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Panel discussion for students, professionals on new career options

Career Counselling

The Hindu Bureau
CHENNAI

The SRM Institute of Science and Technology (SRMIST), in collaboration with *The Hindu,* will organise a hybrid panel discussion series titled "Future Career Conversations" to support students and working professionals in making informed academic and career decisions.

The first webinar titled "The Innovation Bridge: Universities as India's New R&D Powerhouses" will be held at 11.30 a.m. on February 28. It will examine how universities are strengthening translational research and industry-led R&D to bridge the research-to-market gap and convert intellectual property to real-world impact.

The panel comprises Shantanu Patil, director-Entrepreneurship and Innovation, SRMIST; N. Venkata Sastry, director-Career Centre, SRMIST; Krishnan Naganathan, innovation consultant and founder, Think Horizon Consulting LLP; and Mahesh Ramachandran, founder, CIGS Tech Innovations and Partner, Pontaq Cross Border Innovation Fund. The session will be moderated by journalist Soma Basu. Registration is at newsth.live/THSRMTE

26F. Panel discussion for students, professionals on new career options
छात्रों और पेशेवरों के लिए नए करियर विकल्पों पर पैनल चर्चा

- The **SRM Institute of Science and Technology (SRMIST)**, in collaboration with **The Hindu**, will organise a hybrid panel discussion series titled **"Future Career Conversations"** to support students and working professionals in making informed academic and career decisions.

  एसआरएम इंस्टीट्यूट ऑफ साइंस एंड टेक्नोलॉजी **(SRMIST)**, द हिंदू के सहयोग से, "**फ्यूचर करियर कन्वर्सेशन्स**" शीर्षक से एक हाइब्रिड पैनल चर्चा श्रृंखला आयोजित करेगा, जिसका उद्देश्य छात्रों और कार्यरत पेशेवरों को शैक्षणिक और करियर संबंधी सूचित निर्णय लेने में सहायता करना है।

- The first webinar titled **"The Innovation Bridge: Universities as India's New R&D Powerhouses"** will be held at **11.30 a.m. on February 28**.

  पहला वेबिनार "**द इनोवेशन ब्रिज: यूनिवर्सिटीज़ ऐज़ इंडिया'ज़ न्यू आर एंड डी पावरहाउसेज़**" शीर्षक से **28 फरवरी को सुबह 11.30 बजे** आयोजित किया जाएगा।

- It will examine how universities are strengthening **translational research** and **industry-led R&D** to bridge the **research-to-market gap** and convert **intellectual property** to real-world impact.

  इसमें यह विश्लेषण किया जाएगा कि विश्वविद्यालय किस प्रकार **ट्रांसलेशनल रिसर्च** और **उद्योग-नेतृत्व वाले आर एंड डी** को सुदृढ़ कर **रिसर्च-टू-मार्केट गैप** को पाट रहे हैं और **बौद्धिक संपदा** को वास्तविक दुनिया के प्रभाव में बदल रहे हैं।

Veteran Communist leader R. Nallakannu passes away at 101

PCS

B. Kolappan
CHENNAI

R. Nallakannu, freedom fighter and a towering figure of the Communist movement, passed away in Chennai on Wednesday. He was 101. He had been unwell and undergoing treatment at the Rajiv Gandhi Government General Hospital, where he breathed his last. He is survived by two daughters.

R. Nallakannu. N. RAM

The body will be kept at the State headquarters of the Communist Party of India here for the public to pay homage. Following his wish, the body will be donated to Madras Medical College for medical research.

Fondly known as RNK in party circles, he chose to remain with the CPI when the Communist movement in India split in 1964 following the India-China war. He served as the Tamil Nadu State secretary of the CPI for three tenures since 1992.

A dedicated field worker and organisational man, Nallakannu led a tireless campaign against the mafia that was illegally mining sand from the Thamirabarani river basin. In 2010, he filed a PIL petition and personally argued the case in the Madras High Court, securing a stay order against sand mining.

Soft-spoken and affable, RNK embodied the values of sacrifice, idealism, and unwavering commitment to the Communist movement and social justice.

He shared with leaders such as Jeeva and K. Balathandayutham a love for the poems of poet Subramania Bharati and the hymns of the Azhwars, particularly Andal and Nammazhwar.

Police torture
RNK was sentenced to life imprisonment in the Nellai conspiracy case, along with Balathandayutham, P. Manikkam, I. Mayandibharathi, and many others. He spent many years underground during periods when the Communist Party was banned – first by the British, and later by the Congress government led by Jawaharlal Nehru. He endured severe police brutality; he was unable to grow a moustache thereafter, as a police officer had singed his upper lip with a cigarette butt.

