as an entity, exploring what possibilities this opens up. Bridging the gap between ambition and action requires not just new negotiation methods but also a willingness to align policies with the values we collectively champion. Let us hope we are not sleepwalking through the Anthropocene.

*The views expressed are personal*

## Rethinking 'Representation' for a Meaningful COP30

### COP30 के लिए 'प्रतिनिधित्व' पर पुनर्विचार

- Frustration over the slow progress made during COP29 negotiations in Baku is hardly new. History has repeatedly shown that the politics of climate change and the forces of nature rarely align.

बकू में COP29 वार्ता के दौरान धीमी प्रगति पर निराशा कोई नई बात नहीं है। इतिहास ने बार-बार दिखाया है कि जलवायु परिवर्तन की राजनीति और प्रकृति की ताकतें शायद ही कभी मेल खाती हैं।

- Adding to this challenge is the **absence of a unified global authority** to address the urgency of the issue. **There is no world government or state to act on behalf of the planet.**





इस चुनौती को बढ़ाने वाला कारक है इस मुद्दे की तत्कालता से निपटने के लिए एकीकृत वैश्विक प्राधिकरण का अभाव। पृथ्वी के लिए कार्य करने वाला कोई विश्व सरकार या राज्य नहीं है।

- **Compounding this challenge is the lack of a universal metric system capable of reconciling the diverse political, economic, and social interests of nation-states.**

इस चुनौती को और बढ़ाता है सार्वभौमिक मीट्रिक प्रणाली का अभाव, जो राष्ट्र-राज्यों के विभिन्न राजनीतिक, आर्थिक और सामाजिक हितों को समेट सके।

- Critics have often pointed out that **'business as usual' does not work**. As **Brazil prepares to host COP30 in Belém next year**, here is an alternative suggestion on the concept of 'representation' for them.

आलोचकों ने अक्सर कहा है कि 'पुराना तरीका काम नहीं करता'। जैसे ही ब्राजील अगले साल बेलम में COP30 की मेजबानी करने की तैयारी करता है, उनके लिए 'प्रतिनिधित्व' की अवधारणा पर एक वैकल्पिक सुझाव दिया गया है।

- **This innovative methodology** was pioneered by **Bruno Latour**, Emeritus Professor at **Sciences Po**, and **Laurence Tubiana**, France's Climate Change Ambassador and Special Representative for the **2015 COP21 in Paris**.

इस नवीन पद्धति की शुरुआत साइंस पो के एमेरिटस प्रोफेसर ब्रूनो लाटूर और 2015 में पेरिस में COP21 के लिए फ्रांस की जलवायु परिवर्तन राजदूत और विशेष प्रतिनिधि लॉरेंस ट्यूबियाना ने की थी।

- In the lead-up to **COP21**, in **May 2015**, there was a **week-long public event** at **Nanterre-Amandiers** on the outskirts of Paris, called the **'Theatre of Negotiations'**. **COP21 से पहले, मई 2015 में, पेरिस के बाहरी इलाके नान्तेर-अमांदियर में एक सप्ताह तक चलने वाला सार्वजनिक कार्यक्रम आयोजित हुआ, जिसे 'थिएटर ऑफ नेगोशिएशन्स' कहा गया।**

- This experiment brought together **200 students from 143 universities worldwide** to role-play and reimagine a life-sized COP.

इस प्रयोग ने दुनिया भर के 143 विश्वविद्यालयों के 200 छात्रों को एक जीवन-आधारित COP की कल्पना और भूमिका निभाने के लिए एकजुट किया।

- **The goal** of this bold **pedagogical initiative** was to transform the **traditional framework** of climate negotiations. At its core was a radical rethinking of **'representation'**.

इस साहसी शैक्षिक पहल का उद्देश्य जलवायु वार्ता के पारंपरिक ढांचे को बदलना था। इसका मूल 'प्रतिनिधित्व' पर गहन पुनर्विचार था।

- As Irish author **Sally Rooney** writes, **"When American colonists famously rebelled against the practice of 'taxation without representation,' [how] is environmental devastation without representation any different?"**

जैसे आयरिश लेखिका सैली रूनी लिखती हैं, "जब अमेरिकी उपनिवेशवादियों ने 'प्रतिनिधित्व के बिना कराधान' की प्रथा के खिलाफ विद्रोह किया, [तो] क्या प्रतिनिधित्व के बिना पर्यावरणीय विनाश अलग है?"

- People living on **Polynesian islands or in Africa** have no right to vote in **American or European elections**. Yet, they often bear the brunt of the resulting environmental damage.





पोलिनेशियन द्वीपों या अफ्रीका में रहने वाले लोगों को अमेरिकी या यूरोपीय चुनावों में वोट देने का अधिकार नहीं है। फिर भी, वे अक्सर पर्यावरणीय क्षति का खामियाजा भुगतते हैं।

## Granting Equal Rights

### समान अधिकार प्रदान करना

- In the approach to representation, **humans and non-humans** — such as the **atmosphere, oceans, and soil** — were granted equal rights in negotiations. प्रतिनिधित्व के दृष्टिकोण में, **मानव और गैर-मानव** — जैसे **वायुमंडल, महासागर और मिट्टी** — को बातचीत में समान अधिकार दिए गए।
- The idea was to give **voice and agency** to these **non-human entities**, allowing them to express their stakes in **climate negotiations**. यह विचार था कि इन **गैर-मानव इकाइयों** को **आवाज़ और अधिकार** दिया जाए, जिससे वे **जलवायु वार्ताओं** में अपनी हिस्सेदारी व्यक्त कर सकें।
- Unlike conventional **COP meetings**, this assembly did not defer to the authority of **science or nature**, as these too were subjects of negotiation. पारंपरिक **COP बैठकों** के विपरीत, इस सभा ने **विज्ञान या प्रकृति** के अधिकार को प्राथमिकता नहीं दी, क्योंकि ये भी वार्ता के विषय थे।
- The aim was to simulate a **truly inclusive and representative process**. उद्देश्य एक वास्तव में **समावेशी और प्रतिनिधि प्रक्रिया** को लागू करना था।

## Dynamic Reinterpretations in Nanterre-Amandiers

### नान्तेर-अमान्डियर्स में गतिशील पुनर्व्याख्या

- The **theatre setting** encouraged **dynamic and creative reinterpretations** of negotiation. **थियेटर सेटिंग** ने वार्ता की **गतिशील और रचनात्मक पुनर्व्याख्या** को प्रोत्साहित किया।
- Delegates **dramatized and de-dramatized issues**, explored **alternative spatial-temporal perspectives**, and allowed **non-speaking entities** to 'represent' or 'speak' through **proxies**. प्रतिनिधियों ने **मुद्दों** को **नाटकीय और गैर-नाटकीय** बनाया, **वैकल्पिक स्थान-काल दृष्टिकोण** का पता लगाया और **मौन इकाइयों** को प्रतिनिधि या **प्रॉक्सी** के माध्यम से बोलने की अनुमति दी।
- For example, the **'Ocean' imposed conditions** on the **'United States,'** while the **'Atmosphere' addressed 'China'** on greenhouse gas emissions. उदाहरण के लिए, **'महासागर'** ने **'संयुक्त राज्य अमेरिका'** पर शर्तें लगाईं, जबकि **'वायुमंडल'** ने **'चीन'** को ग्रीनहाउस गैस उत्सर्जन पर संबोधित किया।

## Diverse Delegations and Profound Insights

### विविध प्रतिनिधिमंडल और गहन अंतर्दृष्टि





- Each delegation included **state and non-state representatives**, scientists, business leaders, and civil society members, ensuring a broad range of perspectives.  
प्रत्येक प्रतिनिधिमंडल में राज्य और गैर-राज्य प्रतिनिधि, वैज्ञानिक, व्यापारिक नेता, और सिविल समाज के सदस्य शामिल थे, जिससे दृष्टिकोणों की व्यापकता सुनिश्चित हुई।
- For delegates, the exercise underscored the need for **clear communication of interests, values, and territorial concerns**.  
प्रतिनिधियों के लिए, इस अभ्यास ने हितों, मूल्यों और क्षेत्रीय चिंताओं की स्पष्ट संचार की आवश्यकता को रेखांकित किया।
- For organisers, it revealed the **logistical and resource mobilisation challenges** of such a process.  
आयोजकों के लिए, इसने ऐसी प्रक्रिया के लॉजिस्टिक और संसाधन जुटाने की चुनौतियों को उजागर किया।

## Representation of Non-Humans and Global Governance

### गैर-मानवों का प्रतिनिधित्व और वैश्विक शासन

- Non-humans are seen as '**interest bearers**' with **moral standing**, deserving **political and legal representation**.  
गैर-मानवों को 'हितधारक' माना जाता है जिनका नैतिक स्थान है और वे राजनीतिक और कानूनी प्रतिनिधित्व के हकदार हैं।
- Examples include representation via **courts (India, Pakistan), parliament (Ecuador, New Zealand)**, or other institutions (Canada).  
उदाहरण में शामिल हैं न्यायालय (भारत, पाकिस्तान), संसद (इक्वाडोर, न्यूज़ीलैंड) या अन्य संस्थान (कनाडा) के माध्यम से प्रतिनिधित्व।

## Need for Transparency in Future COPs

### भविष्य के COPs में पारदर्शिता की आवश्यकता

- Hosting COPs in **oil-reliant economies** sends **mixed signals**, eroding trust and undermining progress.  
तेल पर निर्भर अर्थव्यवस्थाओं में COPs की मेजबानी से मिश्रित संकेत मिलते हैं, जो विश्वास को कमजोर करते हैं और प्रगति को प्रभावित करते हैं।
- **COP30 in Belém, Amazon**, could explore giving representation to the '**Amazon**' as an **entity**, bridging the gap between **ambition and action**.  
बेलम, अमेज़न में COP30, 'अमेज़न' को एक इकाई के रूप में प्रतिनिधित्व देने की संभावनाओं का पता लगा सकता है, जो महत्वाकांक्षा और कार्रवाई के बीच के अंतर को पाट सकता है।





## Power of pardon

Political interference can corrupt the working of the criminal justice system

Outgoing U.S. President Joe Biden has signed a presidential pardon for his son Hunter, for any federal crimes that he “committed or may have committed or taken part in” between January 1, 2014, and December 1, 2024. The younger Biden was convicted earlier this year on federal gun and drug charges and pleaded guilty to tax charges in California. Addressing the cases against his son, Mr. Biden said that unless there were aggravating circumstances, “people are almost never brought to trial on felony charges solely for how they filled out a gun form”. He also noted regarding the tax evasion allegations that late payment of taxes owing to “serious addictions”, with subsequent full payment of all taxes, interest, and penalties were typically given non-criminal resolutions, yet it was “clear that Hunter was treated differently”. On the one hand, there have been legitimate questions raised about the nature of the pardon – “full and unconditional” – that goes well beyond the gun and tax charges. Most likely, the vagueness of the language is deliberate to allow Hunter Biden to evade prosecutions that the incoming Trump administration might seek to foist upon him, possibly relating to charges of unlawful lobbying, corruption-related payments and similar crimes linked to his foreign business activities. Indeed, Donald Trump has already been impeached in Congress for attempting to pressure, for the sake of political gain, the Ukraine President into conducting investigations against Hunter Biden.

On the other hand, U.S. presidential pardons are hardly uncommon, with even Mr. Trump handing out 143 during his first term – including to Republican Party lobbyist Steve Bannon, the father of Mr. Trump’s son-in-law, Charles Kushner, and controversial figures such as Maricopa County Sheriff Joe Arpaio, former National Security Adviser Michael Flynn, and former George W. Bush aide Lewis “Scooter” Libby. Presidential pardons to family members are not unprecedented either – Bill Clinton pardoning his half-brother Roger, convicted on drug-related charges. Yet, the larger question that Mr. Biden’s latest pardon begs is whether justice can be served fairly in a political ecosystem of bitter polarisation, the kind that is presently found in the U.S. When Mr. Biden said that he believed that “raw politics has infected this process” it was a reflection upon the increasing weaponisation of law enforcement authority to score political points – ironically, a charge that Mr. Trump levels against the Department of Justice under Mr. Biden. While there is no reason to assume that Presidents will not continue to issue pardons to their allies, leaders on both sides of the aisle would do well to show restraint and prevent political interference from corrupting the working of the justice system.

## Power of Pardon

### क्षमादान की शक्ति

Outgoing U.S. President Joe Biden has signed a presidential pardon for his son Hunter Biden, covering federal crimes committed or potentially committed between January 1, 2014, and December 1, 2024.

अमेरिका के निवर्तमान राष्ट्रपति जो बाइडेन ने अपने बेटे हंटर बाइडेन के लिए राष्ट्रपति क्षमादान पर हस्ताक्षर किए, जो 1 जनवरी 2014 से 1 दिसंबर 2024 के बीच किए गए या संभवतः किए गए संघीय अपराधों को कवर करता है।

- Hunter Biden was convicted earlier this year on **federal gun and drug charges** and pleaded guilty to **tax charges in California**.

हंटर बाइडेन को इस साल की शुरुआत में संघीय हथियार और मादक पदार्थों के आरोपों में दोषी ठहराया गया था और उन्होंने कैलिफ़ोर्निया में कर आरोपों के लिए दोष स्वीकार किया।

- Joe Biden stated that unless there were aggravating circumstances, people are rarely brought to trial solely for how they filled out a **gun form**.

जो बाइडेन ने कहा कि यदि परिस्थितियाँ गंभीर न हों, तो हथियार फॉर्म भरने के कारण शायद ही कभी किसी को मुकदमे में लाया जाता है।

- Regarding **tax evasion allegations**, Joe Biden noted that **late payment of taxes** due to “serious addictions” is often resolved without criminal prosecution.

कर चोरी के आरोपों के संदर्भ में, जो बाइडेन ने उल्लेख किया कि “गंभीर व्यसनों” के कारण करों का देरी से भुगतान आमतौर पर बिना आपराधिक मुकदमे के निपटाया जाता है।

- Critics argue that the “**full and unconditional**” pardon might shield Hunter Biden from future prosecutions under the **incoming Trump administration**, including charges related to **unlawful lobbying** and corruption-linked activities.

आलोचकों का कहना है कि यह “पूर्ण और बिना शर्त क्षमादान” हंटर





बाइडेन को आगामी ट्रंप प्रशासन के तहत भविष्य के मुकदमों से बचा सकता है, जिसमें अवैध लॉबिंग और भ्रष्टाचार से जुड़े कार्य शामिल हैं।

- **Donald Trump** was impeached in Congress for pressuring the **Ukraine President** into investigating Hunter Biden.

डोनाल्ड ट्रंप को कांग्रेस में यूक्रेन के राष्ट्रपति पर हंटर बाइडेन की जांच के लिए दबाव डालने के लिए महाभियोग लगाया गया था।

## Presidential Pardons: Context and Precedents

### राष्ट्रपति क्षमादान: संदर्भ और पूर्व उदाहरण

- U.S. presidential pardons are common, with **Donald Trump issuing 143 pardons** in his first term. Notable examples include **Steve Bannon, Michael Flynn, and Joe Arpaio**. अमेरिकी राष्ट्रपति क्षमादान आम हैं, और डोनाल्ड ट्रंप ने अपने पहले कार्यकाल में 143 क्षमादान जारी किए। उल्लेखनीय उदाहरणों में स्टीव बैनन, माइकल फ्लिन, और जो अर्पायो शामिल हैं।
- **Bill Clinton pardoned his half-brother Roger Clinton**, convicted on drug-related charges. बिल क्लिंटन ने अपने सौतेले भाई रोजर क्लिंटन को मादक पदार्थों से संबंधित आरोपों में दोषी ठहराए जाने पर क्षमा किया।
- The broader issue remains whether **justice can be fairly served** in a politically polarised environment. व्यापक मुद्दा यह है कि क्या एक राजनीतिक रूप से ध्रुवीकृत वातावरण में न्याय निष्पक्ष रूप से दिया जा सकता है।
- Biden remarked that “**raw politics has infected the process,**” highlighting concerns over the increasing **weaponisation of law enforcement** for political gains. बाइडेन ने कहा कि “कच्ची राजनीति ने प्रक्रिया को संक्रमित कर दिया है,” जो राजनीतिक लाभ के लिए कानून प्रवर्तन के हथियार बनने की बढ़ती चिंताओं को उजागर करता है।
- Leaders on both sides must exhibit restraint to prevent **political interference** from undermining the **justice system**. दोनों पक्षों के नेताओं को न्याय प्रणाली को कमजोर करने वाले राजनीतिक हस्तक्षेप से बचने के लिए संयम दिखाना चाहिए।



# Local action amidst global inertia

GS Paper III: Environment

**A**fter hours of intense negotiations, the 29th Conference of the Parties (COP29) to the UN Framework Convention on Climate Change (UNFCCC) ended with a climate finance goal where developed countries are to provide \$300 billion annually by 2035. However, this is far from what the developing countries need, and once again brings global climate gridlock into the spotlight.

## Reaching a consensus

The notion that developed countries should finance climate action in developing nations while also ramping up their own mitigation efforts (such as taking the lead in phasing out fossil fuels and reaching net zero emissions faster) is accepted in principle, but has proven contentious to implement across COPs. The developed world continues to use fossil fuels to meet most of its demands and has no plans of reaching net zero before mid-century. The deadlock has remained a recurring theme at climate negotiations, and COP29 was unsurprisingly no exception. The powerful fossil fuel lobby, especially the oil and gas lobby; the developed world's heavy reliance on fossil fuels; the re-election of climate change deniers; and the differential impacts of climate change across the globe (with the developing world more likely to be impacted than others) are all challenges that hinder reaching a consensus.

Global negotiations are not useless. On the contrary, they are extremely important, even if the victories are few and far between. For instance, the Montreal Protocol, which came into force in 1989, has successfully helped protect the ozone layer and eliminate certain chemicals used in refrigeration (chlorofluorocarbons), a significant contributor to the depletion of the ozone layer. Similarly, the Kyoto Protocol, the first global accord on reducing



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While global consensus and funding remain elusive, local and national actions are making tangible progress

greenhouse gas emissions, which came into force in 2005; the 2015 Paris Agreement, a consensus on limiting global warming to below 2°C with revised national targets every five years; and the 2021 Glasgow Climate Pact, which introduced a loss and damage fund and in which nations declared their respective net-zero dates, are some COPs to celebrate.

However, unlike the melting of glaciers, the pace of action has been slow. Studies indicate that the 1.5°C target will be breached within a few years, with one study even suggesting that it has already been exceeded. Scientific evidence warns that crossing this threshold will lead to severe consequences in terms of natural disasters and heat stress, which are already apparent across the world. In some instances, the changes expected are unknown and could be catastrophic. Further, studies also point to the fact that the earth's climate will continue to evolve even after global net zero is reached, but the longer we take to get there, the more significant the impact of climate change will be.

## India's efforts

Whether the goal is to limit global temperature rise to 1.5-2°C or condemn political aggressors for starting wars, the rate at which action is needed is exponential, but the rate at which it is realistically possible is incremental at best. How then do we reconcile these different scales (exponential versus incremental rates) of action? Our answer is to focus efforts on national and sub-national-level action. In India, several policies and finance have already been put in place towards clean energy transition, assuming that international climate finance contribution will be minimal. Being a developing country with several challenges, India has largely followed the co-benefits approach in addressing climate

change. For instance, the PM Surya Ghar Muft Bijli Yojana provides households with subsidies to install rooftop solar panels, thereby also addressing energy poverty and access. The PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) initiative aims to promote the adoption of zero-emission vehicles, including



two-wheelers, three-wheelers, ambulances, and trucks, offering purchase subsidies and supporting essential charging infrastructure to accelerate the transition to clean air and clean transportation. The Perform, Achieve, and Trade (PAT) scheme, soon to be replaced by the Indian Carbon Market, helps mobilise investments needed to improve energy efficiency and emissions reduction in industries. It is important to note that India has been working hard on reducing its emissions intensity (CO<sub>2</sub> per unit of GDP) as per its commitment to the Paris Agreement. Further, in addition to strategies for emissions mitigation, State Action Plans on Climate Change support adaptation strategies tailored to specific vulnerabilities of States, with a focus on agriculture, forestry, water resources, and disaster risk reduction.

While global consensus and funding remain elusive, local and national actions are making tangible progress. The hullabaloo around COPs from "non-parties" is less crucial than the need to drive action on the ground. India deserves praise for already taking steps in the right direction. Moving forward, sustained efforts in emissions mitigation, mindful consumption aligned with Mission LIFE, a greater emphasis on developing resilient infrastructure and communities, and implementing effective heat action plans to address extreme heat will be essential.





## Local action amidst global inertia

### वैश्विक निष्क्रियता के बीच स्थानीय कार्रवाई

- After hours of intense negotiations, the 29th Conference of the Parties (COP29) to the **UN Framework Convention on Climate Change (UNFCCC)** ended with a **climate finance goal** where **developed countries** are to provide **\$300 billion annually by 2035**.

गहन वार्ताओं के बाद, जलवायु परिवर्तन पर संयुक्त राष्ट्र फ्रेमवर्क कन्वेंशन (UNFCCC) के 29वें सम्मेलन (COP29) ने जलवायु वित्त लक्ष्य के साथ समाप्त हुआ, जिसमें विकसित देशों को 2035 तक वार्षिक रूप से \$300 बिलियन प्रदान करने का लक्ष्य रखा गया।

- However, this is far from what the developing countries need, and once again brings **global climate gridlock** into the spotlight.

हालांकि, यह उस राशि से बहुत कम है जिसकी **विकासशील देशों** को आवश्यकता है, और एक बार फिर वैश्विक जलवायु गतिरोध को सुर्खियों में ला देता है।

### Reaching a consensus

#### सहमति प्राप्त करना

- The notion that **developed countries** should finance climate action in **developing nations** while also ramping up their own **mitigation efforts** (such as taking the lead in **phasing out fossil fuels and reaching net zero emissions faster**) is accepted in principle, but has proven contentious to implement across COPs.

यह विचार कि **विकसित देशों** को **विकासशील देशों** में जलवायु कार्रवाई के लिए वित्तपोषण करना चाहिए, जबकि वे अपनी स्वयं की **शमन प्रयासों** को भी बढ़ावा देते हैं (जैसे कि **जीवाश्म ईंधन** को समाप्त करना और **शुद्ध शून्य उत्सर्जन** जल्दी प्राप्त करना) सिद्धांत रूप में स्वीकार किया गया है, लेकिन इसे COPs में लागू करना विवादास्पद साबित हुआ है।

- The **developed world** continues to use **fossil fuels** to meet most of its demands and has no plans of reaching **net zero** before mid-century.

**विकसित दुनिया** अपनी अधिकांश मांगों को पूरा करने के लिए **जीवाश्म ईंधन** का उपयोग करती रहती है और **मध्य-शताब्दी** से पहले **शुद्ध शून्य** तक पहुंचने की कोई योजना नहीं है।

- The deadlock has remained a recurring theme at climate negotiations, and COP29 was unsurprisingly no exception.

गतिरोध जलवायु वार्ताओं में एक आवर्ती विषय बना रहा है, और COP29 भी अप्रत्याशित रूप से इसका अपवाद नहीं था।

- The **powerful fossil fuel lobby**, especially the **oil and gas lobby**; the developed world's heavy reliance on **fossil fuels**; the re-election of **climate change deniers**; and the differential impacts of **climate change across the globe** (with the **developing world** more likely to be impacted than others) are all challenges that hinder reaching a consensus.

शक्तिशाली **जीवाश्म ईंधन लॉबी**, विशेष रूप से **तेल और गैस लॉबी**; विकसित दुनिया की **जीवाश्म ईंधन** पर भारी निर्भरता; **जलवायु परिवर्तन के इनकार करने वालों** का पुनः चुनाव; और दुनिया भर





में जलवायु परिवर्तन के विभिन्न प्रभाव (जिसमें विकासशील देशों पर अधिक असर होने की संभावना है) ये सभी चुनौतियाँ हैं जो सहमति प्राप्त करने में बाधा डालती हैं।

## Global negotiations are not useless

### वैश्विक वार्ताएँ बेकार नहीं हैं

- On the contrary, they are extremely important, even if the victories are few and far between.  
इसके विपरीत, ये अत्यंत महत्वपूर्ण हैं, भले ही जीतें बहुत कम और दूर-दूर हों।
- For instance, the **Montreal Protocol**, which came into force in **1989**, has successfully helped protect the **ozone layer** and eliminate certain chemicals used in refrigeration (**chlorofluorocarbons**), a significant contributor to the depletion of the ozone layer.  
उदाहरण के लिए, **मॉन्ट्रियल प्रोटोकॉल**, जो **1989** में लागू हुआ, ने **ओजोन परत** की रक्षा करने और रेफ्रिजरेशन में उपयोग किए गए कुछ रसायनों (**क्लोरोफ्लोरोकार्बन**) को समाप्त करने में सफलतापूर्वक मदद की, जो ओजोन परत के क्षय में महत्वपूर्ण योगदानकर्ता थे।
- Similarly, the **Kyoto Protocol**, the first global accord on reducing greenhouse gas emissions, which came into force in **2005**; the **2015 Paris Agreement**, a consensus on limiting global warming to below **2°C** with revised national targets every five years; and the **2021 Glasgow Climate Pact**, which introduced a **loss and damage fund** and in which nations declared their respective **net-zero dates**, are some COPs to celebrate.  
इसी तरह, **क्योटो प्रोटोकॉल**, जो **2005** में लागू हुआ, ग्रीनहाउस गैसों के उत्सर्जन को घटाने पर पहला वैश्विक समझौता था; **2015 का पेरिस समझौता**, जो वैश्विक तापमान वृद्धि को **2°C** से कम रखने पर सहमति है और जिसमें हर पाँच साल में संशोधित राष्ट्रीय लक्ष्य होते हैं; और **2021 का ग्लासगो जलवायु पैक्ट**, जिसमें एक हानि और नुकसान कोष की शुरुआत की गई और जिसमें देशों ने अपने-अपने **शुद्ध शून्य तिथियों** की घोषणा की, कुछ ऐसे COP हैं जिनका जश्न मनाया जाना चाहिए।

However, unlike the melting of glaciers, the pace of action has been slow

हालाँकि, ग्लेशियरों के पिघलने के विपरीत, कार्रवाई की गति धीमी रही है

- Studies indicate that the **1.5°C** target will be breached within a few years, with one study even suggesting that it has already been exceeded.  
अध्ययन बताते हैं कि **1.5°C** का लक्ष्य कुछ वर्षों के भीतर टूट जाएगा, एक अध्ययन तो यह भी सुझाव देता है कि इसे पहले ही पार किया जा चुका है।
- **Scientific evidence** warns that crossing this threshold will lead to severe consequences in terms of **natural disasters** and **heat stress**, which are already apparent across the world.  
वैज्ञानिक प्रमाण चेतावनी देते हैं कि इस सीमा को पार करने से **प्राकृतिक आपदाओं** और **गर्मी के तनाव** के संदर्भ में गंभीर परिणाम होंगे, जो पहले से ही दुनिया भर में स्पष्ट हैं।





- In some instances, the changes expected are unknown and could be catastrophic.  
कुछ मामलों में, जो परिवर्तन अपेक्षित हैं, वे अज्ञात हैं और विनाशकारी हो सकते हैं।
- Further, studies also point to the fact that the earth's climate will continue to evolve even after global **net zero** is reached, but the longer we take to get there, the more significant the impact of climate change will be.  
इसके अतिरिक्त, अध्ययन इस तथ्य की ओर भी इशारा करते हैं कि पृथ्वी का जलवायु वैश्विक शुद्ध शून्य तक पहुंचने के बाद भी विकसित होता रहेगा, लेकिन जितना अधिक समय हम वहां पहुंचने में लेंगे, जलवायु परिवर्तन का प्रभाव उतना ही अधिक महत्वपूर्ण होगा।

## India's efforts

### भारत के प्रयास

- Whether the goal is to limit global temperature rise to **1.5-2°C** or condemn political aggressors for starting wars, the rate at which action is needed is **exponential**, but the rate at which it is realistically possible is **incremental** at best.  
चाहे लक्ष्य वैश्विक तापमान वृद्धि को **1.5-2°C** तक सीमित करना हो या राजनीतिक आक्रमणकारियों को युद्ध शुरू करने के लिए दोषी ठहराना हो, कार्रवाई की आवश्यकता की दर **एक्सपोनेंशियल** है, लेकिन इसे वास्तविक रूप से संभव बनाने की दर अधिकतम **इंक्रिमेंटल** है।
- How then do we reconcile these different scales (exponential versus incremental rates) of action?  
तो फिर हम इन विभिन्न गति (एक्सपोनेंशियल बनाम इंक्रिमेंटल) वाली कार्रवाइयों को कैसे मेल कर सकते हैं?
- **Our answer is to focus efforts on national and sub-national level action.**  
हमारा उत्तर है कि हम **राष्ट्रीय** और **उप-राष्ट्रीय** स्तर पर कार्रवाई पर ध्यान केंद्रित करें।
- In **India**, several policies and finance have already been put in place towards **clean energy transition**, assuming that **international climate finance** contribution will be **minimal**.  
भारत में पहले ही **स्वच्छ ऊर्जा संक्रमण** की दिशा में कई नीतियाँ और वित्तीय उपाय लागू किए जा चुके हैं, यह मानते हुए कि **अंतर्राष्ट्रीय जलवायु वित्त** का योगदान **न्यूनतम** होगा।
- Being a **developing country** with several challenges, India has largely followed the **co-benefits approach** in addressing climate change.  
एक **विकसित हो रहा देश** होने के नाते और कई चुनौतियों का सामना करते हुए, भारत ने जलवायु परिवर्तन से निपटने में **सह-लाभ दृष्टिकोण** को अपनाया है।
- **For instance, the PM Surya Ghar Muft Bijli Yojana provides households with subsidies to install rooftop solar panels, thereby also addressing energy poverty and access.**  
उदाहरण के लिए, **पीएम सूर्या घर मुफ्त बिजली योजना** घरों को छत पर सौर पैनल लगाने के लिए सब्सिडी प्रदान करती है, इस प्रकार **ऊर्जा गरीबी** और **पहुँच** का भी समाधान करती है।
- The **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)** initiative aims to promote the adoption of **zero-emission vehicles**, including **two-wheelers, three-wheelers, ambulances, and trucks**, offering purchase subsidies and supporting essential **charging infrastructure** to accelerate the transition to **clean air and clean transportation**.





पीएम इलेक्ट्रिक ड्राइव क्रांति इन इनोवेटिव व्हीकल एन्हांसमेंट (पीएम ई-ड्राइव) पहल का उद्देश्य शून्य-उत्सर्जन वाहनों को बढ़ावा देना है, जिसमें दो पहिया, तीन पहिया, एंबुलेंस, और ट्रक शामिल हैं, जो खरीद सब्सिडी प्रदान करती है और चार्जिंग इंफ्रास्ट्रक्चर का समर्थन करती है ताकि स्वच्छ वायु और स्वच्छ परिवहन की ओर संक्रमण को तेज किया जा सके।

- The **Perform, Achieve, and Trade (PAT) scheme**, soon to be replaced by the **Indian Carbon Market**, helps mobilize investments needed to improve **energy efficiency and emissions reduction** in industries.

परफॉर्म, अचीव और ट्रेड (PAT) योजना, जिसे जल्द ही भारतीय कार्बन बाजार द्वारा बदला जाएगा, उद्योगों में ऊर्जा दक्षता और उत्सर्जन में कमी सुधारने के लिए आवश्यक निवेश को प्रेरित करती है।

- India has been working hard on reducing its **emissions intensity (CO2 per unit of GDP)** as per its commitment to the **Paris Agreement**.

भारत पेरिस समझौते के तहत अपनी उत्सर्जन तीव्रता (GDP प्रति CO2) को कम करने के लिए कड़ी मेहनत कर रहा है।

- **In addition to strategies for emissions mitigation, State Action Plans on Climate Change support adaptation strategies** tailored to specific vulnerabilities of States, with a focus on **agriculture, forestry, water resources, and disaster risk reduction**.

उत्सर्जन शमन की रणनीतियों के अलावा, राज्य जलवायु परिवर्तन कार्य योजनाएं विशिष्ट राज्यों की विशेष संवेदनशीलताओं के अनुरूप अनुकूलन रणनीतियों का समर्थन करती हैं, जिनमें कृषि, वन्यजीव, जल संसाधन, और आपदा जोखिम न्यूनीकरण पर ध्यान केंद्रित किया जाता है।

- While global consensus and funding remain elusive, **local and national actions** are making tangible progress.

जबकि वैश्विक सहमति और वित्तीय योगदान प्राप्त करना अभी भी कठिन है, स्थानीय और राष्ट्रीय कार्रवाइयाँ वास्तविक प्रगति कर रही हैं।

- The hullabaloo around **COPs** from “non-parties” is less crucial than the need to drive **action on the ground**.

"गैर-भागीदारों" से COPs के इर्द-गिर्द का हलचल भूमि पर कार्रवाई करने की आवश्यकता से कम महत्वपूर्ण है।

- India deserves praise for already taking steps in the **right direction**.

भारत को पहले ही सही दिशा में कदम उठाने के लिए सराहना मिलनी चाहिए।

- Moving forward, sustained efforts in **emissions mitigation**, mindful consumption aligned with **Mission LiFE**, a greater emphasis on developing **resilient infrastructure and communities**, and implementing effective **heat action plans** to address **extreme heat** will be essential.

आगे बढ़ते हुए, उत्सर्जन शमन, मिशन जीवन के साथ मेल खाने वाली जागरूक खपत, लचीला बुनियादी ढांचा और समुदायों के विकास पर अधिक जोर, और उतापीनी के समाधान के लिए प्रभावी हीट एक्शन प्लान लागू करना आवश्यक होगा।

**Mission LiFE: Lifestyle for Environment**





**PATRIOTIC IAS: Near Rajbanshi Hospital, Paidleyganj Road, Gorakhpur**

**Contact Number: 9971932488**

- **Mission LiFE (Lifestyle for Environment)** was launched by Prime Minister Narendra Modi on **20th October 2022** in Gujarat, in partnership with the **United Nations Secretary-General António Guterres**.

मिशन लाइफ (लाइफस्टाइल फॉर एनवायरनमेंट) को प्रधानमंत्री नरेंद्र मोदी द्वारा **20 अक्टूबर 2022** को गुजरात में संयुक्त राष्ट्र महासचिव एंटोनियो गुटेरेस के साथ साझेदारी में शुरू किया गया।

- It is a **pro-planet initiative** focusing on promoting sustainable lifestyles to tackle **climate change, resource depletion, and environmental degradation**.  
यह एक ग्रह-हितैषी पहल है, जो जलवायु परिवर्तन, संसाधनों की कमी और पर्यावरणीय क्षरण से निपटने के लिए टिकाऊ जीवनशैली को बढ़ावा देती है।
- The mission aligns with the **Paris Agreement, Sustainable Development Goals (SDGs)**, and India's **Panchamrit goals**, which include achieving **net-zero carbon emissions by 2070**.

यह मिशन पेरिस समझौते, सतत विकास लक्ष्यों (SDGs) और भारत के पंचामृत लक्ष्यों के अनुरूप है, जिसमें **2070 तक शून्य-कार्बन उत्सर्जन** प्राप्त करना शामिल है।



# Unpredictable rainfall makes farming in Marathwada even harder

In the last two decades, annual rainfall over Marathwada has been stable but the timing and intensity of rains have become erratic

GS Paper III: Disaster Management

**DATA POINT**

**Ishita Jalan**  
**Lakshmikantha N.R.**

In Maharashtra's Jalna district, Dada Rao Ghatode, a farmer from Babultara village, owns eight acres of land where he grows soybean, cotton, and pigeon pea (tur) during the kharif season (July to October). This season, he expected at least ₹80,000 in return from four acres of soybean. However, a single day of heavy rains in September ruined nearly 80% of his crop.

This was not an isolated incident. Across Marathwada, farmers are grappling with unpredictable changes in rainfall distribution, which are threatening their livelihoods. Jalna, along with all other districts in Marathwada, has experienced a sharp increase in extreme rainfall events, disrupting traditional farming practices and water management systems.

**Rise in extreme rainfall events**  
Through the last two decades, the distribution of rainfall in Jalna has changed significantly, according to our analysis of daily gridded rainfall data from the India Meteorological Department. The region's total annual rainfall has been relatively stable but the timing and intensity of the rains have become erratic. Already infamous for its droughts, Marathwada now oscillates between periods of little water and those of too much, which also cause severe waterlogging during the kharif season.

Traditionally, farmers grow water-intensive crops such as paddy, maize, pulses, soybean, and groundnut during the kharif cropping season, and expect good yields. But with an increasingly unstable monsoon, the farmers have had to fall back more and more on rabi season (November to April) crops such as sorghum, chana, and wheat, which have lower market prices. Even though most farmers own medium to large land-

holdings, they are not prospering. Data from 2001 to 2023 indicated that rains in July, August, and September accounted for 70% of Jalna's annual rainfall, and that the monsoon arrived late in July and August in most of these years (Chart 1). Further, the amount of rain in July and August fell short as much as 70% of the time, while there was a 50% chance of downpours deviating from normal patterns in September.

The greater cause for alarm may be the number of rainy days: the frequency of those with more than 3 mm of rain dropped by 30% in August, a critical period for crop growth. September had 18% more rainy days, meaning the land was water-logged just as the crops approached harvest (Chart 2 and 3).

These patterns are disrupting farming cycles and putting farmers who depend on kharif-season crops at even more risk. Extreme rainfall events – defined as a day with rain falling in the 99th percentile by quantity – have not only become more frequent but also more intense. The intensity on these days increased from 59 mm/day in 1951-2000 to 70 mm/day in 2001-2023. There are similar trends across central India, where studies have recorded a threefold increase in the frequency of extreme precipitation events.

**Black soil and water-logging**  
Farmers, researchers, and policymakers often discuss water scarcity in relation to the impact of climate change on agriculture, leaving the challenges of excess water to still be understudied. The Marathwada region's black soil can hold a large amount of water before having to discharge it, and is thus prone to waterlogging.

When this soil type becomes saturated with water, it restricts drainage and prevents water from seeping into aquifers, resulting in flooding even with normal rainfall. For farmers, waterlogging is equal to disaster because it deprives the crops of oxygen, which leads to rotting, wilting, and increased sus-

ceptibility to pests and diseases.

The hydrogeology of Marathwada further complicates this situation. Although farm ponds and wells fill quickly after the rains, the underlying basalt rocks are not conducive to long-term water storage. In other words, farmers can't rely on these resources for irrigation throughout the year. The result is a continuous cycle of surplus water in the monsoon and scarcity in the dry months – both of which are bad for farming.

**Evolving water management**

The changes in rainfall distribution in Jalna reveal a pressing need for new agricultural water management strategies. Prevailing water management practices in Marathwada are based on storing excess water in farm ponds. These ponds do provide some relief, but they don't prevent waterlogging or retain water beyond a single season. This limits their usefulness.

For conventional methods to manage watersheds, experts use historical rainfall data to determine storage capacity. But with the monsoons becoming less predictable, Jalna and other similar areas need watershed structures that can withstand high runoff volumes from extreme rain events. One sustainable approach would be to focus on enhancing the region's drainage networks and improving surface water storage.

Transitioning from farm ponds that depend on groundwater to surface runoff capture systems could also reduce the pressure on aquifers and prevent groundwater depletion.

Additionally, shifting to more water-tolerant varieties of crops can allow the water to percolate through the soil more and help sustain the landscape even when it is inundated.

This combination of improved drainage infrastructure, surface water storage facilities, and resilient land use can foster a balanced water management system capable of withstanding the disruptive weather changes in Marathwada.