"I was hiding in a friend's house when the police arrested me. After securing some bombs, they tied my hands and beat me. But I refused to reveal the names of Communist leaders," he had said in an interview.

Born in 1925 in Srivaikundam, Thoothukudi district, RNK joined the freedom movement as a school boy, in a region that was a nerve centre of the Independence struggle, nurtured by V.O. Chidambaram.

"Political leaders would travel to Thoothukudi through my native town of Srivaikundam. I would join the local leaders in organising meetings. You should have heard Pappankulam Chockalingam speak about the Jallianwala Bagh massacre – the entire crowd would weep uncontrollably," he recalled in a 2019 interview with *The Hindu*.

RNK was deeply troubled by the emergence of the RSS-BJP in the political landscape and always expressed concern over the undermining of public sector undertakings and trade unions. He was also in favour of unification of the Communist parties.

Vice-President's tribute
A tribute by Vice-President C.P. Radhakrishnan, who won against RNK in the 1999 Lok Sabha election from the Coimbatore constituency as a BJP candidate, speaks volumes about the Communist leader's character. "I was actually upset that a dignified leader like him could not win the election," wrote Mr. Radhakrishnan in a book on RNK, *Aravazhvin Adayalam*, published by *The Hindu Tamil Thisai*.

Nallakannu won the *Thagaisal Thamizhar* award of the State government in 2022. But he contributed the prize money ₹10 lakh to the Chief Minister Relief Fund along with his contribution of ₹5,000

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26F. Veteran Communist leader R. Nallakannu passes away at 101
वरिष्ठ कम्युनिस्ट नेता आर. नल्लाकन्नु का 101 वर्ष की आयु में निधन

- **R. Nallakannu**, freedom fighter and a towering figure of the **Communist movement**, passed away in **Chennai** on Wednesday.
  आर. नल्लाकन्नु, स्वतंत्रता सेनानी और **कम्युनिस्ट आंदोलन** की एक महान हस्ती, का बुधवार को **चेन्नई** में निधन हो गया।

- He was **101**.
  वह **101 वर्ष** के थे।

- Fondly known as **RNK** in party circles, he chose to remain with the **CPI** when the Communist movement in India split in **1964** following the **India-China war**.
  पार्टी हलकों में स्नेहपूर्वक **RNK** के नाम से जाने जाने वाले उन्होंने **1964** में **भारत-चीन युद्ध** के बाद कम्युनिस्ट आंदोलन के विभाजन के समय **सीपीआई** के साथ बने रहना चुना।

- Soft-spoken and affable, **RNK** embodied the values of **sacrifice, idealism, and unwavering commitment** to the Communist movement and social justice.
  मृदुभाषी और मिलनसार **RNK** कम्युनिस्ट आंदोलन और सामाजिक न्याय के प्रति **त्याग, आदर्शवाद और अडिग प्रतिबद्धता** के मूल्यों के प्रतीक थे।

- He shared with leaders such as **Jeeva** and **K. Balathandayutham** a love for the poems of poet **Subramania Bharati** and the hymns of the **Azhwars**, particularly **Andal** and **Nammazhwar**.
  उन्होंने **जीवा** और **के. बालथंडायुथम** जैसे नेताओं के साथ कवि **सुब्रमणिया भारती** की कविताओं तथा **आलवारों**, विशेष रूप से **आंडाल** और **नम्मालवार** के भजनों के प्रति प्रेम साझा किया।

Police torture
पुलिस यातना

- **RNK** was sentenced to **life imprisonment** in the **Nellai conspiracy case**, along with **Balathandayutham, P. Manikkam, I. Mayandibharathi**, and many others.
  RNK को **नेल्लई साजिश मामले** में **आजीवन कारावास** की सज़ा सुनाई गई थी, जिसमें **बालथंडायुथम, पी. मणिक्कम, आई. मयंडीभारती** और कई अन्य शामिल थे।

- He spent many years underground during periods when the **Communist Party** was banned — first by the **British**, and later by the **Congress government led by Jawaharlal Nehru**.
  जब **कम्युनिस्ट पार्टी** पर प्रतिबंध था — पहले **ब्रिटिश** शासन द्वारा और बाद में **जवाहरलाल नेहरू** के नेतृत्व वाली **कांग्रेस सरकार** द्वारा — तब उन्होंने कई वर्ष भूमिगत रहकर बिताए।

- He endured severe police brutality; he was unable to grow a moustache thereafter, as a police officer had singed his upper lip with a **cigarette butt**.
  उन्होंने भीषण पुलिस बर्बरता झेली; इसके बाद वह मूंछें नहीं उगा सके, क्योंकि एक पुलिस अधिकारी ने **सिगरेट की ठूंठ** से उनका ऊपरी होंठ जला दिया था।