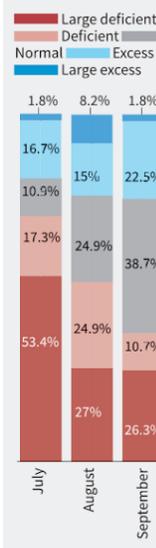
## Change in rainfall patterns

Data for the charts were sourced from the daily gridded rainfall data of the India Meteorological Department



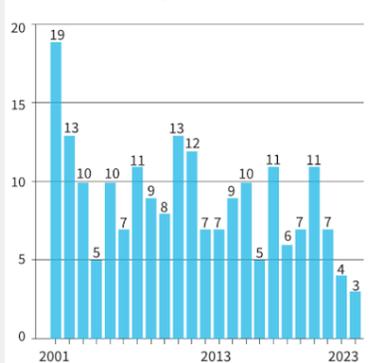
**Chart 1**

A long period average was calculated for a period from 1961 to 2010, and each category of rainfall was estimated for that month for the last 22 years (as per the IMD method)



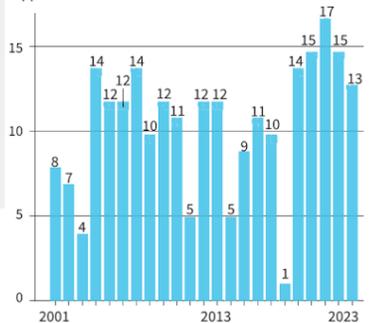
**Chart 2**

The charts show the number of rainy days for the month of August. The frequency of those days with more than 3 mm of rain dropped by 30% in August, a critical period for crop growth



**Chart 3**

The number of rainy days for the month of September. September had 18% more rainy days, which means that the land is water-logged just as the crops approach harvest



Ishita Jalan and Lakshmikantha NR are hydrologists at the Water, Environment, Land and Livelihoods (WELL) Labs

## Unpredictable rainfall makes farming in Marathwada even harder

मराठवाड़ा में कृषि को और कठिन बनाती अप्रत्याशित वर्षा





**In the last two decades, annual rainfall over Marathwada has been stable but the timing and intensity of rains have become erratic.**



**पिछले दो दशकों में, मराठवाड़ा में वार्षिक वर्षा स्थिर रही है लेकिन वर्षा का समय और तीव्रता अप्रत्याशित हो गई है।**

- **Dada Rao Ghatode**, a farmer from **Babultara village**, owns **eight acres** of land where he grows **soybean**, **cotton**, and **pigeon pea** (tur) during the **kharif season** (July to October).  
दादा राव घाटोड़े, बाबुलतरा गांव के एक किसान, के पास आठ एकड़ ज़मीन है, जहां वह सोयाबीन, कपास, और पिगियन पी (तूर) की फसल खरीफ सीजन (जुलाई से अक्टूबर) में उगाते हैं।
- This season, he expected at least ₹80,000 in return from **four acres** of soybean. However, a single day of **heavy rains** in **September** ruined nearly **80%** of his crop.  
इस सीजन में, उन्होंने चार एकड़ सोयाबीन से कम से कम ₹80,000 की उम्मीद की थी। हालांकि, सितंबर में एक दिन की भारी बारिश ने उनकी फसल का लगभग 80% नष्ट कर दिया।
- This was not an isolated incident. Across **Marathwada**, farmers are grappling with **unpredictable changes** in rainfall distribution, which are threatening their livelihoods. यह एक एकल घटना नहीं थी। मराठवाड़ा भर में, किसान वर्षा वितरण में अप्रत्याशित बदलाव का सामना कर रहे हैं, जो उनके आजीविकाओं के लिए खतरे का कारण बन रहे हैं।
- **Jalna**, along with all other districts in **Marathwada**, has experienced a sharp increase in **extreme rainfall events**, disrupting traditional farming practices and water management systems.  
जालना, और मराठवाड़ा के सभी अन्य जिलों में, चरम वर्षा घटनाओं में तेज़ वृद्धि देखी गई है, जिससे पारंपरिक कृषि प्रथाएँ और जल प्रबंधन प्रणालियाँ बाधित हो रही हैं।





## Rise in extreme rainfall events

### चरम वर्षा घटनाओं में वृद्धि

- Through the last two decades, the distribution of rainfall in **Jalna** has changed significantly, according to the analysis of daily gridded rainfall data from the **India Meteorological Department**.  
पिछले दो दशकों में, जालना में वर्षा का वितरण महत्वपूर्ण रूप से बदला है, जो **भारत मौसम विज्ञान विभाग** के दैनिक वर्षा डेटा के विश्लेषण से पता चला है।
- The region's **total annual rainfall** has been relatively stable but the **timing** and **intensity** of the rains have become erratic.  
क्षेत्र की कुल वार्षिक वर्षा अपेक्षाकृत स्थिर रही है लेकिन वर्षा का समय और तीव्रता अप्रत्याशित हो गई है।
- Marathwada oscillates between periods of **little water** and **too much water**, causing severe **waterlogging** during the **kharif season**.  
मराठवाड़ा कम पानी और बहुत अधिक पानी के बीच झूलता है, जिससे खरीफ सीजन के दौरान गंभीर जलभराव होता है।
- Traditionally, farmers grow **water-intensive crops** such as **paddy, maize, pulses, soybean**, and **groundnut** during the **kharif season**, and expect good yields.  
परंपरागत रूप से, किसान पानी-गहन फसलें जैसे कि चावल, मक्का, दालें, सोयाबीन, और मूंगफली खरीफ सीजन में उगाते हैं, और अच्छे उत्पादन की उम्मीद करते हैं।
- Due to an increasingly unstable monsoon, farmers have had to fall back more and more on **rabi season** (November to April) crops such as **sorghum, chana**, and **wheat**, which have lower market prices.  
बढ़ती अस्थिर मानसून के कारण, किसानों को रबी सीजन (नवंबर से अप्रैल) की फसलें जैसे कि ज्वार, चना, और गेहूं पर अधिक निर्भर होना पड़ा है, जिनकी बाजार कीमतें कम हैं।
- Data from **2001 to 2023** indicated that rains in **July, August**, and **September** accounted for **70%** of **Jalna's** annual rainfall.  
**2001 से 2023** तक के डेटा से पता चला है कि जुलाई, अगस्त, और सितंबर में वर्षा ने जालना की वार्षिक वर्षा का **70%** हिस्सा लिया।
- The monsoon arrived late in **July** and **August** in most of these years.  
इन वर्षों में अधिकांश समय जुलाई और अगस्त में मानसून देर से आया।
- The amount of rain in **July** and **August** fell short as much as **70% of the time**, while there was a **50% chance** of downpours deviating from normal patterns in **September**.  
जुलाई और अगस्त में वर्षा का मात्रा **70% समय** कम रहा, जबकि सितंबर में सामान्य पैटर्न से वर्षा के ज्यादा होने का **50% अवसर** था।
- The frequency of rainy days with more than **3 mm of rain** dropped by **30%** in **August**, a critical period for crop growth.  
अगस्त में **3 मिमी से अधिक बारिश** वाले वर्षा दिनों की आवृत्ति **30%** घट गई, जो फसल वृद्धि के लिए महत्वपूर्ण समय है।





- **September had 18% more rainy days**, leading to **water-logging** just as the crops approached harvest.

सितंबर में 18% अधिक वर्षा दिन थे, जिससे फसल कटाई के पास जलभराव हुआ।

## Trends in extreme rainfall events

### चरम वर्षा घटनाओं में प्रवृत्तियाँ

- Extreme rainfall events, defined as a day with rain falling in the **99th percentile** by quantity, have become more **frequent** and **intense**.  
चरम वर्षा घटनाएँ, जिन्हें वर्षा की मात्रा के **99वें पर्सेंटाइल** में गिरने वाले दिन के रूप में परिभाषित किया गया है, अधिक आवृत्त और तीव्र हो गई हैं।
- The intensity on these days increased from **59 mm/day** in **1951-2000** to **70 mm/day** in **2001-2023**.  
इन दिनों की तीव्रता **1951-2000** में **59 मिमी/दिन** से बढ़कर **2001-2023** में **70 मिमी/दिन** हो गई।
- Studies across **central India** have recorded a **threefold increase** in the frequency of extreme precipitation events.  
केंद्रीय भारत में अध्ययन ने चरम वर्षा घटनाओं की आवृत्ति में **तीन गुना वृद्धि** दर्ज की है।

## Black soil and water-logging

### काली मिट्टी और जलभराव

- **Farmers, researchers, and policymakers** often discuss water scarcity in relation to the impact of **climate change** on agriculture, leaving the challenges of excess water to still be understudied.  
कृषि पर जलवायु परिवर्तन के प्रभाव के संदर्भ में किसान, शोधकर्ता और नीति निर्माता अक्सर पानी की कमी पर चर्चा करते हैं, लेकिन अधिक पानी की समस्याओं पर अभी भी पर्याप्त अध्ययन नहीं किया गया है।
- The **Marathwada region's black soil** can hold a large amount of water before having to discharge it, and is thus prone to **waterlogging**.  
मराठवाड़ा क्षेत्र की काली मिट्टी अत्यधिक पानी को सोख सकती है, जिससे यह जलभराव के प्रति संवेदनशील हो जाती है।
- When this soil type becomes saturated with water, it restricts drainage and prevents water from seeping into **aquifers**, resulting in **flooding** even with normal rainfall.  
जब यह मिट्टी पानी से संतृप्त हो जाती है, तो यह जल निकासी को सीमित कर देती है और पानी को जलमग्न जलाशयों में रिसने से रोक देती है, जिसके परिणामस्वरूप सामान्य वर्षा में भी बाढ़ आती है।
- For farmers, **waterlogging** is equal to disaster because it deprives the crops of oxygen, which leads to **rotting**, **wilting**, and increased susceptibility to pests and diseases.  
किसानों के लिए, जलभराव आपदा के समान है क्योंकि यह फसलों को ऑक्सीजन से वंचित कर देता है, जिससे सड़न, मुरझाना और कीटों और बीमारियों के प्रति संवेदनशीलता बढ़ जाती है।
- The hydrogeology of **Marathwada** further complicates this situation. Although **farm ponds** and **wells** fill quickly after the rains, the underlying **basalt rocks** are not





conducive to long-term water storage.

मराठवाड़ा की जलभूगोलिकी इस स्थिति को और जटिल बनाती है। हालांकि खेती के तालाब और कुएं बारिश के बाद जल्दी भर जाते हैं, लेकिन नीचे स्थित बेसाल्ट की चट्टानें दीर्घकालिक जल भंडारण के लिए उपयुक्त नहीं हैं।

- In other words, farmers can't rely on these resources for **irrigation** throughout the year. अर्थात्, किसान पूरे साल इन संसाधनों पर **सिंचाई** के लिए निर्भर नहीं रह सकते हैं।
- The result is a continuous cycle of **surplus water** in the monsoon and **scarcity** in the dry months — both of which are bad for farming.

इसका परिणाम यह है कि **मानसून** में अत्यधिक पानी और **शुष्क महीनों** में पानी की कमी का एक निरंतर चक्र बनता है – दोनों ही खेती के लिए हानिकारक हैं।

## Evolving water management

### जल प्रबंधन का विकास

- The changes in **rainfall distribution** in **Jalna** reveal a pressing need for new agricultural water management strategies.

जलना में वर्षा वितरण में बदलाव नए कृषि जल प्रबंधन रणनीतियों की तात्कालिक आवश्यकता को दर्शाता है।

- Prevailing water management practices in **Marathwada** are based on storing excess water in **farm ponds**. These ponds do provide some relief, but they don't prevent **waterlogging** or retain water beyond a single season.

मराठवाड़ा में प्रचलित जल प्रबंधन अभ्यास खेतों के तालाबों में अतिरिक्त पानी जमा करने पर आधारित हैं। ये तालाब कुछ राहत प्रदान करते हैं, लेकिन जलभराव को रोकने या पानी को एक मौसम से अधिक समय तक संचित रखने में सक्षम नहीं होते।

- For conventional methods to manage **watersheds**, experts use historical **rainfall data** to determine storage capacity. But with the **monsoons** becoming less predictable, **Jalna** and other similar areas need watershed structures that can withstand high **runoff** volumes from extreme rain events.

जलाशयों का प्रबंधन करने के लिए परंपरागत विधियों में, विशेषज्ञ ऐतिहासिक वर्षा डेटा का उपयोग भंडारण क्षमता निर्धारित करने के लिए करते हैं। लेकिन चूंकि **मानसून** अब कम पूर्वानुमान योग्य हो गए हैं, **जलना** और अन्य समान क्षेत्रों को ऐसे जलाशय संरचनाओं की आवश्यकता है जो अत्यधिक **बहाव** मात्रा का सामना कर सकें।

- One sustainable approach would be to focus on enhancing the region's **drainage networks** and improving **surface water storage**.

एक सतत दृष्टिकोण यह होगा कि क्षेत्र के जल **निकासी नेटवर्क** को बेहतर बनाना और सतही जल भंडारण में सुधार करना।

- Transitioning from **farm ponds** that depend on **groundwater** to **surface runoff capture systems** could also reduce the pressure on **aquifers** and prevent **groundwater depletion**.

कुएं पर निर्भर खेतों के तालाबों से सतही जल बहाव संचयन प्रणालियों की ओर बदलाव भी जलमग्न जलाशयों पर दबाव को कम कर सकता है और भूजल **depletion** को रोक सकता है।



- Additionally, shifting to more **water-tolerant** varieties of crops can allow the water to percolate through the soil more and help sustain the landscape even when it is inundated.

इसके अतिरिक्त, अधिक जल सहनशील फसल किस्मों की ओर परिवर्तन जल को मिट्टी में और अधिक रिसने की अनुमति दे सकता है और जलमग्न होने पर भी परिदृश्य को बनाए रखने में मदद कर सकता है।

- This combination of improved **drainage infrastructure, surface water storage facilities, and resilient land use** can foster a balanced water management system capable of withstanding the disruptive weather changes in **Marathwada**.

बेहतर जल निकासी अवसंरचना, सतही जल भंडारण सुविधाओं, और मजबूत भूमि उपयोग का यह संयोजन एक संतुलित जल प्रबंधन प्रणाली को बढ़ावा दे सकता है जो मराठवाड़ा में disruptive मौसम परिवर्तनों का सामना करने में सक्षम हो।

# The salience of the Places of Worship Act

Why was there communal violence in Sambhal, Uttar Pradesh? What were Justice Chandrachud's remarks in the Gyanvapi case in 2022 and why did it spark political controversy? What does the Places of Worship (Special Provisions) Act, 1991 stipulate?

GS Paper I: Communalism

## EXPLAINER

Aaratrika Bhaumik

### The story so far:

A suit filed against the Shahi Jama Masjid in Sambhal district, Uttar Pradesh, in which the trial court issued an ex-parte order permitting a survey of the mosque, triggered violence on November 24, resulting in the death of four persons. The petitioners have alleged that the 16th-century mosque was built at the site of an ancient Hari Har Mandir which was purportedly demolished by Mughal ruler Babur in 1529. The incident is part of a pernicious trend of local courts in States like Rajasthan and Uttar Pradesh entertaining civil suits contesting the origins of mosques across the country. Experts have however flagged that such suits constitute a violation of the Places of Worship (Special Provisions) Act, 1991.

### What does the 1991 Act stipulate?

The 1991 Act was introduced by the Congress government under Prime Minister P.V. Narasimha Rao amid the communal turmoil that followed the demolition of the Babri Masjid in Ayodhya in 1992. Then Home Minister S.B. Chavan stated that the "enactment of this Bill will go a long way in helping restore communal amity and goodwill."

The law preserves the character of a place of worship as it existed on August 15, 1947, and prohibits courts from examining whether any place of worship has been altered since that date. Section 3 of the Act forbids the conversion – either in whole or in part – of a place of worship from one religious denomination to another, or even within different sects of the same religion. However, the Ram Janmabhoomi dispute in Ayodhya was explicitly exempted from the Act's purview, as the matter was already sub judice when the law was enacted.

A five-judge Constitution Bench in the 2019 Ayodhya title suit affirmed that the



**Tense times:** The main gate of the mosque at Sambhal in Uttar Pradesh on November 27. R.V. MOORTHY

law was designed to protect the nation's secular fabric and imposes a positive obligation on the State to preserve the religious character of all places of worship as they stood on the day India attained independence. Although the disputed site was awarded to the child deity Ram Lalla, the top court barred the institution of similar suits concerning other religious places, in accordance with the provisions of the 1991 Act.

### Why has it been challenged?

A slew of petitions have been filed in the apex court challenging the constitutionality of the law, including one by BJP leader and advocate Ashwini Kumar Upadhyay. The petitioners argue that by freezing the status of religious sites as they stood in 1947, the law effectively prevents Hindus from "reclaiming" their places of worship that were allegedly

constitutionality of parliamentary laws. Similarly, the court must expedite the hearing of the challenge with a presumption in favour of the Act's constitutionality. A heavy burden lies on the petitioners to prove its unconstitutionality," he said.

### Why did Justice Chandrachud's remarks stir political row now?

In August 2021, five women associated with the Vishwa Vedic Sanatan Sangh filed a petition in a Varanasi civil court seeking year-round access to pray at a shrine located behind the western wall of the Gyanvapi mosque complex. They claimed the mosque housed several Hindu deities. On April 8, 2022, a Varanasi civil judge appointed an Advocate Commissioner to conduct a videographic survey to ascertain the alleged existence of these idols. The mosque committee challenged the order citing the 1991 Act. However, the High Court and later the Supreme Court refused to halt the survey.

In May 2022, during a hearing on the maintainability of the suit, Justice D.Y. Chandrachud remarked that the 1991 Act does not preclude inquiries into the status of a place of worship as of August 15, 1947, provided there is no intent to alter or convert its character. This interpretation marked a stark departure from the stance taken in the Ayodhya verdict, also purportedly authored by the former CJI. It also broadened the scope for district courts to entertain a host of similar petitions. This oral remark has also recently sparked a political storm, with Congress leader Jairam Ramesh claiming that it has since opened a Pandora's box.

"Oral observations hold no binding authority as they are not formally recorded in the order. The legislative intent of the 1993 Act could not have been any clearer – it explicitly bars even the admission of such suits. Such claims may only be considered if, on August 15, 1947, the site was unquestionably used by multiple religious communities, for instance, as both a temple and a mosque," explained Dr. Mustafa.

## THE GIST

▼ The 1991 Act preserves the character of a place of worship as it existed on August 15, 1947, and prohibits courts from examining whether any place of worship has been altered since that date.

▼ A slew of petitions have been filed in the apex court challenging the constitutionality of the law. The petitioners argue that by freezing the status of religious sites as they stood in 1947, the law effectively prevents Hindus from "reclaiming" their places of worship that were allegedly "invaded" by Muslim rulers and British colonialists.

▼ The Supreme Court is yet to decide the preliminary issue raised in several of these suits – whether the 1991 Act bars even the filing of pleas questioning the "original" status of a religious site or just the final alteration of its nature of worship.





## The salience of the Places of Worship Act पूजास्थल (विशेष प्रावधान) अधिनियम की महत्ता

A suit filed against the Shahi Jama Masjid in Sambhal district, Uttar Pradesh, triggered violence on November 24, resulting in the death of four persons.

उत्तर प्रदेश के साम्भल जिले में शाही जामा मस्जिद के खिलाफ दायर एक मुकदमे ने 24 नवंबर को हिंसा को जन्म दिया, जिसके परिणामस्वरूप चार व्यक्तियों की मौत हो गई।

- The petitioners alleged that the **16th-century mosque** was built at the site of an ancient **Hari Har Mandir**, allegedly demolished by **Mughal ruler Babur in 1529**.  
वादियों ने आरोप लगाया कि **16वीं सदी की मस्जिद** एक प्राचीन **हरी हर मंदिर** की जगह बनाई गई थी, जिसे कथित रूप से **मुगल सम्राट बाबर** ने **1529** में ध्वस्त कर दिया था।
- The incident is part of a **pernicious trend** of local courts in **States like Rajasthan and Uttar Pradesh** entertaining **civil suits** contesting the origins of mosques.  
यह घटना **राजस्थान और उत्तर प्रदेश** जैसे राज्यों में स्थानीय न्यायालयों द्वारा मस्जिदों की उत्पत्ति पर विवाद करने वाले **नागरिक मुकदमों** के **हानिकारक रुझान** का हिस्सा है।
- Experts have flagged that such suits constitute a violation of the **Places of Worship (Special Provisions) Act, 1991**.  
विशेषज्ञों ने चेतावनी दी है कि इस तरह के मुकदमे **पूजास्थल (विशेष प्रावधान) अधिनियम, 1991** का उल्लंघन करते हैं।

What does the 1991 Act stipulate?

1991 अधिनियम क्या निर्दिष्ट करता है?

- The **1991 Act** was introduced by the **Congress government** under **Prime Minister P.V. Narasimha Rao** amid the **communal turmoil** that followed the demolition of the **Babri Masjid** in **Ayodhya** in **1992**.  
**1991 अधिनियम** को कांग्रेस सरकार ने प्रधानमंत्री पी.वी. नरसिम्हा राव के तहत **बाबरी मस्जिद** के **आयोध्या** में **1992** में ध्वस्त होने के बाद उत्पन्न **सांप्रदायिक उथल-पुथल** के बीच पेश किया था।
- Then **Home Minister S.B. Chavan** stated that the “**enactment of this Bill**” would help restore **communal amity and goodwill**.  
तत्कालीन गृह मंत्री एस.बी. चव्हाण ने कहा था कि “**इस विधेयक का पारित होना**” सांप्रदायिक **सौहार्द और सद्भावना** की बहाली में मदद करेगा।
- The **law preserves the character of a place of worship** as it existed on **August 15, 1947**, and prohibits courts from examining whether any place of worship has been





altered since that date.

यह कानून 15 अगस्त 1947 को जैसे पूजा स्थल का स्वभाव था, उसे बनाए रखने का प्रावधान करता है और अदालतों को इस बात की जांच करने से रोकता है कि क्या किसी पूजा स्थल को उस दिन के बाद बदला गया है।

- **Section 3** of the Act forbids the **conversion**, either in whole or in part, of a place of worship from one religious denomination to another, or even within different sects of the same religion.

अधिनियम की धारा 3 किसी पूजा स्थल के एक धार्मिक संप्रदाय से दूसरे में या एक ही धर्म के विभिन्न संप्रदायों में पूरी या आंशिक रूपांतरण को रोकती है।

- However, the **Ram Janmabhoomi dispute in Ayodhya** was explicitly **exempted from the Act's purview**, as the matter was already **sub judice** when the law was enacted.

हालाँकि राम जन्मभूमि विवाद आयोध्या में इस अधिनियम के दायरे से स्पष्ट रूप से बाहर रखा गया था, क्योंकि यह मामला जब कानून बनाया गया था, तब पहले से ही उप-न्यायिक था।

## Constitutional Bench remarks on the Act

### संवैधानिक पीठ के अधिनियम पर टिप्पणियाँ

- A **five-judge Constitution Bench** in the **2019 Ayodhya title suit** affirmed that the law was designed to protect the nation's **secular fabric**.

2019 आयोध्या भूमि विवाद में एक पाँच सदस्यीय संविधान पीठ ने यह पुष्टि की कि यह कानून देश के धार्मिक ताने-बाने की रक्षा करने के लिए बनाया गया था।

- It imposes a **positive obligation** on the State to preserve the **religious character** of all places of worship as they stood on the day **India attained independence**.

यह राज्य पर यह सकारात्मक दायित्व डालता है कि वह सभी पूजा स्थलों के धार्मिक स्वभाव को उस दिन तक बनाए रखे जब भारत ने स्वतंत्रता प्राप्त की।

- The top court barred the institution of similar suits concerning other religious places, in accordance with the provisions of the **1991 Act**.

शीर्ष न्यायालय ने 1991 अधिनियम के प्रावधानों के अनुसार अन्य धार्मिक स्थलों से संबंधित समान मुकदमों की संस्थापना पर रोक लगा दी।

## Why has it been challenged?

### यह क्यों चुनौती दी गई है?

- A slew of petitions have been filed in the apex court challenging the constitutionality of the law, including one by **BJP leader and advocate Ashwini Kumar Upadhyay**.