- "I was actually upset that a dignified leader like him could not win the election," wrote Mr. **Radhakrishnan** in a book on **RNK**, *Aravazhvin Adayalam*, published by **The Hindu Tamil Thisai**.
  "मुझे वास्तव में यह दुख था कि उनके जैसे गरिमामय नेता चुनाव नहीं जीत सके," श्री **राधाकृष्णन** ने **RNK** पर लिखी पुस्तक **अरवाज्विन अडयालम**, जिसे **द हिंदू तमिल दिसै** ने प्रकाशित किया, में लिखा।

- Nallakannu won the **Thagaisal Thamizhar award** of the **State government** in **2022**.
  नल्लाकन्नु ने **2022** में **राज्य सरकार** का **थगैसल तमिझर पुरस्कार** जीता।

- But he contributed the prize money **₹10 lakh** to the **Chief Minister Relief Fund** along with his contribution of **₹5,0**
  लेकिन उन्होंने पुरस्कार राशि **₹10 लाख** को **मुख्यमंत्री राहत कोष** में दान कर दिया, साथ ही **₹5,0** का अपना योगदान भी दिया

Know your English

English
S. Upendran

What is the meaning of "gonna"?

"Gonna", "wanna", and "gotta" are all examples of Americanisms. Many Americans in their speech reduce "going to", "want to", and "got to" to "gonna", "wanna", and "gotta" respectively. The final "a" in all these words is pronounced like the "a" in "China".

I wanna go home. You wanna come with me? I am gonna take the bus. Are you gonna walk home? I've gotta go. I've gotta finish my homework.

Although one finds "gonna" in informal styles of writing – comics, personal letters – it is not acceptable in formal writing.

Why are some TV programmes called "soaps"?

"Soap operas" or "soaps", as they are sometimes called, existed even before television was invented. The original soaps were broadcast on the radio. These serials were broadcast in the afternoons on all weekdays and were targeted at housewives. Even today, in countries like America and Canada, soaps like "Bold and the Beautiful" and "Guiding Light" are broadcast in the afternoons, Monday through Friday.

As to your question, why such serials are called "soaps", the answer is fairly simple. The companies that usually sponsored these programmes manufactured soaps and detergents! A good reason for calling such programmes "soaps", wouldn't you say? Since the plots in the soaps were rather sentimental and complicated, they reminded a lot of people of the "opera". Hence the term "soap opera". The term was adopted by the television industry when it started to produce and broadcast such programmes. Although not all "soaps" are sponsored by soap companies these days, the term continues to be used to refer to such serials.

How is the word "alias" pronounced?

The first "a" is pronounced like the "a" in "fate", "ate", and "date". The "i" is like the "i" in "fit", "kit", and "bit". While the final "a" is like the "a" in "amount", "about" and "alike", the "s" is pronounced like the "s" in "sit", "sat" and "sip". The stress is on the first syllable.

An alias is a false name under which someone – usually a criminal – travels. It can also be used to refer to one's nickname.

Charles Sobhraj used several aliases. The alias he used was Surendran.

What is the difference between "envelope" and "envelop"?

The word "envelope" is a noun. It is the cover in which you put your letters. The "e" in the second syllable is like the "a" in "China" and the final syllable "lope" rhymes with "hope", "cope", and "rope". The stress is on the first syllable.

I need to put all the papers in an envelope.

"Envelop", on the other hand, is a verb. When you envelop something, you cover or surround it completely. Every morning the mist envelops the house.

Published in The Hindu on September 21, 1999.

26F. Know your English
अपनी अंग्रेज़ी जानिए

- What is the meaning of **"gonna"**?

"gonna" का क्या अर्थ है?

- "Gonna", "wanna", and "gotta" are all examples of **Americanisms**.

"Gonna", "wanna", और "gotta" सभी **Americanisms (अमेरिकी प्रयोग)** के उदाहरण हैं।

- Many Americans in their speech reduce "going to", "want to", and "got to" to "gonna", "wanna", and "gotta" respectively.

कई अमेरिकी अपनी बोलचाल में "going to", "want to", और "got to" को क्रमशः "gonna", "wanna", और "gotta" में बदल देते हैं।

- The nal "a" in all these words is pronounced like the "a" in **"China"**.

इन सभी शब्दों में अंतिम "a" का उच्चारण **"China"** के "a" की तरह किया जाता है।

- Although one uses "gonna" in **informal styles of writing** — comics, personal letters — it is not acceptable in **formal writing**.