उच्चतम न्यायालय में इस कानून की संवैधानिकता को चुनौती देने वाली कई याचिकाएं दायर की गई हैं, जिनमें भा.ज.पा. नेता और वकील अश्विनी कुमार उपाध्याय की याचिका भी शामिल है।

- The **petitioners argue** that by freezing the status of religious sites as they stood in **1947**, the law effectively prevents Hindus from "reclaiming" their places of worship that were allegedly "invaded" by Muslim rulers and British colonialists.

याचिकाकर्ताओं का कहना है कि 1947 में धार्मिक स्थलों की स्थिति को स्थिर कर देने से यह





कानून हिंदुओं को उनके पूजा स्थलों को फिर से प्राप्त करने से रोकता है, जिन्हें कथित तौर पर मुस्लिम शासकों और ब्रिटिश उपनिवेशवादियों ने "आक्रमण" किया था।

- They further point out that destroyed temples retain their original character under **Hindu personal laws** and cannot be considered valid mosques under **Islamic law** without the establishment of a **waqf**.

वे यह भी बताते हैं कि नष्ट किए गए मंदिर हिंदू व्यक्तिगत कानूनों के तहत अपनी मूल प्रकृति बनाए रखते हैं और उन्हें इस्लामी कानून के तहत वैध मस्जिद नहीं माना जा सकता जब तक कि वक्फ की स्थापना न हो।

- In **September 2022**, a Bench led by then **Chief Justice of India (CJI) U.U. Lalit** directed the government to file a response on its stand within two weeks.

सितंबर 2022 में, तत्कालीन भारत के मुख्य न्यायाधीश (CJI) यू.यू. ललित की अध्यक्षता वाली एक पीठ ने सरकार को दो हफ्ते के भीतर अपनी स्थिति पर प्रतिक्रिया दायर करने का निर्देश दिया।

- However, two years later, the Centre has still not submitted its affidavit. हालांकि, दो साल बाद भी केंद्र ने अपनी शपथपत्र जमा नहीं किया है।
- Noted academician **Prof. (Dr.) Faizan Mustafa** told *The Hindu* that the inordinate delay in hearing the challenge has emboldened lower courts to disregard the provisions of the **1991 law**.

प्रसिद्ध शिक्षाविद् प्रो. (डॉ.) फैज़ान मुस्तफा ने द हिंदू से कहा कि चुनौती की सुनवाई में अत्यधिक देरी ने निचली अदालतों को 1991 कानून के प्रावधानों की अवहेलना करने का साहस दिया है।

- "An authoritative pronouncement from the top court is crucial to preserving the country's **social fabric**. The government is duty-bound to defend the constitutionality of parliamentary laws.

"उच्चतम न्यायालय से एक प्राधिकृत घोषणा देश के सामाजिक ताने-बाने को बनाए रखने के लिए महत्वपूर्ण है। सरकार को संसदीय कानूनों की संवैधानिकता की रक्षा करने का दायित्व है।

- Similarly, the court must expedite the hearing of the challenge with a **presumption in favour of the Act's constitutionality**.

इसी तरह, न्यायालय को चुनौती की सुनवाई को कानून की संवैधानिकता के पक्ष में त्वरित करना चाहिए।

- A heavy burden lies on the petitioners to prove its **unconstitutionality**," he said. याचिकाकर्ताओं पर इसकी असंवैधानिकता को प्रमाणित करने का भारी बोझ है," उन्होंने कहा।

## Why did Justice Chandrachud's remarks stir political row now?

### न्यायमूर्ति चंद्रचूड़ की टिप्पणियाँ अब राजनीतिक विवाद क्यों पैदा कर रही हैं?

- In **August 2021**, five women associated with the **Vishwa Vedic Sanatan Sangh** filed a petition in a **Varanasi civil court** seeking year-round access to pray at a shrine located behind the western wall of the **Gyanvapi mosque complex**.

अगस्त 2021 में, विश्व वेदिक सनातन संघ से जुड़ी पांच महिलाओं ने वाराणसी सिविल कोर्ट में एक याचिका दायर की, जिसमें ज्ञानवापी मस्जिद परिसर की पश्चिमी दीवार के पीछे स्थित एक मंदिर में साल भर पूजा करने की अनुमति मांगी।





- They claimed the mosque housed several Hindu deities.  
उनका दावा था कि मस्जिद में कई हिंदू देवताओं की मूर्तियाँ हैं।
- **On April 8, 2022, a Varanasi civil judge appointed an Advocate Commissioner to conduct a videographic survey to ascertain the alleged existence of these idols.**  
**8 अप्रैल 2022** को, एक **वाराणसी सिविल जज** ने इन मूर्तियों की कथित मौजूदगी का पता लगाने के लिए एक **वकील आयुक्त** को वीडियो सर्वेक्षण करने के लिए नियुक्त किया।
- The mosque committee challenged the order citing the **1991 Act**.  
मस्जिद समिति ने **1991 कानून** का हवाला देते हुए आदेश को चुनौती दी।
- **However, the High Court and later the Supreme Court refused to halt the survey.**  
हालांकि, **उच्च न्यायालय** और बाद में **सुप्रीम कोर्ट** ने सर्वेक्षण को रोकने से इनकार कर दिया।
- **In May 2022, during a hearing on the maintainability of the suit, Justice D.Y. Chandrachud remarked that the 1991 Act does not preclude inquiries into the status of a place of worship as of August 15, 1947, provided there is no intent to alter or convert its character.**  
**मई 2022** में, मुकदमे की वैधता पर सुनवाई के दौरान, **न्यायमूर्ति डी.वाई. चंद्रचूड़** ने टिप्पणी की कि **1991 कानून** पूजा स्थल की स्थिति की जांच करने से नहीं रोकता जैसा कि **15 अगस्त 1947** को था, बशर्ते इसका रूप बदलने या रूपांतरण का कोई इरादा न हो।
- This interpretation marked a stark departure from the stance taken in the **Ayodhya verdict**, also purportedly authored by the former CJI.  
यह व्याख्या **अयोध्या निर्णय** में ली गई स्थिति से एक स्पष्ट हटाव था, जिसे कथित रूप से पूर्व CJI द्वारा लिखा गया था।
- It also broadened the scope for district courts to entertain a host of similar petitions.  
इसने जिला अदालतों के लिए समान याचिकाओं को सुनने के दायरे को भी बढ़ाया।
- This oral remark has also recently sparked a political storm, with **Congress leader Jairam Ramesh** claiming that it has since opened a **Pandora's box**.  
इस मौखिक टिप्पणी ने हाल ही में एक राजनीतिक तूफान को जन्म दिया है, जिसमें **कांग्रेस नेता जयराम रमेश** ने दावा किया है कि इसने एक **पंडोरा बॉक्स** खोल दिया है।
- **"Oral observations hold no binding authority as they are not formally recorded in the order.**  
"मौखिक टिप्पणियाँ कोई बाध्यकारी प्राधिकरण नहीं रखतीं क्योंकि वे आदेश में औपचारिक रूप से दर्ज नहीं होतीं।
- The legislative intent of the **1993 Act** could not have been any clearer — it explicitly bars even the admission of such suits.  
**1993 कानून** की विधायी मंशा इससे स्पष्ट नहीं हो सकती थी – यह ऐसे मुकदमों के प्रवेश को स्पष्ट रूप से रोकता है।
- Such claims may only be considered if, on **August 15, 1947**, the site was unquestionably used by multiple religious communities, for instance, as both a temple and a mosque," explained **Dr. Mustafa**.  
ऐसे दावे केवल तब ही विचार किए जा सकते हैं यदि **15 अगस्त 1947** को वह स्थल निर्विवाद रूप से कई धार्मिक समुदायों द्वारा उपयोग किया गया हो, उदाहरण स्वरूप, एक मंदिर और मस्जिद दोनों के रूप में," **डॉ. मुस्तफा** ने समझाया।





# What are the controversies around pardoning power?

What is the history of the pardoning power in the U.S.? What is the current controversy?

GS Paper II: Pardoning Power

Rangarajan. R

The story so far:

U.S. President Joe Biden has granted an unconditional pardon to his son Hunter Biden who faced sentencing for federal tax and gun convictions.

Can the President pardon anyone?

The 'royal prerogative of mercy' is a historic prerogative of the British monarch to grant pardons to convicted persons. This was originally used by the monarch to withdraw or provide alternatives to death sentences. At present it is used to grant clemency for any sentence or penalty based on ministerial advice. According to the U.S. Constitution, the President can grant pardon except in cases of impeachment. The U.S. President has absolute power of pardon for federal criminal offences. Such a pardon may be issued prior to the start

of a legal case as well as prior to or after a conviction for a crime.

Once accepted, the pardon grants relief from punishment and associated disqualifications but does not erase the conviction record.

What is the current controversy?

Right from the pardon to the leaders of the 'whiskey rebellion', who protested against a federal tax, granted by the first President George Washington in 1795 to President Bill Clinton's pardon of his half-brother Roger on the last day of his office in 2001, pardoning power has been mired in controversies. Donald Trump had pardoned his son-in-law's father in 2020. In the instant case, President Joe Biden has granted pardon to his son for tax and gun offences for which he has been convicted, and for any potential federal crimes that Hunter Biden may have committed between 2014 and 2024. This is in contrast to the public promises

that Joe Biden had made earlier that he would not pardon his son. The reason stated by the President was that Hunter Biden was selectively and unfairly prosecuted, and was singled out only because he is his son. Hunter Biden was convicted by a jury of illegally buying and possessing a gun as a drug user. He then pleaded guilty in a tax evasion case.

What is the Indian system?

Article 72 and 161 of the Constitution provide powers to the President and Governor respectively to grant pardon, commutation, remission, respite or reprieve to a convict. These are sovereign powers which are to be exercised on the advice of the council of ministers. A pardon in the Indian context absolves the offender from conviction, punishment and all associated disqualifications. There have been various instances in India where the acceptance, rejection or delay in decisions of mercy petitions by ruling

governments have been entangled in political controversies. The Supreme Court in the *Epuru Sudhakar* case (2006) has held that the exercise of pardoning power is subject to judicial review on the grounds of arbitrariness, mala fides or extraneous considerations.

What can be the way forward?

The pardoning power is a practice that has its origins during the time of absolute monarchy when there was no separation of powers between the executive and the judiciary.

Critics have argued that the pardoning power in modern times have been more often used for political considerations than to correct judicial errors.

In the U.K., the Criminal Cases Review Commission has been constituted to investigate alleged miscarriages of justice. It has diminished the use of the royal prerogative of mercy. This is a transparent and judicious manner of correcting judicial errors in a modern democracy, governed by the rule of law. However, till such time the pardoning power continues in the statute books, it must be exercised in a manner that does not reek of nepotism or arbitrariness. It is essential for retaining the trust of people, who are the source of all power in a democracy, in high constitutional offices.

Rangarajan R is a former IAS officer and author of 'Polity Simplified'. Views expressed are personal.

## THE GIST

The 'royal prerogative of mercy' is a historic prerogative of the British monarch to grant pardons to convicted persons.

According to the U.S. Constitution, the President can grant pardon except in the cases of impeachment. The U.S. President has absolute power of pardon for federal criminal offences.

Article 72 and 161 of the Indian Constitution provide powers to the President and Governor respectively to grant pardon, commutation, remission, respite or reprieve to a convict.

## Controversies Around Pardoning Power

### पार्डनिंग पावर के चारों ओर विवाद

The 'royal prerogative of mercy' is a historic prerogative of the British monarch to grant pardons to convicted persons.

'रॉयल प्रीरेगेटिव ऑफ मर्सी' ब्रिटिश सम्राट का ऐतिहासिक विशेषाधिकार है, जो दोषी व्यक्तियों को माफी देने का अधिकार देता है।

- It was used to withdraw or provide alternatives to **death sentences**. इसका उपयोग फांसी की सजा को वापस लेने या उसके विकल्प देने के लिए किया जाता था।
- **Currently, it is used to grant clemency for any sentence or penalty based on ministerial advice.** वर्तमान में, इसे मंत्री परिषद की सलाह पर किसी भी सजा या दंड के लिए कृपा देने के लिए उपयोग किया जाता है।
- **According to the U.S. Constitution, the President can grant pardon except in cases of impeachment.** संविधान के अनुसार, अमेरिकी राष्ट्रपति इम्पीचमेंट के मामलों को छोड़कर पार्डन दे सकते हैं।
- **The U.S. President has absolute power of pardon for federal criminal offenses.** अमेरिकी राष्ट्रपति के पास संघीय अपराधों के लिए पूर्ण अधिकार होता है।





- The pardon can be issued **prior to or after a conviction** for a crime.  
पार्डन को किसी अपराध के लिए **सजा होने से पहले या बाद में** जारी किया जा सकता है।
- **Once accepted, the pardon grants relief from punishment and associated disqualifications but does not erase the conviction record.**  
एक बार स्वीकार किए जाने पर, पार्डन **सजा और संबंधित अयोग्यता से राहत प्रदान करता है**, लेकिन **सजा के रिकॉर्ड को मिटा नहीं सकता**।

## Current Controversy

### वर्तमान विवाद

- Right from the pardon to the leaders of the **'whiskey rebellion'** in **1795**, pardons have been mired in controversies.  
**1795** में **'विहस्की विद्रोह'** के नेताओं को दी गई माफी से लेकर, माफी के मामले विवादों में रहे हैं।
- President **George Washington** granted pardons to the leaders of the whiskey rebellion in 1795.  
राष्ट्रपति **जॉर्ज वॉशिंगटन** ने **1795** में **विहस्की विद्रोह** के नेताओं को माफी दी थी।
- In **2001**, President **Bill Clinton** pardoned his half-brother **Roger**.  
**2001** में, राष्ट्रपति **बिल क्लिंटन** ने अपने सगे भाई **रोजर** को माफ किया।
- President **Donald Trump** pardoned his son-in-law's father in **2020**.  
राष्ट्रपति **डोनाल्ड ट्रंप** ने **2020** में अपने दामाद के पिता को माफ किया।
- President **Joe Biden** granted a **pardon to his son Hunter Biden for tax and gun offenses**.  
राष्ट्रपति **जो बिडेन** ने अपने बेटे **हंटर बिडेन** को **कर और बंदूक अपराधों** के लिए माफी दी।
- The pardon granted by Biden contrasts with his earlier public promises of not pardoning his son.  
बिडेन द्वारा दी गई माफी उनके पहले के सार्वजनिक वादों के विपरीत है, जिसमें उन्होंने अपने बेटे को माफ न करने का वादा किया था।
- **Hunter Biden** was convicted of illegally buying and possessing a **gun as a drug user**.  
**हंटर बिडेन** को **नशेड़ी के रूप में बंदूक खरीदने और रखने** के लिए दोषी ठहराया गया था।
- He also pleaded guilty in a **tax evasion case**.  
उन्होंने **कर चोरी के मामले** में भी दोषी स्वीकार किया।

## Indian System of Pardoning

### भारतीय माफी प्रणाली

- **Article 72 and 161** of the **Constitution** provide powers to the President and Governor respectively to grant **pardon, commutation, remission, respite or reprieve**.  
संविधान के **अनुच्छेद 72 और 161** में राष्ट्रपति और राज्यपाल को क्रमशः **पार्डन, कमीशन, रिहाई, राहत या छूट देने** का अधिकार प्रदान किया गया है।
- These powers are to be **exercised on the advice of the Council of Ministers**.  
इन अधिकारों का उपयोग **मंत्री परिषद की सलाह** पर किया जाता है।





- A **pardon in India** absolves the offender from **conviction, punishment** and all associated **disqualifications**.  
भारत में **पार्डन** अपराधी को **दोषसिद्धि, सजा** और सभी संबंधित **अयोग्यताओं** से मुक्त करता है।
- The **Supreme Court** in the **Epuru Sudhakar case (2006)** held that **pardoning power is subject to judicial review**.  
**सुप्रीम कोर्ट** ने **एपुरु सुधाकर मामले (2006)** में यह कहा कि **माफी का अधिकार न्यायिक समीक्षा के अधीन है।**
- Pardoning power is subject to review on the grounds of **arbitrariness, mala fide or extraneous considerations**.  
**माफी का अधिकार मनमानी, दुश्मनी या अपर्याप्त कारणों के आधार पर समीक्षा के अधीन होता है।**

## Way Forward

### आगे का रास्ता

- The **pardoning power** has origins during **absolute monarchy**, where there was no separation of powers.  
**पार्डनिंग पावर का उदय पूर्णतः राजशाही के समय हुआ था, जब शक्तियों का पृथक्करण नहीं था।**
- Critics argue that pardoning power is used more for **political considerations** than to correct **judicial errors**.  
**आलोचकों का कहना है कि पार्डनिंग पावर का उपयोग राजनीतिक कारणों के लिए अधिक किया जाता है, बजाय न्यायिक त्रुटियों को सुधारने के।**
- In the **U.K.**, the **Criminal Cases Review Commission** has reduced the use of the **royal prerogative of mercy**.  
**यू.के. में, क्रिमिनल केस रिव्यू कमीशन ने रॉयल प्रीरेगेटिव ऑफ मर्सी के उपयोग को कम किया है।**
- It provides a **transparent and judicious manner** of correcting judicial errors.  
**यह न्यायिक त्रुटियों को सुधारने के लिए पारदर्शी और न्यायपूर्ण तरीके प्रदान करता है।**
- Until such time, the pardoning power must be exercised in a manner that does not seem to be **nepotistic or arbitrary**.  
**जब तक ऐसा न हो, पार्डनिंग पावर का उपयोग ऐसे तरीके से किया जाना चाहिए, जो भ्रष्ट या मनमाना न लगे।**

### UPSC Mains Questions:

**Question:** Critically analyze the limitations of the pardoning power in India. Suggest measures to ensure its judicious application. (250 Words/15 Marks)



**EXPLAINER**

# What are the toxins of the 1984 Bhopal disaster?

Past reports have indicated worrisome concentrations of hexachlorobutadiene, chloroform, carbon tetrachloride, and trichlorobenzene at the site of the plant, in addition to elevated levels of heavy metals

SS Paper III: Disaster Management

Vasudevan Mukunth

**F**orty years after the Bhopal disaster on December 2-3, 1984, several hundred tonnes of toxic waste still remain around the ill-fated Union Carbide plant. Despite pleas from locals and activists – bolstered over the years by orders from the National Green Tribunal and the Supreme Court – to dispose of the waste, the Madhya Pradesh government has only been able to get rid of a small fraction. Chemical analyses of soil, air, and water samples collected from the area have revealed the presence of toxic compounds at elevated concentrations. This year, Madhya Pradesh received ₹126 crore from the Union government to incinerate around 340 tonnes of the aboveground material, but others have resisted the plan saying burning the compounds will release poisonous fumes that could lead to further contamination and adverse health effects.

## What toxins are associated with the disaster?

Union Carbide India, Ltd. (UCIL) built the Bhopal plant in the late 1960s to manufacture an insecticide called carbaryl using a reaction of methyl isocyanate (MIC) with 1-naphthol. MIC is a highly toxic compound. It reacts with water at high temperatures, and its reaction with water also releases heat.

On the night of December 2, 1984, a large quantity of water entered a tank storing MIC at the plant such that the MIC was soon boiling. Facilities at the plant to cool the tank were otherwise diverted, leaving MIC vapours to escape to the environment and spread through the settlements around the plant. MIC doesn't have a particular smell at concentrations at which other gases may become noticeable but it can irritate the eyes. However, given the hours, most of the people exposed to the gas were asleep.

The Union Carbide Corporation has never officially specified which gases were leaked from the plant, including MIC. This decision also compromised health workers' ability to respond effectively to the hordes of people who showed up in clinics and hospitals in Bhopal that night and the next day.

Some visual cues, including the blood-red colour of the viscera of those who died, also raised concerns that hydrogen cyanide was present in the fumes.

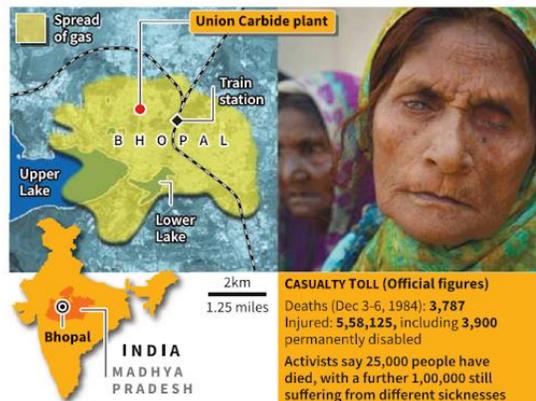
## What are the toxins at the plant?

As *The Hindu* reported on December 2, "a 2010 government-commissioned study showed that ... the factory premises also contain about 11 lakh tonnes of contaminated soil, one tonne of mercury, and nearly 150 tonnes of underground dumps" – in addition to the 340 metric tonnes earmarked for incineration.

In 2001, the *International Journal of Occupational and Environmental Health* published an editorial by Jayshree Chander, then at the School of Medicine at the University of California San Francisco. Here, Dr. Chander citing a Greenpeace report released in 1999, based on analyses of samples collected at the site in May that year, wrote that Greenpeace reported the presence of

## Toxins linger 40 years on

Chemical analyses of soil, air, and water samples collected from the area around the ill-fated Union Carbide plant in Bhopal, Madhya Pradesh have revealed the presence of toxic compounds at elevated concentrations. Several hundred tonnes of toxic waste still lie around the plant



### RESPONSIBILITY

The Indian government argues that slack management and deferred maintenance caused the disaster. Then-plant owner, the U.S. firm Union Carbide Corporation (UCC), blamed sabotage

In 2010, eight former managers of the plant were convicted of negligence and sentenced to short prison terms

UCC chairman Warren Anderson, who left India soon after the disaster, was sought by the Indian government, which had called for his extradition from the U.S. He died in September 2014, aged 92



Sources: Indian government, Madhya Pradesh government



### COMPENSATION

In 1989, UCC paid \$470m to the Indian government to settle litigation stemming from the disaster

But India is now backing a new court case to secure greater compensation – Dow Chemical, which bought UCC in 2001, denies liability

Payouts by the Indian government to Bhopal claimants over the years reportedly average \$550 apiece



### CONTAMINATION

Environmentalists say the toxic chemicals remaining in the abandoned plant continue to leak, causing health problems

Dow says contamination is the responsibility of Indian authorities who took control of the site in 1998

Picture: AP © GRAPHIC NEWS

mercury, chromium, copper, nickel, and lead. According to her, the report also noted the presence of hexachlorobutadiene, chloroform, carbon tetrachloride, and trichlorobenzene, among other compounds.

Reports from the area have also said the plant was disposing of untreated liquid effluent before the events of 1984.

In 2004, the Supreme Court ordered Madhya Pradesh to supply drinking water from tankers to 14 communities around the plant; by 2013 this exercise had expanded to encompass 22 communities.

In 2017, in response to a plea from an NGO, the court ordered the Indian Institute of Toxicology Research (IITR) to test water samples in 20 more communities.

In 2018, the IITR reported higher than permitted concentrations of nitrate and chloride compounds and heavy metals. The court subsequently ordered Madhya Pradesh to expand its water-supply operations to 42 communities overall. Since then, according to Amnesty International, the same NGO and others have identified persistent organic

pollutants in 29 more communities and have described it as evidence of contamination still spreading from the plant.

## How toxic are heavy metals?

Chromium, copper, lead, mercury, and nickel are classified as heavy metals because their density is at least 5x that of water. Mercury has been known to damage multiple organs even at low concentrations by accumulating in soft tissue and preventing normal cellular function.

The International Agency for Research on Cancer (IARC) has said there is "sufficient evidence" for arsenic and its compounds being able to cause cancers of the urinary bladder and the lungs; for hexavalent chromium to cause cancers of the lungs; and for nickel and its mixtures to cause cancers of the lungs, nose, nasal cavity, and the paranasal sinuses.

According to a 2002 paper in the journal *Pathogens and Disease*, "Chromium is an essential nutrient required by the human body to promote the action of insulin for the utilisation of sugars, proteins and fats. ... But high

doses of chromium and long term exposure can give rise to various cytotoxic and genotoxic reactions that affect the immune system of the body."

Lead is capable of damaging chlorophyll and disrupting photosynthesis in plants and rendering structural damage to cells and hampering their ability to produce energy in animals. Also, lead from inorganic compounds has been correlated with stomach cancer and to a lesser degree with cancers of the lungs, kidneys, and the brain.

High levels of copper in the body have been known to damage the liver, the kidneys, and the gastrointestinal system.

## How are organic compounds harmful?

According to the U.S. Environmental Protection Agency, hexachlorobutadiene is a possible carcinogen in humans.

When inhaled, ingested, or brought in contact with skin, this compound can cause the liver to store too much fat (hepatic steatosis), destroy cells in the kidneys involved in producing urine, and inhibit brain activity, among other effects. It is also corrosive.

Chloroform by another name is trichloromethane, and is infamous for its effects on the central nervous system. At a sufficient concentration, it can cause an adult to faint, but at even higher ones it can cause death. The IARC has classified chloroform as "possibly carcinogenic" on the back of limited evidence of cancer-causing potential in humans but more reliable evidence in animals.

In the PubChem database of the U.S. National Institutes of Health, carbon tetrachloride, that is carbon tet, is classified as an "acute toxin" and a "health hazard". It is notorious for its ability to damage the liver, including causing cancer. At present, a common way to be exposed to carbon tet is via contaminated groundwater. According to at least one review, ingesting 1 ml of carbon tet can blur vision, damage nerves, and/or cause heartbeats to become irregular.

Trichlorobenzene can take three chemical forms, or isomers, but all of them are volatile and spread easily through the air, although they have also been found in groundwater and in surface water bodies like lakes.

These compounds build up in the body's fatty tissues and at high concentrations can damage the liver and the kidneys.

Finally, Persistent Organic Pollutants (POPs) refer to organic compounds that don't break down easily and thus last for many years in the environment once they enter it. According to the Stockholm Convention on POPs, their effects include "cancer, allergies and hypersensitivity, damage to the central and peripheral nervous systems, reproductive disorders, and disruption of the immune system." Some POPs have also been associated with developmental disorders and worse outcomes in cancers of the liver, breasts, pancreas, and the prostate.

Note: The toxic effects described in this article are not guaranteed to occur, even at the requisite concentration, because toxicity also depends on the demographic, physiological, and genetic characteristics of the exposed individual.





## Toxins of the 1984 Bhopal Disaster

### 1984 भोपाल आपदा के विषैले पदार्थ

Past reports have indicated worrisome concentrations of **hexachlorobutadiene, chloroform, carbon tetrachloride, and trichlorobenzene** at the site of the plant, in addition to elevated levels of heavy metals.

पिछली रिपोर्टों में संयंत्र के स्थल पर हेक्साक्लोरोबुटाडीन, क्लोरोफॉर्म, कार्बन टेट्राक्लोराइड और ट्राईक्लोरोबेंजीन की चिंताजनक सांद्रता का संकेत दिया गया है, इसके अतिरिक्त भारी धातुओं के उच्च स्तर भी पाए गए हैं।

- Forty years after the Bhopal disaster on December 2-3, 1984, several hundred tonnes of toxic waste still remain around the ill-fated Union Carbide plant.

2-3 दिसंबर 1984 को भोपाल आपदा के चालीस वर्षों बाद भी, सैंकड़ों टन विषैले कचरे का ढेर यूनियन कार्बाइड संयंत्र के आसपास पड़ा हुआ है।

- Despite pleas from locals and activists — bolstered over the years by orders from the National Green Tribunal and the Supreme Court — to dispose of the waste, the Madhya Pradesh government has only been able to get rid of a small fraction. स्थानीय निवासियों और कार्यकर्ताओं की अपीलों के बावजूद, जिन्हें वर्षों से राष्ट्रीय हरित अधिकरण और सुप्रीम कोर्ट के आदेशों से बल मिला, मध्य प्रदेश सरकार कचरे का केवल एक छोटा सा हिस्सा ही नष्ट कर पाई है।

- Chemical analyses of soil, air, and water samples collected from the area have revealed the presence of toxic compounds at elevated concentrations.

क्षेत्र से एकत्र किए गए मिट्टी, हवा और जल नमूनों के रासायनिक विश्लेषण से विषैले यौगिकों की उच्च सांद्रता का पता चला है।

- This year, Madhya Pradesh received ₹126 crore from the Union government to incinerate around 340 tonnes of the aboveground material, but others have resisted the plan saying burning the compounds will release poisonous fumes that could lead to further contamination and adverse health effects.

इस वर्ष, मध्य प्रदेश को केंद्र सरकार से ₹126 करोड़ प्राप्त हुए हैं ताकि 340 टन ऊपर की सतह के सामग्री को नष्ट किया जा सके, लेकिन अन्य लोगों ने इस योजना का विरोध किया है, यह कहते हुए कि यौगिकों को जलाने से जहरीली गैसों उत्सर्जित होंगी, जो आगे की संदूषण और स्वास्थ्य प्रभावों का कारण बन सकती हैं।

**What toxins are associated with the disaster?**

**आपदा से जुड़े विषैले पदार्थ कौन से हैं?**





- **Union Carbide India, Ltd. (UCIL)** built the Bhopal plant in the late 1960s to manufacture an insecticide called **carbaryl** using a reaction of **methyl isocyanate (MIC)** with **1-naphthol**. **MIC** is a highly toxic compound.  
**यूनियन कार्बाइड इंडिया, लिमिटेड (UCIL)** ने 1960 के दशक के अंत में **भोपाल संयंत्र** स्थापित किया था ताकि **मिथाइल आइसोसाइनेट (MIC)** और **1-नाफथोल** के रिएक्शन से एक कीटनाशक **कार्बैरील** का निर्माण किया जा सके। **MIC** एक अत्यधिक विषैला यौगिक है।
- It reacts with water at high temperatures, and its reaction with water also releases heat. यह उच्च तापमान पर पानी से प्रतिक्रिया करता है, और इसका पानी के साथ प्रतिक्रिया करने से भी गर्मी रिलीज होती है।
- On the night of **December 2, 1984**, a large quantity of water entered a tank storing **MIC**, causing the **MIC** to boil.  
**2 दिसंबर 1984** की रात को **MIC** को स्टोर करने वाले एक टैंक में बड़ी मात्रा में पानी घुस गया, जिससे **MIC** उबालने लगा।
- Facilities at the plant to cool the tank were otherwise diverted, leaving **MIC vapours** to escape to the environment and spread through the settlements around the plant. संयंत्र में टैंक को ठंडा करने की सुविधाएं अन्यत्र हटा दी गईं, जिससे **MIC** गैसों वातावरण में फैल गईं और संयंत्र के आसपास के बस्तियों में फैल गईं।
- **MIC** doesn't have a particular smell at concentrations at which other gases may become noticeable but it can irritate the eyes.  
**MIC** का विशिष्ट गंध नहीं होता है, जब तक कि अन्य गैसों संवेदनशील स्तर पर न पहुँच जाएं, लेकिन यह आँखों में जलन पैदा कर सकता है।
- The Union Carbide Corporation has never officially specified which gases were leaked from the plant, including **MIC**.  
**यूनियन कार्बाइड कॉर्पोरेशन** ने कभी आधिकारिक रूप से यह नहीं बताया कि संयंत्र से कौन सी गैसों लीक हुईं, जिनमें **MIC** भी शामिल है।
- Some visual cues, including the **blood-red colour of the viscera** of those who died, also raised concerns that **hydrogen cyanide** was present in the fumes. कुछ दृश्य संकेतों में, जैसे कि **मृतकों के आंतरिक अंगों का रक्त-लाल रंग**, यह चिंता जताई गई कि **हाइड्रोजन सायनाइड** गैस भी धुंआ में मौजूद हो सकता था।

## What are the toxins at the plant?

### संयंत्र में कौन से विषैले पदार्थ हैं?

- A **2010 government-commissioned study** showed that the factory premises also contain about **11 lakh tonnes** of contaminated soil, **one tonne of mercury**, and nearly **150 tonnes of underground dumps** — in addition to the **340 metric tonnes** earmarked for incineration.  
एक **2010 सरकार द्वारा कमीशन की गई अध्ययन** में दिखाया गया कि फैक्ट्री परिसर में **11 लाख टन दूषित मिट्टी**, एक टन पारा, और लगभग **150 टन भूमिगत कचरा** भी पाया जाता है — इसके अतिरिक्त **340 मीट्रिक टन सामग्री** को जलाने के लिए निर्धारित किया गया है।





- In 2001, the **International Journal of Occupational and Environmental Health** published an editorial by **Jayshree Chander**, who cited a **Greenpeace report** from 1999, which reported the presence of **mercury, chromium, copper, nickel, and lead**.  
2001 में, इंटरनेशनल जर्नल ऑफ ऑक्यूपेशनल एंड एनवायरनमेंटल हेल्थ ने जयश्री चंदर द्वारा संपादित एक संपादकीय प्रकाशित किया, जिसमें उन्होंने 1999 की **ग्रीनपीस रिपोर्ट** का हवाला दिया, जिसमें **पारा, क्रोमियम, तांबा, निकल और सीसा** की उपस्थिति की सूचना दी गई थी।
- The report also noted the presence of **hexachlorobutadiene, chloroform, carbon tetrachloride, and trichlorobenzene**, among other compounds.  
रिपोर्ट में **हेक्साक्लोरोबुटाडीन, क्लोरोफॉर्म, कार्बन टेट्राक्लोराइड और ट्राइक्लोरोबेंज़ीन** जैसे अन्य यौगिकों की उपस्थिति भी दर्ज की गई थी।
- Reports from the area have also said the plant was disposing of **untreated liquid effluent** before the events of 1984.  
क्षेत्र से रिपोर्टों में यह भी कहा गया है कि संयंत्र 1984 की घटनाओं से पहले **अप्रसंस्कृत तरल अपशिष्ट** को नष्ट कर रहा था।
- In **2004**, the **Supreme Court** ordered **Madhya Pradesh** to supply drinking water from tankers to **14 communities** around the plant; by **2013** this expanded to **22 communities**.  
**2004** में, **सुप्रीम कोर्ट** ने **मध्य प्रदेश** को संयंत्र के आसपास के **14 समुदायों** को टैंकरों से पीने का पानी आपूर्ति करने का आदेश दिया; **2013** तक यह **22 समुदायों** तक बढ़ा दिया गया।
- In **2017**, in response to a plea from an NGO, the court ordered the **Indian Institute of Toxicology Research (IITR)** to test water samples in **20 more communities**.  
**2017** में, एक एनजीओ की याचिका के जवाब में, अदालत ने **भारतीय विषविज्ञान अनुसंधान संस्थान (IITR)** को **20 और समुदायों** में जल नमूनों का परीक्षण करने का आदेश दिया।
- In **2018**, the IITR reported higher than permitted concentrations of **nitrate and chloride compounds and heavy metals**.  
**2018** में, IITR ने **नाइट्रेट और क्लोराइड यौगिकों और भारी धातुओं** की अनुमत सांद्रता से अधिक रिपोर्ट की।
- The court subsequently ordered Madhya Pradesh to expand its water-supply operations to **42 communities** overall.  
इसके बाद, अदालत

## How toxic are heavy metals?

### कितने विषैले होते हैं भारी धातु?

- **Chromium, copper, lead, mercury, and nickel** are classified as heavy metals because their density is at least **5x** that of water.  
**क्रोमियम, तांबा, सीसा, पारा और निकल** को भारी धातु के रूप में वर्गीकृत किया गया है क्योंकि इनका घनत्व पानी से कम से कम **5 गुना** होता है।
- **Mercury** has been known to damage multiple organs even at low concentrations by accumulating in soft tissue and preventing normal cellular function.





पारा को यह ज्ञात है कि यह कम सांद्रता में भी कई अंगों को क्षति पहुँचाता है, क्योंकि यह नरम ऊतकों में जमा हो जाता है और सामान्य कोशिका कार्य को रोकता है।

- The **International Agency for Research on Cancer (IARC)** has said there is “**sufficient evidence**” for **arsenic** and its compounds causing cancers of the **urinary bladder** and the **lungs**; for **hexavalent chromium** causing lung cancer; and for **nickel** and its mixtures causing cancers of the **lungs, nose, nasal cavity**, and the **paranasal sinuses**.

कैंसर पर शोध के लिए अंतर्राष्ट्रीय एजेंसी (IARC) ने कहा है कि **अर्सेनिक** और इसके यौगिकों के बारे में “पर्याप्त प्रमाण” हैं जो **मूत्राशय** और **फेफड़े** के कैंसर का कारण बनते हैं; **हेक्सावैलेंट क्रोमियम** के बारे में **फेफड़े** के कैंसर का कारण बनने के लिए; और **निकल** और इसके मिश्रणों के बारे में **फेफड़े, नाक, नासिका गुहा, और पैरेनासल साइनस** के कैंसर का कारण बनते हैं।

- According to a 2002 paper in the journal **Pathogens and Disease**, **chromium** is an essential nutrient required by the human body to promote the action of **insulin** for the utilization of **sugars, proteins, and fats**.

**2002 के एक पेपर** के अनुसार, **पैथोजन्स एंड डिजीज** जर्नल में, **क्रोमियम** एक आवश्यक पोषक तत्व है जो **इंसुलिन** की क्रिया को बढ़ावा देने के लिए शरीर द्वारा आवश्यक होता है ताकि **चीनी, प्रोटीन और वसा** का उपयोग किया जा सके।

- **Lead** is capable of damaging chlorophyll and disrupting photosynthesis in plants and rendering structural damage to cells and hampering their ability to produce energy in animals.

**सीसा** पौधों में **क्लोरोफिल** को नुकसान पहुँचाने और **प्रकाश संश्लेषण** को बाधित करने में सक्षम है और जानवरों में **कोशिकाओं** को संरचनात्मक नुकसान पहुँचाने और **ऊर्जा उत्पादन** की क्षमता को बाधित करने में सक्षम है।

- **Lead** from inorganic compounds has been correlated with **stomach cancer** and to a lesser degree with cancers of the **lungs, kidneys**, and the **brain**.

**अकार्बनिक यौगिकों से सीसा** को **पेट के कैंसर** से जोड़ा गया है और कम हद तक **फेफड़ों, गुर्दे और मस्तिष्क** के कैंसर से जोड़ा गया है।

- High levels of **copper** in the body have been known to damage the **liver**, the **kidneys**, and the **gastrointestinal system**.

शरीर में **तांबे** की उच्च मात्रा को **जिगर, गुर्दे और पाचन तंत्र** को नुकसान पहुँचाने के रूप में जाना जाता है।

## How are organic compounds harmful?

### कार्बनिक यौगिक कैसे हानिकारक होते हैं?

- According to the **U.S. Environmental Protection Agency**, **hexachlorobutadiene** is a **possible carcinogen** in humans.

**यू.एस. पर्यावरण संरक्षण एजेंसी** के अनुसार, **हेक्साक्लोरोब्यूटाडाइएन** मानवों में एक संभावित **कार्सिनोजेन** है।

- When inhaled, ingested, or brought in contact with skin, this compound can cause the **liver** to store too much fat (**hepatic steatosis**), destroy cells in the **kidneys** involved in





producing urine, and inhibit **brain activity**, among other effects.

जब इस यौगिक को श्वास द्वारा ग्रहण किया जाता है, निगल लिया जाता है, या त्वचा के संपर्क में आता है, तो यह यौगिक जिगर को अत्यधिक वसा ( **हेपेटिक स्टीटोसिस** ) जमा करने का कारण बन सकता है, गुर्दे में कोशिकाओं को नष्ट कर सकता है जो मूत्र उत्पादन में शामिल हैं, और **मस्तिष्क क्रिया** को बाधित कर सकता है, और अन्य प्रभाव उत्पन्न कर सकता है।

- It is also **corrosive**.

यह भी घातक है।

- **Chloroform** by another name is **trichloromethane**, and is infamous for its effects on the **central nervous system**.

**क्लोरोफॉर्म**, जिसका दूसरा नाम **ट्राइक्लोरोमेथेन** है, को **केंद्रीय तंत्रिका तंत्र** पर इसके प्रभावों के लिए बदनाम किया गया है।

- At a sufficient concentration, it can cause an adult to **faint**, but at even higher ones it can cause **death**.

एक पर्याप्त सांद्रता पर, यह एक वयस्क को **बेहोश** कर सकता है, लेकिन उच्च सांद्रता पर यह **मृत्यु** का कारण बन सकता है।

- The **IARC** has classified **chloroform** as “**possibly carcinogenic**” due to limited evidence of cancer-causing potential in humans but more reliable evidence in animals. **IARC** ने **क्लोरोफॉर्म** को “**संभावित कार्सिनोजेनिक**” के रूप में वर्गीकृत किया है क्योंकि मनुष्यों में इसके **कैंसर-कारक प्रभाव** के लिए सीमित प्रमाण हैं, लेकिन जानवरों में इसके बारे में अधिक विश्वसनीय प्रमाण हैं।

- In the **PubChem** database of the **U.S. National Institutes of Health**, **carbon tetrachloride**, that is **carbon tet**, is classified as an “**acute toxin**” and a “**health hazard**”.

**यू.एस. नेशनल इंस्टीट्यूट ऑफ हेल्थ** के **पबकेम डेटाबेस** में, **कार्बन टेट्राक्लोराइड**, जिसे **कार्बन टेट** कहा जाता है, को “**तीव्र विष**” और “**स्वास्थ्य खतरा**” के रूप में वर्गीकृत किया गया है।

- It is notorious for its ability to damage the **liver**, including causing **cancer**.

यह **जिगर** को नुकसान पहुँचाने के लिए बदनाम है, जिसमें **कैंसर** का कारण बनना भी शामिल है।

- At present, a common way to be exposed to **carbon tet** is via **contaminated groundwater**.

वर्तमान में, **कार्बन टेट** के संपर्क में आने का एक सामान्य तरीका है **प्रदूषित जलमग्न जल**।

- According to at least one review, ingesting **1 ml of carbon tet** can blur **vision**, damage **nerves**, and/or cause **heartbeat irregularities**.

कम से कम एक समीक्षा के अनुसार, **1 मिलीलीटर कार्बन टेट** का सेवन **दृष्टि** को धुंधला कर सकता है, **तंत्रिका** को नुकसान पहुँचा सकता है, और/या **हृदय गति** में **असमानताएँ** पैदा कर सकता है।

- **Trichlorobenzene** can take three chemical forms, or **isomers**, but all of them are **volatile** and spread easily through the air, although they have also been found in **groundwater** and in surface water bodies like **lakes**.

**ट्राइक्लोरोबेंजीन** तीन रासायनिक रूपों में हो सकता है, या **आइसोमर्स**, लेकिन ये सभी **वाष्पशील** होते हैं और हवा के माध्यम से आसानी से फैलते हैं, हालांकि इन्हें **जलमग्न जल** और **सतही जल निकायों** जैसे **झीलों** में भी पाया गया है।





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- These compounds build up in the body's **fatty tissues** and at high concentrations can damage the **liver** and the **kidneys**.  
ये यौगिक शरीर के वसायुक्त ऊतकों में जमा हो जाते हैं और उच्च सांद्रता पर जिगर और गुर्दे को नुकसान पहुँचा सकते हैं।
- Finally, **Persistent Organic Pollutants (POPs)** refer to organic compounds that don't break down easily and thus last for many years in the environment once they enter it.  
अंत में, **स्थिर कार्बनिक प्रदूषक (POPs)** उन कार्बनिक यौगिक

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# Justice Manmohan appointed judge of Supreme Court

PCS

The Hindu Bureau

NEW DELHI

The Union government on Tuesday notified the appointment of Justice Manmohan, the Chief Justice of the Delhi High Court, as a judge of the Supreme Court.

“In exercise of the powers conferred by clause (2) of Article 124 of the Constitution of India, the President is pleased to appoint Shri Justice Manmohan, Chief Justice, High Court of Delhi, to be a Judge of the Supreme Court of India, with effect from the date he assumes charge of his office,” the Department of Justice notification read.

## Acting Chief Justice

Justice Vibhu Bakhru, the senior most *puisne* judge of the Delhi High Court, has been appointed Acting Chief Justice of the Delhi High Court with effect from the date Justice Manmohan relinquishes the charge of his office consequent upon his elevation as a Supreme Court judge.

Justice Manmohan's ele-



Justice Manmohan

vation increases the Supreme Court's judicial strength to 33, one short of the full sanctioned strength.

The Supreme Court Collegium, headed by Chief Justice of India Sanjiv Khanna, had recommended Justice Manmohan's name for appointment as a top court judge on November 28. He was also the first recommendation to the Supreme Court Bench from the Collegium led by Chief Justice Khanna.

The two vacancies had arisen in the top court with the retirements of Chief Justice Khanna's predecessor, Justice D.Y. Chandrachud, and Justice Hima Kohli.

## Justice Manmohan appointed judge of Supreme Court

## सुप्रीम कोर्ट में न्यायमूर्ति मनमोहन की नियुक्ति

• On Tuesday, the Union government notified the appointment of **Justice Manmohan**, the Chief Justice of the **Delhi High Court**, as a judge of the **Supreme Court**.

• मंगलवार को, केंद्रीय सरकार ने न्यायमूर्ति मनमोहन, दिल्ली उच्च न्यायालय के मुख्य न्यायाधीश, को सुप्रीम कोर्ट का न्यायाधीश नियुक्त करने का नोटिफिकेशन जारी किया।

• The notification, issued by the Department of Justice, stated: "In exercise of the powers conferred by clause (2) of **Article 124** of the **Constitution of India**, the President is pleased to appoint Shri **Justice Manmohan**, Chief Justice, High Court of Delhi, to be a **Judge of the Supreme Court of India**, with effect from the date he assumes charge of his office."

• न्याय विभाग द्वारा जारी किए गए नोटिफिकेशन में कहा गया: "भारत के संविधान के अनुच्छेद 124 के खंड (2) द्वारा प्रदान किए गए अधिकारों के तहत, राष्ट्रपति प्रसन्नता के साथ न्यायमूर्ति मनमोहन, दिल्ली उच्च न्यायालय के मुख्य न्यायाधीश, को सुप्रीम कोर्ट ऑफ इंडिया का न्यायाधीश नियुक्त करते हैं, यह प्रभाव उस दिन से होगा जब वे अपने कार्यालय का प्रभार संभालेंगे।"

• Acting Chief Justice **Justice Vibhu Bakhru**, the senior most *puisne* judge of the **Delhi High Court**, has been appointed **Acting Chief Justice** of the Delhi High Court.

• कार्यवाहक मुख्य न्यायाधीश न्यायमूर्ति विपु बखरू, जो दिल्ली उच्च न्यायालय के वरिष्ठतम न्यायाधीश हैं, को

दिल्ली उच्च न्यायालय का कार्यवाहक मुख्य न्यायाधीश नियुक्त किया गया है।

- **Justice Manmohan's elevation** increases the Supreme Court's judicial strength to **33**, one short of the full sanctioned strength.





- न्यायमूर्ति मनमोहन की पदोन्नति से सुप्रीम कोर्ट की न्यायिक शक्ति 33 हो गई है, जो पूर्ण स्वीकृत संख्या से एक कम है।
- The **Supreme Court Collegium**, headed by **Chief Justice of India Sanjiv Khanna**, had recommended Justice Manmohan's name for appointment as a top court judge on **November 28**.
- सुप्रीम कोर्ट कॉलेजियम, जिसकी अध्यक्षता भारत के मुख्य न्यायाधीश संजीव खन्ना कर रहे हैं, ने न्यायमूर्ति मनमोहन का नाम सुप्रीम कोर्ट के न्यायाधीश के रूप में नियुक्ति के लिए **28 नवम्बर** को सिफारिश की थी।
- Justice Manmohan was the first recommendation to the Supreme Court Bench from the Collegium led by Chief Justice Khanna.
- न्यायमूर्ति मनमोहन कॉलेजियम से सुप्रीम कोर्ट बेंच के लिए मुख्य न्यायाधीश खन्ना द्वारा की गई पहली सिफारिश थी।
- Two vacancies arose in the top court due to the retirements of **Chief Justice Khanna's predecessor, Justice D.Y. Chandrachud**, and **Justice Hima Kohli**.
- मुख्य न्यायाधीश खन्ना के पूर्ववर्ती, न्यायमूर्ति डी.वाई. चंद्रचूड़, और न्यायमूर्ति हिमा कोहली के रिटायरमेंट के कारण सुप्रीम कोर्ट में दो पद रिक्त हो गए थे।

## Bank Bill passes LS, allows one account, 4 nominees

Finance Minister says proposed amendments will strengthen governance and enhance customer convenience; Opposition criticises government over inflation being higher than economic growth

GS Paper III

The Hindu Bureau  
NEW DELHI

The Lok Sabha on Tuesday passed the Banking Laws (Amendment) Bill, 2024, the first Bill of the Winter Session after the week-long logjam ended.

The Bill, piloted by Finance Minister Nirmala Sitharaman, was approved by a voice vote.

The Bill allows bank account holders to have up to four nominees in their accounts and also proposes changes related to redefining "substantial interest" for directorships, which could increase to ₹2 crore instead of the current limit of ₹5 lakh.

It proposes to increase the tenure of directors (excluding the chairman and whole-time director) in cooperative banks from eight years to 10 years, so as to align with the Constitution (Ninety-Seventh Amendment) Act, 2011.

Once passed, the Bill will allow a director of a Central Cooperative Bank to serve on the Board of a State Cooperative Bank. The Bill also seeks to give greater freedom to banks



Discussions begin: Union Minister Nirmala Sitharaman speaks in the Lok Sabha during the Winter Session of Parliament. PTI

in deciding the remuneration to be paid to statutory auditors.

It also seeks to redefine the reporting dates for banks for regulatory compliance to the 15th and last day of every month instead of the second and fourth Fridays.

"The proposed amendments will strengthen governance in the banking sector and enhance customer convenience with respect to nomination and protection of investors," Ms. Sitharaman said while moving the Bill for consid-

eration and passing.

Depositors will have the option of successive or simultaneous nomination facility, while locker holders will have only successive nomination. "The intention is to keep our banks safe, stable, healthy, and after 10 years you are seeing the outcome," Ms. Sitharaman said.

Participating in the debate earlier, the Opposition parties criticised the Bill.

Gaurav Gogoi, Deputy Leader of the Congress in the Lok Sabha, questioned the rising imports from

China at a time when relations between the two countries were strained. He also questioned the government over demonetisation and electoral bonds.

Rani Sri Kumar of the Dravida Munnetra Kazhagam questioned the fees for basic banking services such as ATM withdrawals and SMS alerts and expressed concern over the vulnerability of senior citizens to cyberfraud.

Nationalist Congress Party (Sharadchandra Pawar) leader Supriya Sule proposed a stricter approach to tackling financial fraud, and suggested that perpetrators compensate victims before serving prison sentences.

Congress MP Karti Chidambaram said the Indian rupee against the US dollar was at ₹84.73, and the growth rate in quarter two of FY25 was 5.4%, the lowest in seven quarters, while the inflation was 6.21%. "Whenever inflation is greater than economic growth, it will lead to stagflation. Against this backdrop, this government has brought about the Banking Laws Amendment Bill," he said.

## Bank Bill passes LS, allows one account, 4 nominees

बैंक विधेयक लोकसभा में पास, एक खाता, 4 नामांकित व्यक्तियों की अनुमति

- On Tuesday, the Lok Sabha passed the **Banking Laws (Amendment) Bill, 2024**, the first Bill of the Winter Session after the week-long logjam ended.

मंगलवार को लोकसभा ने बैंकिंग कानून (संशोधन) विधेयक, 2024 को पारित किया, जो शीतकालीन सत्र का पहला विधेयक था, जब सप्ताह भर की गतिरोध समाप्त हुई।

- The Bill, piloted by **Finance Minister Nirmala Sitharaman**, was approved by





a voice vote.

यह विधेयक, जिसे वित्त मंत्री निर्मला सीतारमण ने प्रस्तुत किया, को ध्वनि मत से मंजूरी दी गई।

- The Bill allows bank account holders to have up to **four nominees** in their accounts.  
यह विधेयक बैंक खाता धारकों को अपने खातों में चार तक नामांकित व्यक्तियों की अनुमति देता है।
- It proposes changes related to redefining "substantial interest" for directorships, which could increase to **₹2 crore** instead of the current limit of **₹5 lakh**.  
यह "महत्वपूर्ण हित" को फिर से परिभाषित करने से संबंधित परिवर्तनों का प्रस्ताव करता है, जो वर्तमान सीमा **₹5 लाख** के बजाय **₹2 करोड़** तक बढ़ सकती है।
- The Bill proposes to increase the tenure of directors (excluding the chairman and whole-time director) in cooperative banks from **eight years** to **10 years**, aligning with the **Constitution (97th Amendment) Act, 2011**.  
विधेयक में सहकारी बैंकों में निदेशकों (अध्यक्ष और पूर्णकालिक निदेशक को छोड़कर) का कार्यकाल **आठ वर्षों** से बढ़ाकर **दस वर्ष** करने का प्रस्ताव है, जो **संविधान (97वां संशोधन) अधिनियम, 2011** के अनुरूप है।
- Once passed, the Bill will allow a director of a **Central Cooperative Bank** to serve on the Board of a **State Cooperative Bank**.  
एक बार पारित होने के बाद, यह विधेयक एक **केंद्रीय सहकारी बैंक** के निदेशक को **राज्य सहकारी बैंक** के बोर्ड में सेवा देने की अनुमति देगा।
- The Bill seeks to give greater freedom to banks in deciding the remuneration to be paid to statutory auditors.  
यह विधेयक बैंकों को वैधानिक लेखा परीक्षकों को भुगतान किए जाने वाले पारिश्रमिक के निर्णय में अधिक स्वतंत्रता देने का प्रस्ताव करता है।
- It also seeks to redefine the reporting dates for banks for regulatory compliance to the **15th and last day** of every month instead of the second and fourth Fridays.  
यह विधेयक बैंकों के लिए नियामक अनुपालन के लिए रिपोर्टिंग तिथियों को दूसरे और चौथे शुक्रवार के बजाय हर महीने के **15वीं और अंतिम दिन** पर पुनर्परिभाषित करने का प्रस्ताव करता है।
- **Finance Minister Nirmala Sitharaman** said the proposed amendments will strengthen governance in the banking sector and enhance customer convenience with respect to nomination and protection of investors.  
**वित्त मंत्री निर्मला सीतारमण** ने कहा कि प्रस्तावित संशोधन बैंकिंग क्षेत्र में शासन को मजबूत करेंगे और नामांकन और निवेशकों की सुरक्षा के संदर्भ में ग्राहकों की सुविधा को बढ़ाएंगे।
- Depositors will have the option of successive or simultaneous nomination facility, while locker holders will have only successive nomination.  
जमाकर्ताओं को अनुक्रमिक या समानांतर नामांकन सुविधा का विकल्प मिलेगा, जबकि लॉकर धारकों को केवल अनुक्रमिक नामांकन मिलेगा।
- **Opposition parties** criticized the Bill, with **Congress** questioning the rising imports from **China** and concerns about the vulnerability of senior citizens to cyberfraud.  
विपक्षी पार्टियों ने विधेयक की आलोचना की, **कांग्रेस** ने **चीन** से बढ़ते आयात पर सवाल उठाया और वरिष्ठ नागरिकों के साइबर धोखाधड़ी के प्रति संवेदनशीलता को लेकर चिंता जताई।





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- **Nationalist Congress Party** leader **Supriya Sule** proposed a stricter approach to tackling financial fraud, suggesting that perpetrators compensate victims before serving prison sentences.

राष्ट्रीय कांग्रेस पार्टी की नेता सुप्रिया सुले ने वित्तीय धोखाधड़ी से निपटने के लिए कड़े कदम उठाने का प्रस्ताव दिया, और सुझाव दिया कि अपराधियों को जेल की सजा से पहले पीड़ितों को मुआवजा देना चाहिए।

- **Congress MP Karti Chidambaram** stated that the **Indian rupee** against the **US dollar** was **₹84.73** and inflation was **6.21%**, while the growth rate in Q2 of **FY25** was **5.4%**, the lowest in seven quarters.

कांग्रेस सांसद कार्ति चिदंबरम ने कहा कि भारतीय रुपया अमेरिकी डॉलर के मुकाबले **₹84.73** था और मुद्रास्फीति **6.21%** थी, जबकि **FY25** की दूसरी तिमाही में वृद्धि दर **5.4%** थी, जो सात तिमाहियों में सबसे कम थी।

- Karti Chidambaram also mentioned that whenever inflation is higher than economic growth, it leads to **stagflation**.

कार्ति चिदंबरम ने यह भी कहा कि जब भी मुद्रास्फीति आर्थिक वृद्धि से अधिक होती है, तो यह **मंदी** का कारण बनती है।

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## More cases filed under SC/ST Act due to awareness, says Minister

GS Paper I: Society

The Hindu Bureau  
NEW DELHI

The Union government on Tuesday told the Lok Sabha that "growing awareness, wider publicity, and capacity building of police personnel" were among the reasons for the increasing number of cases being registered across the country under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act.

Data from the National Crime Records Bureau (NCRB) show that over 67,000 cases had been registered in 2022 under the SC/ST Act. This is the highest number of cases registered under this Act since 2013, according to the NCRB data provided by the Social Justice Ministry.

Among them, 57,582 and 10,064 cases were registered with regard to atrocities against people belonging to SC and ST communities, respectively.

Social Justice Minister Virendra Kumar tabled a statement in the House on Tuesday. The statement came in response to a question from Janata Dal (U) MP Alok Kumar Suman.

Mr. Suman had asked the government to provide data with regard to discrimination in Central universities, the Indian Institutes of Technology, the Indian Institutes of Management, the All India Institutes of Medical Science, and public sector undertakings. "Data regarding discrimination against SC/STs in the educational institutions and public sector units in not centrally maintained," Mr. Kumar said in response.

Mr. Kumar, however, added that various steps had been taken to "reduce discrimination", which included setting up SC/ST cells, equal opportunity cells, and student grievance cells, and appointing liaison officers.

## More cases led under SC/ST Act due to awareness, says Minister

### SC/ST अधिनियम के तहत अधिक मामले

### जागरूकता के कारण बढ़े, मंत्री का कहना है

• The Union government on Tuesday told the Lok Sabha that "growing awareness, wider publicity, and capacity building of police personnel" were among the reasons for the increasing number of cases being registered across the country under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act.

केंद्र सरकार ने मंगलवार को लोकसभा में बताया कि "बढ़ती जागरूकता, व्यापक प्रचार और पुलिस कर्मियों की क्षमता निर्माण" जैसे कारणों के कारण देश भर में अनुसूचित जाति और अनुसूचित जनजाति (अत्याचारों से संरक्षण) अधिनियम के तहत मामलों की संख्या बढ़ रही है।

• Data from the National Crime Records Bureau (NCRB) show that over 67,000 cases had been registered in 2022 under the SC/ST Act.

राष्ट्रीय अपराध रिकार्ड ब्यूरो (NCRB) के आंकड़े दर्शाते हैं कि 2022 में 67,000 से अधिक मामले SC/ST अधिनियम के तहत पंजीकृत किए गए।

• This is the highest number of cases registered under this Act since 2013, according to the NCRB data provided by the Social Justice Ministry.

यह 2013 के बाद से इस अधिनियम के तहत पंजीकृत मामलों की सबसे अधिक संख्या है, जैसा कि सामाजिक न्याय मंत्रालय द्वारा प्रदान किए गए NCRB आंकड़ों में दिखाया गया है।

• Among them, 57,582 and 10,064 cases were registered with regard to atrocities against people belonging to SC and ST communities, respectively. इनमें से 57,582 और 10,064 मामले SC और ST समुदायों से संबंधित लोगों के खिलाफ अत्याचारों के रूप में पंजीकृत किए गए।

• Social Justice Minister Virendra Kumar tabled a statement in the House on Tuesday.

सामाजिक न्याय मंत्री वीरेंद्र कुमार ने मंगलवार को सदन में एक बयान प्रस्तुत किया।

• The statement came in response to a question from Janata Dal (U) MP Alok Kumar Suman.

यह बयान जनता दल (यू) के सांसद आलोक कुमार सुमन के एक सवाल के जवाब में आया।

• Mr. Suman had asked the government to provide data with regard to discrimination in Central universities, the Indian Institutes of Technology, the Indian Institutes of Management, the All India Institutes of Medical Science, and public sector undertakings.





श्री सुमन ने सरकार से केंद्रीय विश्वविद्यालयों, भारतीय प्रौद्योगिकी संस्थान, भारतीय प्रबंधन संस्थान, ऑल इंडिया इंस्टीट्यूट ऑफ मेडिकल साइंसेज, और सार्वजनिक क्षेत्र के उपक्रमों में भेदभाव से संबंधित डेटा प्रदान करने को कहा था।

- **Mr. Kumar** said in response that data regarding discrimination against **SC/STs** in the educational institutions and public sector units is not centrally maintained.

श्री कुमार ने जवाब में कहा कि शैक्षिक संस्थानों और सार्वजनिक क्षेत्र के उपक्रमों में **SC/STs** के खिलाफ भेदभाव के बारे में डेटा केंद्रीय रूप से नहीं रखा जाता है।

- Mr. Kumar added that various steps had been taken to “reduce discrimination”, which included setting up **SC/ST cells**, **equal opportunity cells**, and **student grievance cells**, and appointing **liaison officers**.

श्री कुमार ने यह भी जोड़ा कि “भेदभाव को कम करने” के लिए विभिन्न कदम उठाए गए थे, जिनमें **SC/ST सेल**, **समान अवसर सेल**, और **छात्र शिकायत सेल** की स्थापना, और **सम्पर्क अधिकारियों** की नियुक्ति शामिल है।

## Considered proposals for inclusion of 365 groups on Central OBC list, says govt.

GS Paper II: Reservation

**The Hindu Bureau**  
NEW DELHI

The National Commission for Backward Classes has considered proposals for inclusion of 365 castes and communities on the Central list of Other Backward Classes (OBCs) in the 10 years between March 2014 and November 2024, the Union Social Justice and Empowerment Ministry informed the Lok Sabha on Tuesday.

In considering these proposals, the NCBC has tendered advice 147 times, the government added, without disclosing how many of them were in favour of inclusion and how many were rejected.

In a government report released in June 2023 to celebrate the National Democratic Alliance government's nine years in power, the Social Justice Ministry had said it had facilitated the inclusion of 16 communities on the list since 2014.



**Seeking details:** The response was to a question raised by AIMIM MP Asaduddin Owaisi in Parliament. FILE PHOTO

The information on proposals for inclusion with the NCBC was provided by Minister of State for Social Justice B.L. Verma in response to an unstarred question from AIMIM MP Asaduddin Owaisi.

### ‘More details’

Mr. Owaisi had asked for details of groups, castes and communities that had approached either the government or the NCBC with proposals for being included on the Central OBC lists since 2014 and their current status. He had further asked for de-

tails of proposals that had been rejected and accepted and are under consideration of the government.

In response, the government said Parliament was entitled to include or exclude communities from the Central list of Socially and Educationally Backward Classes by law.

It said this process was “an ongoing exercise” depending on the receipt of a complete proposal with ethnographic report from the State or Union Territory concerned along with the outcome of a mandated public hearing.

**Considered proposals for inclusion of 365 groups on Central OBC list, says govt**  
**केंद्र सरकार ने 365 समूहों को केंद्रीय OBC सूची में शामिल करने के प्रस्तावों पर विचार किया, मंत्री का कहना है**

- The **National Commission for Backward Classes (NCBC)** has considered proposals for inclusion of **365 castes and communities** on the **Central list of Other Backward Classes (OBCs)** in the **10 years** between **March 2014 and November 2024**, the **Union Social Justice and Empowerment Ministry** informed the **Lok Sabha** on **Tuesday**.

**राष्ट्रीय पिछड़ा वर्ग आयोग (NCBC)** ने **मार्च 2014 और नवम्बर 2024** के बीच **10 वर्षों** में **365 जातियों और समुदायों** को **केंद्रीय अन्य पिछड़ा वर्ग (OBC)** सूची में शामिल करने के प्रस्तावों पर विचार किया, यह जानकारी **केंद्र सरकार के सामाजिक न्याय और सशक्तिकरण मंत्रालय** ने **मंगलवार को लोकसभा** में दी।





- In considering these proposals, the **NCBC** had tendered advice **147 times**, the government added, without disclosing how many of them were in favour of inclusion and how many were rejected.  
इन प्रस्तावों पर विचार करते हुए, **NCBC** ने **147 बार** सलाह दी, सरकार ने यह भी कहा, बिना यह बताए कि उनमें से कितनी सलाह शामिल करने के पक्ष में थीं और कितनी अस्वीकृत हुईं।
- In a **government report** released in **June 2023** to celebrate the **National Democratic Alliance (NDA)** government's nine years in power, the **Social Justice Ministry** had said it had facilitated the inclusion of **16 communities** on the list since **2014**.  
जून 2023 में जारी किए गए एक सरकारी रिपोर्ट में, राष्ट्रीय जनतांत्रिक गठबंधन (NDA) सरकार के सत्ता में 9 वर्ष पूरे होने का जश्न मनाते हुए, सामाजिक न्याय मंत्रालय ने कहा था कि उसने 2014 से अब तक 16 समुदायों को सूची में शामिल करने की सुविधा दी थी।
- The information on proposals for inclusion with the **NCBC** was provided by **Minister of State for Social Justice B.L. Verma** in response to an unstarred question from **AIMIM MP Asaduddin Owaisi**.  
NCBC में शामिल होने के प्रस्तावों पर जानकारी सामाजिक न्याय राज्य मंत्री बी.एल. वर्मा ने AIMIM सांसद असदुद्दीन ओवैसी के एक अनसितांकित सवाल के जवाब में दी।
- **Mr. Owaisi** had asked for details of groups, castes and communities that had approached either the government or the **NCBC** with proposals for being included on the **Central OBC lists** since **2014** and their current status.  
श्री ओवैसी ने पूछा था कि कौन से समूहों, जातियों और समुदायों ने 2014 से अब तक केंद्र OBC सूची में शामिल होने के लिए सरकार या NCBC से प्रस्ताव भेजे थे और उनका वर्तमान स्थिति क्या है।
- He had further asked for details of proposals that had been **rejected** and **accepted** and are under consideration of the government.  
उन्होंने यह भी पूछा था कि कौन से प्रस्ताव अस्वीकृत और स्वीकृत किए गए हैं और वे सरकार के विचाराधीन हैं।
- In response, the government said **Parliament** was entitled to include or exclude communities from the **Central list of Socially and Educationally Backward Classes** by law.  
जवाब में, सरकार ने कहा कि संसद को सामाजिक और शैक्षिक रूप से पिछड़े वर्गों की केंद्रीय सूची से समुदायों को शामिल या बाहर करने का अधिकार है।
- It said this process was "an ongoing exercise" depending on the receipt of a complete proposal with ethnographic report from the **State or Union Territory** concerned along with the outcome of a mandated **public hearing**.  
सरकार ने कहा कि यह प्रक्रिया "एक चल रही प्रक्रिया" है, जो संबंधित राज्य या केंद्र शासित प्रदेश से पूर्ण प्रस्ताव प्राप्त होने और सार्वजनिक सुनवाई के परिणाम पर निर्भर करती है।



# On World Wildlife Day, making a clarion call to protect India's critically endangered species

GS Paper III: Environment

The Hindu Bureau

Despite possessing only 2.4% of the world's land area, India accounts for 7-8% of all recorded species, which includes 45,000 species of plants and 91,000 of animals. This rich biodiversity is one of the reasons that it has been historically identified as a megadiverse country.

World Wildlife Conservation Day (December 4) serves as an occasion to not only celebrate the country's rich biodiversity but also evaluate if enough is being done to protect the critically endangered species that find a home here.

India has 10 biogeographic zones and is home to 8.58% of the mammalian species documented so far, with the corresponding figures for avian species being 13.66%, for reptiles 7.91%, for amphibians 4.66%, for fish 11.72% and for plants 11.8%.

Four of the 34 globally identified biodiversity hotspots, namely the Hima-



layas, Indo-Burma, the Western Ghats-Sri Lanka and Sundaland, are located in India.

With only about 2.4% of the world's total land surface, India punches far above its weight in encompassing the breadth that evolution has to offer. However, the natural bounty is often at odds with India's economic trajectory.

As the most populous country in the world and with 65% of the population aged under 35, India's growth trajectory implies a hunger for natural resources: land, wood, timber, forest produce, precious metals, coal and more. This unfortunately conflicts with wildlife habitat, bringing several species – of the land and air – too close to

comfort with human settlements.

Indian civilisation has absorbed a tolerance, even reverence for several wild animals as is evidenced in its religious mythology. The wildlife reserves and sanctuaries in India, set up to conserve certain endangered species, are unfenced, unlike the big game reserves in Africa and neither is hunting permissible in India as a licensed, recreational sport.

## Risk of extinction

However this doesn't imply that India is a haven for wildlife. There are 73 "critically endangered" species in India as of 2022 – the most updated estimates made available by the Ministry of Environment, Forests and Climate Change. The International Union for Conservation of Nature (IUCN) classifies species as critically endangered when they are at the highest risk of extinction in the wild. The number of critically endangered species has risen from 47 in

2011, though this also due to improvements in data availability and monitoring and not entirely due to animals of a species getting decimated.

Of the nine species of mammals considered critically endangered, eight are endemic, which means that their habitat is limited to a small geographic area within India. These include the Kashmir stag or Hangul, Malabar large-spotted civet, Andaman Shrew, Jenkin's shrew, Nicobar shrew, Namdapha flying squirrel, large rock rat and Leafletted leaf-nosed bat.

While the carnivores of the cat family – lions, tigers, cheetahs – garner considerable attention because of their appeal to tourism, they are only three on the list of critically endangered animals.

Birds such as the Great Indian Bustard face threats from sources such as powerlines in Rajasthan and often fail to garner the attention they deserve for their conservation.

## World Wildlife Day: Making a Clarion Call to Protect India's Critically Endangered Species



## विश्व वन्यजीव दिवस: भारत की संकटग्रस्त प्रजातियों की रक्षा के लिए एक आह्वान

- India, with only **2.4%** of the world's land area, accounts for **7-8%** of all recorded species, including **45,000 species of plants** and **91,000 species of animals**.

भारत, जो विश्व के कुल भूमि क्षेत्र का केवल **2.4%** हिस्सा है, सभी दर्ज की गई प्रजातियों का **7-8%** हिस्सा है, जिसमें **45,000 पौधों की प्रजातियाँ** और **91,000 प्राणियों की प्रजातियाँ** शामिल हैं।

- India is recognized as a **megadiverse country** due to its rich biodiversity. भारत को अपनी समृद्ध जैव विविधता के कारण **मेगाडाइवर्स देश** के रूप में पहचाना जाता है।
- World Wildlife Conservation Day** is observed on **December 4** to evaluate if enough is being done to protect critically endangered species in India.

विश्व वन्यजीव संरक्षण दिवस 4 दिसंबर को मनाया जाता है ताकि यह आंका जा सके कि भारत में संकटग्रस्त प्रजातियों की रक्षा के लिए पर्याप्त कदम उठाए जा रहे हैं या नहीं।

- India has **10 biogeographic zones** and is home to **8.58%** of mammalian species, **13.66%** of avian species, **7.91%** of reptiles, **4.66%** of amphibians, **11.72%** of fish, and **11.8%** of plants.

भारत में **10 जैव-भौगोलिक क्षेत्र** हैं और यह **8.58%** स्तनधारी प्रजातियों, **13.66%** पक्षी

प्रजातियों, **7.91%** सरीसृपों, **4.66%** उभयचरों, **11.72%** मछलियों और **11.8%** पौधों का घर है।

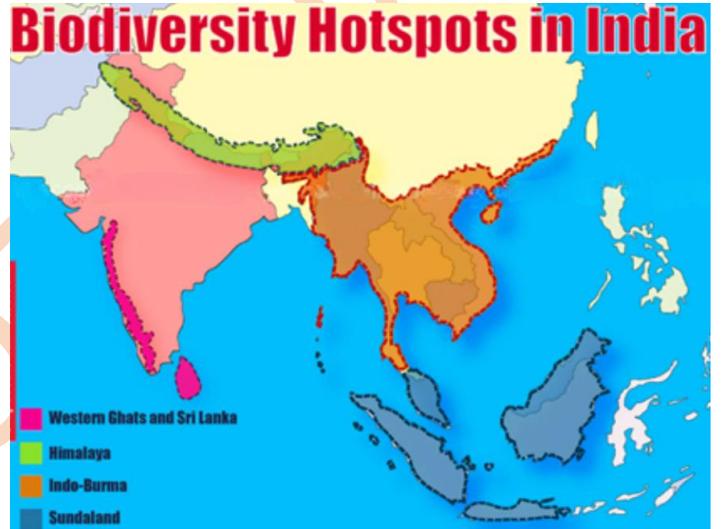
- India is home to **4 out of 34** globally identified biodiversity hotspots: **Himalayas, Indo-Burma, Western Ghats-Sri Lanka, and Sundaland**.

भारत **34 वैश्विक जैव विविधता हॉटस्पॉट्स** में से **4** का घर है: **हिमालय, इंडो-बर्मा, पश्चिमी घाट-श्रीलंका, और सुंडालैंड**।

- Despite its small land area, India is rich in biodiversity and faces significant challenges due to **economic growth**, especially due to the **increasing demand for natural resources**.

अपने छोटे भूमि क्षेत्र के बावजूद, भारत जैव विविधता में समृद्ध है और **आर्थिक विकास** के कारण महत्वपूर्ण चुनौतियों का सामना कर रहा है, विशेष रूप से **प्राकृतिक संसाधनों की बढ़ती मांग** के कारण।

- India has **73 critically endangered species** as of **2022**, up from **47 in 2011**. The increase is partly due to improved data and monitoring, not just species decline. भारत में **2022 तक 73 संकटग्रस्त प्रजातियाँ** हैं, जो **2011 में 47** थीं। यह वृद्धि आंशिक रूप से बेहतर डेटा और निगरानी के कारण है, न कि केवल प्रजातियों की संख्या में कमी के कारण।





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- Of the **9 critically endangered mammal species, 8 are endemic** to India, such as the **Kashmir stag, Malabar large-spotted civet, and Namdapha flying squirrel.**  
9 संकटग्रस्त स्तनधारी प्रजातियों में से 8 भारत के लिए एंडेमिक हैं, जैसे कश्मीर मृग, मलाबार बड़े धब्बेदार सिवेट, और नामधापा उड़ने वाला गिलहरी।
- Despite the focus on **tiger, lion, and cheetah** conservation, they are just **3 of the critically endangered species.**  
बाघ, शेर, और चीतों के संरक्षण पर ध्यान केंद्रित होने के बावजूद, ये केवल 3 संकटग्रस्त प्रजातियाँ हैं।
- Birds like the **Great Indian Bustard** face threats from powerlines in **Rajasthan** and require more attention for conservation.  
ग्रेट इंडियन बस्टर्ड जैसे पक्षियों को राजस्थान में बिजली के तारों से खतरा है और इन्हें संरक्षण के लिए अधिक ध्यान देने की आवश्यकता है।





# NATO chief avoids talk of Ukraine's membership

PCS

**Associated Press**

BRUSSELS

**NATO Secretary-General Mark Rutte** on Tuesday sidestepped questions about Ukraine's possible membership of the military alliance, saying that the priority now must be to strengthen the country's hand in any future peace talks with Russia by sending it more weapons.

"The front is not moving eastwards. It is slowly moving westwards," Mr. Rutte said. "So we have to make sure Ukraine gets into a position of strength, and then it should be for the Ukrainian government to decide on the next steps, in terms of opening peace talks and how to conduct them."

## NATO Chief Avoids Talk of Ukraine's Membership

### NATO प्रमुख ने यूक्रेन की सदस्यता पर बात करने से बचा

- **NATO Secretary-General Mark Rutte** on Tuesday sidestepped questions about Ukraine's possible membership of the military alliance.

NATO के महासचिव **मार्क रूटे** ने मंगलवार को यूक्रेन की सैन्य गठबंधन में संभावित सदस्यता के बारे में पूछे गए सवालों से बचते हुए बात की।

- He stated that the priority now must be to **strengthen** Ukraine's hand in any future peace talks with Russia by sending it more weapons.

उन्होंने कहा कि अब प्राथमिकता यह होनी चाहिए कि रूस के साथ भविष्य में होने वाली शांति वार्ताओं में यूक्रेन की स्थिति को मजबूत किया जाए और इसके लिए अधिक हथियार भेजे जाएं।

- "The front is not moving eastwards. It is slowly moving westwards," Mr. Rutte said.

"सामने की स्थिति पूर्व की ओर नहीं बढ़ रही है। यह धीरे-धीरे पश्चिम की ओर बढ़ रही है," श्री रूटे ने कहा।

- He emphasized that Ukraine needs to be in a **position of strength** before any peace talks begin.

उन्होंने जोर दिया कि शांति वार्ता शुरू होने से पहले यूक्रेन को **शक्ति की स्थिति** में होना चाहिए।

- "It should be for the Ukrainian government to decide on the next steps, in terms of opening peace talks and how to conduct them," he added.

उन्होंने यह भी कहा, "यह यूक्रेनी सरकार पर निर्भर होना चाहिए कि वह शांति वार्ता शुरू करने और उन्हें कैसे चलाने के लिए अगले कदमों का निर्णय ले।"



# ecDNA challenges law of genetics, groundbreaking new studies find

In normal human cells, the DNA is enclosed in 23 pairs of chromosomes. Some natural processes can damage DNA; cells can also make mistakes in DNA when making copies to imbue in new cells. Such processes could cause a small part of the DNA to break away and float freely inside the nucleus. This is ecDNA

SS Paper III: S&T

**Manjeera Gowravaram**

Once brushed aside as a curiosity, extrachromosomal DNA (ecDNA) is now taking centerstage in the complex field of cancer biology. Scientists first discovered it as a small fragment of genetic material in cancer cells 50 years ago. Because it was present in only 1.4% of tumours, they didn't consider it to be important.

But more sophisticated genomic techniques later revealed their mistake: one study published in 2017 revealed ecDNA is present in nearly 40% of cancer cell lines and in up to 90% of patient-derived brain tumour samples, revealing its pivotal role in cancer biology.

On November 6, three papers were published in the journal *Nature* by a team called eDyNamiC – an international collaboration led by Stanford University professor Paul Mischel. The studies explore how ecDNA is formed and contributes to the progression of cancer and drug resistance.

Importantly, the findings also challenge a fundamental law of genetics.

## What is ecDNA?

In normal human cells, the nucleus contains 23 pairs of chromosomes that enclose the DNA. There are some natural processes that can damage DNA. For example, in chromothripsis, which occurs in some cancers, the chromosomes are broken and rearranged. Cells can also make mistakes in the DNA when making copies of it to imbue in new cells. Such processes could cause a small part of the DNA to break away from the main chromosome and form a circular structure that floats freely inside the nucleus. This is ecDNA.

One of the three studies was led by eDyNamiC members Mariam Jamal-Hanjani and Charles Swanton, both professors at University College London. They analysed the mutation patterns in tumours before and after the formation of ecDNA. They identified various environmental factors, including smoking, exposure to certain substances, and genetic mutations, to be triggers of DNA damage that could lead to the formation of ecDNA. In the same study, the researchers attempted a comprehensive analysis of samples from nearly 15,000 cancer patients from the U.K.'s 100,000 Genomes Project, covering 39 tumour types. They validated their findings using a method called fluorescence in-situ hybridisation (or FISH), which specifically looks for certain cancer-related genes in tissue samples.

They found that ecDNA was present in



Researchers analysed samples from nearly 15,000 cancer patients from the U.K.'s 100,000 Genomes Projects. GETTY IMAGES/ISTOCKPHOTO

about 17% of tumour samples but more so in liposarcomas, brain tumours, and breast cancers. They also reported that the prevalence of ecDNA rose after treatments like chemotherapy and correlated with metastasis and worse patient outcomes.

## ecDNA and cancer growth

ecDNA present in tumours often contains multiple copies of oncogenes – mutated genes capable of causing cancer – that are required to activate tumour growth. But these oncogenes are not present in chromosomes, where scientists used to believe they lived.

A study published in 2021, led by another Stanford University professor, Howard Chang, showed that while chromosomal DNA is fixed within specific regions in the cell, ecDNA moves freely and can interact with other ecDNA to form hubs – concentrated zones where oncogenes are expressed more.

Cells transcribe DNA to mRNA to use the latter to manufacture proteins. The 2021 study also found that when cells transcribe ecDNA to mRNA, the process causes specific oncogenes to become four-times more common in the cell than if the DNA came from the chromosomes.

This anomaly has the potential to accelerate the evolution of tumours and help the cancer resist drugs.

## An inheritance of loss

Another finding reported in the new studies involves a fundamental shift in scientists' understanding of genetics.

**ecDNA was present in about 17% of tumour samples but more so in liposarcomas, brain tumours, and breast cancers. Prevalence of ecDNA rose after chemotherapy and correlated with metastasis and worse patient outcomes**

Typically, when cells divide, they duplicate the chromosomes and distribute them equally among their daughter cells. In this process, researchers have known the genes on the same chromosome are inherited together while those on different chromosomes are distributed independently of one another. This basic genetic principle is called Mendel's third law of independent assortment (named after Gregor Mendel).

But in the second of the three studies, a team led by Mischel and Chang used single-cell sequencing, imaging, and modelling to report that ecDNA is passed on in clusters to the daughter cells during cell division – a violation of the third law. This clustering gives some cancer cells an advantage because it allows them to enhance gene interactions, support cancer growth, and preserve favourable genetic combinations over multiple life-cycles. The researchers have called this the "jackpot effect."

This discovery has profound implications. It overturns the idea that gene inheritance is entirely random when the genes are not linked by DNA strands. The researchers also reported that the

transcription process – from DNA to RNA – facilitates the coordinated segregation of ecDNA during cell division.

## A new vulnerability in cancer cells

But for the new threats posed by ecDNA, the third study uncovered a potential weakness in tumours that depend on ecDNA. The unusual structure of the ecDNA and its interactions with other DNA elements increase the activity of specific genes. This can lead to a conflict between the cellular machinery involved in making RNA and the activity of cancer cells that leads to DNA damage.

Cells respond to this conflict by the heavy use of a protein called CHK1, which helps fix DNA and allows the cell to keep growing. When the researchers used a drug called BBI-2779 that blocks CHK1, they found the drug selectively killed cancer cells with ecDNA, significantly reducing the number of tumours in mice with stomach cancer.

A San Diego-based biotechnology company co-founded by Mischel and Chang, called Boundless Bio, is currently working to translate these discoveries for clinical use. The company's stated aim is to give patients new treatment options that target vulnerabilities created by ecDNA. This is particularly crucial for patients with ecDNA-driven cancers, such as glioblastoma and ovarian and lung cancers, where current treatments often fall short.

(Manjeera Gowravaram has a PhD in RNA biochemistry and works as a freelance science writer. gmanjeera@gmail.com)

## THE GIST

An international collaboration by a team called eDyNamiCled has discovered how ecDNA contributes to the progression of cancer and drug resistance. The findings contradict Mendel's third law of independent assortment

eDyNamiC members analysed mutations in tumours and identified environmental factors, including smoking, exposure to certain substances, and genetic mutations, to be triggers that could lead to the formation of ecDNA

ecDNA in tumours often contains copies of oncogenes that are required to activate tumour growth. But these are not present in chromosomes, where scientists used to believe they lived

Researchers have found a drug called BBI-2779 that selectively kills cancer cells with ecDNA. A company is now working towards clinical use. This is crucial for patients with ecDNA-driven cancers, such as glioblastoma, ovarian, and lung cancers





## ecDNA Challenges Law of Genetics, Groundbreaking New Studies Find

### ecDNA ने जेनेटिक्स के कानून को चुनौती दी, क्रांतिकारी नई शोध ने यह पाया

In normal human cells, DNA is enclosed in 23 pairs of chromosomes. सामान्य मानव कोशिकाओं में, डीएनए 23 जोड़ी गुणसूत्रों में बंद होता है।

- Some natural processes can damage DNA; cells can also make mistakes in DNA when making copies to imbue in new cells.  
कुछ प्राकृतिक प्रक्रियाएं डीएनए को नुकसान पहुंचा सकती हैं; कोशिकाएं नए कोशिकाओं में डालने के लिए डीएनए की प्रतियां बनाने में भी गलतियां कर सकती हैं।
- Such processes could cause a small part of the DNA to break away and float freely inside the nucleus. This is **ecDNA**.  
ऐसी प्रक्रियाओं से डीएनए का एक छोटा हिस्सा मुख्य गुणसूत्र से अलग होकर नाभिक के अंदर स्वतंत्र रूप से तैर सकता है। इसे **ecDNA** कहते हैं।
- **ecDNA** was first discovered as a small fragment of genetic material in cancer cells **50 years ago**.  
**ecDNA** को पहली बार **50 साल पहले** कैंसर कोशिकाओं में आनुवंशिक सामग्री के छोटे अंश के रूप में खोजा गया था।
- Initially, ecDNA was present in only **1.4% of tumors**, which led scientists to dismiss its importance.  
प्रारंभ में, **1.4% ट्यूमर** में ही ecDNA मौजूद था, जिसके कारण वैज्ञानिकों ने इसके महत्व को नकार दिया था।
- More sophisticated genomic techniques later revealed that **ecDNA is present in nearly 40% of cancer cell lines** and up to **90% of patient-derived brain tumor samples**.  
बाद में अधिक उन्नत जीनोमिक तकनीकों ने यह खुलासा किया कि **ecDNA लगभग 40% कैंसर कोशिका रेखाओं में और 90% रोगी-व्युत्पन्न मस्तिष्क ट्यूमर नमूनों में मौजूद है।**
- On **November 6**, three papers were published in the journal **Nature** by a team called **eDyNAmiC**, led by **Stanford University professor Paul Mischel**.  
**6 नवंबर** को, **नेचर** पत्रिका में **eDyNAmiC** नामक टीम द्वारा तीन शोधपत्र प्रकाशित हुए, जिसका नेतृत्व **स्टैनफोर्ड विश्वविद्यालय के प्रोफेसर पॉल मिशेल** ने किया।
- The studies explore how **ecDNA** is formed and contributes to **cancer progression** and **drug resistance**.  
यह शोध यह पता लगाने के लिए है कि **ecDNA** कैसे बनता है और **कैंसर के विकास और दवा प्रतिरोध** में योगदान करता है।
- These findings also challenge a fundamental **law of genetics**.  
यह खोज **जेनेटिक्स के एक मौलिक कानून** को भी चुनौती देती है।





## What is ecDNA?

### ecDNA क्या है?

- In normal human cells, the nucleus contains **23 pairs of chromosomes** that enclose the DNA.  
सामान्य मानव कोशिकाओं में, नाभिक में **23 जोड़ी गुणसूत्र** होते हैं, जो डीएनए को घेरते हैं।
- Certain processes like **chromothripsis** in cancers can break and rearrange chromosomes.  
कुछ प्रक्रियाएं जैसे **क्रोमोथ्रिप्सिस**, जो कैंसर में होती हैं, गुणसूत्रों को तोड़ सकती हैं और उन्हें फिर से व्यवस्थित कर सकती हैं।
- Cells can also make mistakes when copying DNA, leading to small parts breaking away and forming **ecDNA**.  
कोशिकाएं डीएनए की प्रतियां बनाते समय भी गलतियां कर सकती हैं, जिसके कारण छोटे हिस्से टूटकर **ecDNA** का रूप ले सकते हैं।
- One study was led by **Mariam Jamal-Hanjani** and **Charles Swanton**, professors at **University College London**.  
एक शोध का नेतृत्व **मारीम जमाल-हंजानी** और **चार्ल्स स्वांटन** ने किया, जो **यूनिवर्सिटी कॉलेज लंदन** के प्रोफेसर हैं।
- They analyzed mutation patterns in tumors before and after **ecDNA** formation.  
उन्होंने **ecDNA** के बनने से पहले और बाद में ट्यूमर में उत्परिवर्तन पैटर्न का विश्लेषण किया।
- They identified various environmental factors, including **smoking**, exposure to certain substances, and **genetic mutations**, as triggers of DNA damage leading to **ecDNA** formation.  
उन्होंने **धूमपान**, कुछ पदार्थों के संपर्क, और **जैविक उत्परिवर्तन** जैसी विभिन्न पर्यावरणीय कारकों की पहचान की, जो डीएनए के नुकसान के कारण **ecDNA** गठन का कारण बनते हैं।
- They also analyzed nearly **15,000 cancer patient samples** from the **U.K.'s 100,000 Genomes Project**, covering **39 tumor types**.  
उन्होंने **यू.के.** के **100,000 जीनोम परियोजना** से **15,000 से अधिक कैंसर रोगी नमूने** का विश्लेषण किया, जो **39 प्रकार के ट्यूमर** कवर करते हैं।
- The researchers found **ecDNA** in about **17% of tumor samples**, especially in **liposarcomas, brain tumors, and breast cancers**.  
शोधकर्ताओं ने पाया कि **ecDNA** लगभग **17% ट्यूमर नमूनों** में था, खासकर **लिपोसरकोमास, मस्तिष्क ट्यूमर और स्तन कैंसर** में।
- They reported that the prevalence of **ecDNA** rose after treatments like **chemotherapy** and correlated with **metastasis** and worse patient outcomes.  
उन्होंने रिपोर्ट किया कि **ecDNA** की उपस्थिति **कीमोथेरेपी** जैसे उपचारों के बाद बढ़ी और यह **मेटास्टेसिस** और खराब रोगी परिणामों से संबंधित थी।





## ecDNA and cancer growth

### ecDNA और कैंसर का विकास

- **ecDNA** present in tumours often contains multiple copies of **oncogenes** — **mutated genes** capable of causing cancer — that are required to activate tumour growth.  
**ecDNA**, जो ट्यूमर्स में मौजूद होता है, अक्सर **oncogenes** की कई प्रतियां रखता है – **परिवर्तित जीन** जो कैंसर का कारण बन सकते हैं – जो ट्यूमर के विकास को सक्रिय करने के लिए आवश्यक होते हैं।
- But these oncogenes are not present in chromosomes, where scientists used to believe they lived.  
लेकिन ये **oncogenes** गुणसूत्रों में नहीं होते, जहां वैज्ञानिक मानते थे कि ये रहते थे।
- A study published in **2021**, led by another **Stanford University** professor, **Howard Chang**, showed that while chromosomal DNA is fixed within specific regions in the cell, **ecDNA** moves freely and can interact with other **ecDNA** to form hubs — concentrated zones where oncogenes are expressed more.  
**2021** में प्रकाशित एक अध्ययन, जिसे **Stanford University** के एक अन्य प्रोफेसर **Howard Chang** ने नेतृत्व किया, में यह दिखाया गया कि जबकि गुणसूत्रों का **DNA** कोशिका के विशिष्ट क्षेत्रों में निश्चित होता है, **ecDNA** स्वतंत्र रूप से चलता है और अन्य **ecDNA** के साथ बातचीत कर सकता है ताकि हब्स बना सके – सघन क्षेत्र जहां **oncogenes** अधिक व्यक्त होते हैं।
- Cells transcribe DNA to **mRNA** to use the latter to manufacture proteins. The **2021 study** also found that when cells transcribe **ecDNA** to **mRNA**, the process causes specific **oncogenes** to become four-times more common in the cell than if the DNA came from the chromosomes.  
कोशिकाएं **DNA** को **mRNA** में रूपांतरित करती हैं ताकि इसका उपयोग प्रोटीन बनाने में किया जा सके। **2021 का अध्ययन** यह भी पाया कि जब कोशिकाएं **ecDNA** को **mRNA** में रूपांतरित करती हैं, तो यह प्रक्रिया विशिष्ट **oncogenes** को कोशिका में गुणसूत्रों से आने वाले **DNA** की तुलना में चार गुना अधिक सामान्य बना देती है।
- This anomaly has the potential to accelerate the evolution of tumours and help the cancer resist drugs.  
यह विसंगति ट्यूमर्स के विकास को तेज करने और कैंसर को दवाओं से बचने में मदद करने की क्षमता रखती है।

## An inheritance of loss

### हानि का वंशानुक्रम

- Another finding reported in the new studies involves a fundamental shift in scientists' understanding of genetics.  
नई अध्ययनों में रिपोर्ट की गई एक और खोज में वैज्ञानिकों की आनुवंशिकी की समझ में एक मौलिक बदलाव है।
- Typically, when cells divide, they duplicate the chromosomes and distribute them equally among their daughter cells. In this process, researchers have known the genes on the





same chromosome are inherited together while those on different chromosomes are distributed independently of one another.

सामान्यतः जब कोशिकाएं विभाजित होती हैं, तो वे गुणसूत्रों की नकल करती हैं और उन्हें समान रूप से अपनी संतान कोशिकाओं में वितरित करती हैं। इस प्रक्रिया में, शोधकर्ताओं ने जाना कि एक ही गुणसूत्र पर स्थित जीन एक साथ वंशानुगत होते हैं, जबकि अलग-अलग गुणसूत्रों पर स्थित जीन एक-दूसरे से स्वतंत्र रूप से वितरित होते हैं।

- This basic genetic principle is called **Mendel's third law of independent assortment** (named after **Gregor Mendel**).

इस बुनियादी आनुवंशिक सिद्धांत को **Mendel का स्वतंत्र वर्गीकरण का तीसरा नियम** कहा जाता है (जो **Gregor Mendel** के नाम पर है)।

- But in the second of the three studies, a team led by **Mischel** and **Chang** used **single-cell sequencing**, imaging, and modelling to report that **ecDNA** is passed on in clusters to the daughter cells during cell division — a violation of the third law.

लेकिन तीन अध्ययनों में से दूसरे में, **Mischel** और **Chang** के नेतृत्व में एक टीम ने **single-cell sequencing**, इमेजिंग और मॉडलिंग का उपयोग करते हुए यह रिपोर्ट किया कि **ecDNA** कोशिका विभाजन के दौरान संतान कोशिकाओं में समूहों के रूप में पास होता है — जो तीसरे नियम का उल्लंघन है।

- This clustering gives some cancer cells an advantage because it allows them to enhance gene interactions, support cancer growth, and preserve favourable genetic combinations over multiple life-cycles.

यह समूह बनाना कुछ कैंसर कोशिकाओं को लाभ देता है क्योंकि यह उन्हें जीन इंटरएक्शन को बढ़ाने, कैंसर के विकास को समर्थन देने और कई जीवन चक्रों में अनुकूल आनुवंशिक संयोजनों को संरक्षित करने की अनुमति देता है।

- The researchers have called this the “**jackpot effect**.”

शोधकर्ताओं ने इसे “**jackpot effect**” कहा है।

- This discovery has profound implications. It overturns the idea that gene inheritance is entirely random when the genes are not linked by DNA strands.

इस खोज के गहरे प्रभाव हैं। यह इस विचार को पलट देती है कि जीन की वंशानुक्रम पूरी तरह से यादृच्छिक होती है जब जीन **DNA** धागों से जुड़े नहीं होते।

- The researchers also reported that the transcription process — from **DNA** to **RNA** — facilitates the coordinated segregation of **ecDNA** during cell division.

शोधकर्ताओं ने यह भी रिपोर्ट किया कि रूपांतरण प्रक्रिया — **DNA** से **RNA** तक — कोशिका विभाजन के दौरान **ecDNA** के समन्वित पृथक्करण में सहायता करती है।

## A new vulnerability in cancer cells

### कैंसर कोशिकाओं में एक नई कमजोरी

- But for the new threats posed by **ecDNA**, the third study uncovered a potential weakness in tumours that depend on **ecDNA**.





लेकिन **ecDNA** द्वारा उत्पन्न नई खतरों के लिए, तीसरे अध्ययन ने उन ट्यूमर्स में एक संभावित कमजोरी को उजागर किया जो **ecDNA** पर निर्भर हैं।

- The unusual structure of the **ecDNA** and its interactions with other DNA elements increase the activity of specific genes.

**ecDNA** की असामान्य संरचना और अन्य **DNA** तत्वों के साथ इसके इंटरएक्शन विशिष्ट जीनों की गतिविधि को बढ़ाते हैं।

- This can lead to a conflict between the cellular machinery involved in making **RNA** and the activity of cancer cells that leads to **DNA** damage.

यह **RNA** बनाने में शामिल कोशिकीय यांत्रिकी और कैंसर कोशिकाओं की गतिविधि के बीच एक संघर्ष उत्पन्न कर सकता है, जो **DNA** क्षति की ओर ले जाता है।

- Cells respond to this conflict by the heavy use of a protein called **CHK1**, which helps fix **DNA** and allows the cell to keep growing.

कोशिकाएं इस संघर्ष का उत्तर एक प्रोटीन **CHK1** के भारी उपयोग से देती हैं, जो **DNA** को ठीक करने में मदद करता है और कोशिका को बढ़ने की अनुमति देता है।

- When the researchers used a drug called **BBI-2779** that blocks **CHK1**, they found the drug selectively killed cancer cells with **ecDNA**, significantly reducing the number of tumours in mice with stomach cancer.

जब शोधकर्ताओं ने **BBI-2779** नामक एक दवा का उपयोग किया, जो **CHK1** को ब्लॉक करती है, तो उन्होंने पाया कि यह दवा **ecDNA** वाली कैंसर कोशिकाओं को चयनात्मक रूप से मार देती है, जिससे पेट के कैंसर वाली चूहों में ट्यूमर्स की संख्या में महत्वपूर्ण रूप से कमी आई।

- A **San Diego-based biotechnology company** co-founded by **Mischel** and **Chang**, called **Boundless Bio**, is currently working to translate these discoveries for clinical use. **San Diego** आधारित जैव प्रौद्योगिकी कंपनी, जिसे **Mischel** और **Chang** ने सह-स्थापित किया, जिसे **Boundless Bio** कहा जाता है, वर्तमान में इन खोजों को क्लिनिकल उपयोग के लिए अनुवादित करने पर काम कर रही है।

- The company's stated aim is to give patients new treatment options that target vulnerabilities created by **ecDNA**.

कंपनी का घोषित उद्देश्य मरीजों को नए उपचार विकल्प प्रदान करना है जो **ecDNA** द्वारा उत्पन्न कमजोरियों को लक्षित करते हैं।

- This is particularly crucial for patients with **ecDNA-driven cancers**, such as **glioblastoma** and **ovarian and lung cancers**, where current treatments often fall short.

यह विशेष रूप से उन मरीजों के लिए महत्वपूर्ण है जिनके पास **ecDNA-प्रेरित कैंसर** हैं, जैसे **glioblastoma** और **अंडकोष और फेफड़े का कैंसर**, जहां वर्तमान उपचार अक्सर अपर्याप्त होते हैं।



## QUESTION CORNER

# When a storm passes over land

GS Paper I: Geography

Q

**Q: What is landfall?**

**A:** Once it's fully formed, a tropical cyclone (in the northern

hemisphere) has a complex 3D structure. Two important parts of it are the eye and the eyewall. The eye is the centre around which the cyclone rotates. It consists of cold air descending from the cyclone's top with warm air rising in a spiral around it. The eyewall consists of high thunderstorms that bring rain, lightning, and powerful winds.

As long as the cyclone moves over water, it can draw more moisture from below to produce new clouds and rain events around it. But when the storm crosses over onto land, its moisture supply declines drastically, and the cyclone weakens.

Landfall is the moment in a tropical cyclone's life when its eye moves over land. Stormy weather brought by a cyclone is stronger around the eye, and landfall events can be deadly because they expose human settlements on land to strong winds and heavy rain. Their effects can be compounded by storm



Tidal waves triggered by Cyclone Fengal lashed the R.K. Beach in Visakhapatnam on November 30. DEEPAK K.R.

surges that flood coastal areas and prevent inland areas from draining normally.

If the air over land is drier, among other factors, a cyclone weakens quickly after landfall. Depending on environmental conditions, it may dissipate completely, or it could pass over land and re-emerge on the other side. In 2021, Cyclone Gulab made landfall over coastal Andhra Pradesh, weakened as it moved across peninsular India, and re-emerged four days later as Cyclone Shaheen in the Arabian Sea.

- The Hindu Bureau

**For feedback and suggestions**

for 'Science', please write to **science@thehindu.co.in** with the subject 'Daily page'



## When a storm passes over land

### जब एक तूफान भूमि पर आता है

- **Landfall** is the moment in a tropical cyclone's life when its **eye** moves over land.  
लैंडफॉल वह क्षण होता है जब एक उष्णकटिबंधीय चक्रवात के जीवन में इसका आँख भूमि पर आ जाता है।
- Once it's fully formed, a tropical cyclone (in the northern hemisphere) has a complex **3D structure**. Two important parts of it are the **eye** and the **eyewall**.  
जब यह पूरी तरह से बन जाता है, तो एक उष्णकटिबंधीय चक्रवात (उत्तरी गोलार्द्ध में) का एक जटिल **3D संरचना** होती है। इसके दो महत्वपूर्ण हिस्से हैं **आँख** और **आँख की दीवार**।
- The **eye** is the centre around which the cyclone rotates. It consists of **cold air descending from the cyclone's top** with **warm air rising in a spiral** around it.  
आँख वह केंद्र है जिसके चारों ओर चक्रवात घूमता है। इसमें चक्रवात के शीर्ष से ठंडी हवा का गिरना और इसके चारों ओर गर्म हवा का घुमावदार तरीके से उठना शामिल है।
- The **eyewall** consists of high **thunderstorms** that bring **rain, lightning, and powerful winds**.  
आँख की दीवार उच्च तूफान से बनी होती है जो बारिश, बिजली और प्रबल हवाएं लाती है।
- As long as the cyclone moves over water, it can draw more moisture from below to produce new clouds and rain events around it.  
जब तक चक्रवात पानी के ऊपर चलता रहता है, यह नीचे से अधिक नमी खींच सकता है जिससे इसके चारों ओर नए बादल और बारिश की घटनाएं बनती हैं।
- But **when the storm crosses over onto land, its moisture supply declines drastically, and the cyclone weakens**.  
लेकिन जब तूफान भूमि पर आता है, तो इसकी नमी की आपूर्ति अचानक कम हो जाती है, और चक्रवात कमजोर हो जाता है।

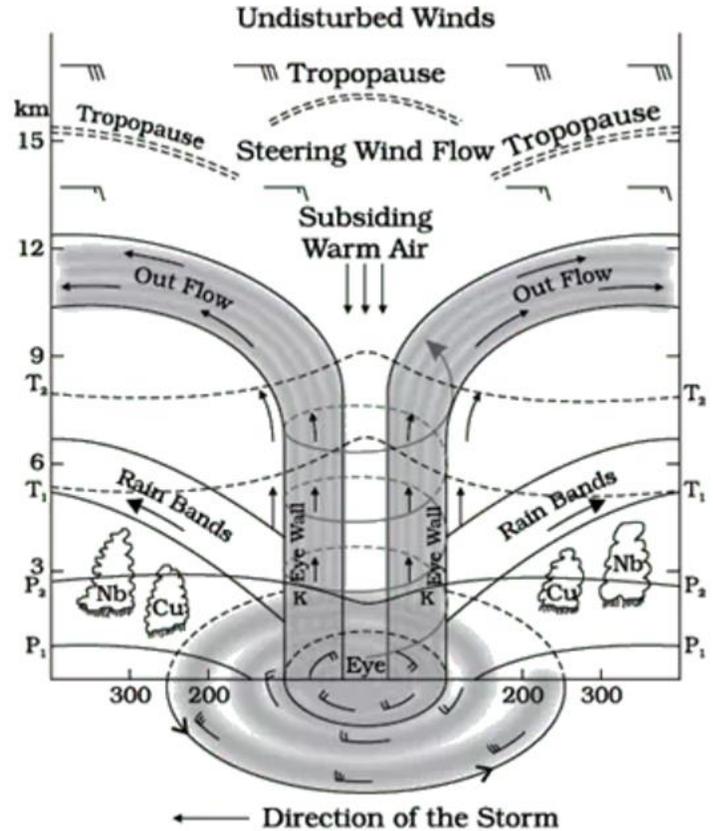


Fig: Vertical section of the tropical cyclone





- **Landfall** is the moment when a tropical cyclone's **eye moves over land**.  
लैंडफॉल वह क्षण है जब एक उष्णकटिबंधीय चक्रवात का आँख भूमि पर आता है।
- Stormy weather brought by a cyclone is **stronger around the eye**, and landfall events can be **deadly** because they expose **human settlements** on land to **strong winds** and **heavy rain**.  
चक्रवात द्वारा लाए गए तूफानी मौसम में आँख के चारों ओर ज्यादा ताकत होती है, और लैंडफॉल घटनाएं घातक हो सकती हैं क्योंकि ये भूमि पर मानव बस्तियों को प्रबल हवाओं और भारी बारिश से जोड़ देती हैं।
- Their effects can be compounded by **storm surges** that **flood coastal areas** and prevent inland areas from **draining normally**.  
उनके प्रभाव को तूफानी लहरों द्वारा बढ़ाया जा सकता है जो तटीय क्षेत्रों को जलमग्न कर देती हैं और आंतरिक क्षेत्रों को सामान्य रूप से नालियों से बचने से रोक देती हैं।
- If the air over land is **drier**, among other factors, a cyclone weakens quickly after landfall.  
यदि भूमि पर हवा सूखी हो, तो अन्य कारकों के साथ मिलकर, चक्रवात लैंडफॉल के बाद जल्दी कमजोर हो जाता है।
- Depending on environmental conditions, it may dissipate completely, or it could pass over land and **re-emerge** on the other side.  
पर्यावरणीय परिस्थितियों के आधार पर, यह पूरी तरह से समाप्त हो सकता है, या यह भूमि से गुजरकर दूसरी ओर फिर से उभर सकता है।
- **In 2021, Cyclone Gulab made landfall over coastal Andhra Pradesh**, weakened as it moved across **peninsular India**, and **re-emerged** four days later as **Cyclone Shaheen in the Arabian Sea**.  
2021 में, चक्रवात गुलाब ने तटीय आंध्र प्रदेश में लैंडफॉल किया, पारंपरिक भारत से होकर गुजरते हुए कमजोर हो गया, और चार दिन बाद अरब सागर में चक्रवात शाहीन के रूप में फिर से उभरा।