हालाँकि "gonna" **अनौपचारिक लेखन शैलियों** — जैसे कॉमिक्स और व्यक्तिगत पत्रों — में मिलता है, लेकिन यह **औपचारिक लेखन** में स्वीकार्य नहीं है।

Why are some TV programmes called "soaps"?
कुछ टीवी कार्यक्रमों को "soaps" क्यों कहा जाता है?

- "Soap operas" or "soaps", as they are sometimes called, existed even before **television** was invented.

"Soap operas" या "soaps", जैसा कि उन्हें कभी-कभी कहा जाता है, **टेलीविज़न** के आविष्कार से पहले भी मौजूद थे।

- The original soaps were broadcast on the **radio**.

मूल soaps का प्रसारण **रेडियो** पर किया जाता था।

- These serials were broadcast in the afternoons on all weekdays and were targeted at **housewives**.

ये धारावाहिक सभी कार्यदिवसों में दोपहर के समय प्रसारित होते थे और **गृहिणियों** को लक्ष्य बनाकर बनाए जाते थे।

- The companies that usually sponsored these programmes manufactured **soaps and detergents**!

जो कंपनियाँ आमतौर पर इन कार्यक्रमों को प्रायोजित करती थीं, वे **साबुन और डिटर्जेंट** बनाती थीं!

How is the word "alias" pronounced?
"alias" शब्द का उच्चारण कैसे किया जाता है?

- An alias is a **false name** under which someone — usually a **criminal** — travels.
  Alias एक **झूठा नाम** होता है जिसके तहत कोई व्यक्ति — आमतौर पर कोई **अपराधी** — यात्रा करता है।
- It can also be used to refer to one's **nickname**.
  इसे किसी के **उपनाम (nickname)** के लिए भी प्रयोग किया जा सकता है।
- **What is the difference between "envelope" and "envelop"?**
  "envelope" और "envelop" में क्या अंतर है?

GS Paper 1: Society	
TOPICS COVERED	**26 February 2026**
26F	**Officials to keep track of census data collection real time** **अधिकारी जनगणना डेटा संग्रह पर रियल टाइम में नज़र रखेंगे**

Officials to keep track of census data collection real time

GS I: Society

Vijaita Singh
NEW DELHI

The field operations during the upcoming first-ever digital Population Census 2027 will be monitored real time on a portal by senior officials to "oversee progress, identify gaps or delays, and ensure timely completion of activities in accordance with prescribed timelines," the Registrar General and Census Commissioner of India (RG&CCI) has informed the States. Mritunjay Kumar Narayan, RG&CCI, said that around 32 lakh field functionaries will be deployed to carry out the "task of national importance, covering the entire country within a prescribed time frame."

To effectively manage and monitor the various census-related activities, a dedicated web-based portal - the Census Management and Monitoring System (CMMS) - has been developed, he said.

The first phase of the Census - houselisting operations (HLO), during which 33 questions regarding housing conditions, amenities etc. will be asked - is scheduled from April 1 to September 30 in all States and Union Territories.

The second phase is population enumeration, when the demographic, socio-conomic, cultural, and caste details are to be collected. It will be conducted in February 2027.

The communication to the States said that the ensuing Census 2027 will make extensive use of digital technology to enhance the quality, efficiency, and timeliness of data collection and dissemination.

For the first time in Census operations, "working maps" shall be generated with the latest available satellite imagery to enable clear identification of habitations and settlements on the ground.

26F. Officials to keep track of census data collection real time
अधिकारी जनगणना डेटा संग्रह पर रियल टाइम में नज़र रखेंगे

- The field operations during the upcoming first-ever **digital Population Census 2027** will be monitored real time on a portal by senior officials to "**oversee progress, identify gaps or delays, and ensure timely completion of activities in accordance with prescribed timelines**," the **Registrar General and Census Commissioner of India (RG&CCI)** has informed the States.
  आगामी पहली **डिजिटल जनसंख्या जनगणना 2027** के दौरान क्षेत्रीय कार्यों की वरिष्ठ अधिकारियों द्वारा एक पोर्टल पर **रियल टाइम** में निगरानी की जाएगी ताकि "**प्रगति की निगरानी, कमियों या देरी की पहचान और निर्धारित समय-सीमा के अनुसार कार्यों का समय पर पूरा होना सुनिश्चित**" किया जा सके, ऐसा **भारत के रजिस्ट्रार जनरल और जनगणना आयुक्त (RG&CCI)** ने राज्यों को सूचित किया है।

- **Mritunjay Kumar Narayan**, RG&CCI, said that around **32 lakh field functionaries** will be deployed to carry out the "**task of national importance, covering the entire country within a prescribed time frame.**"
  RG&CCI **मृत्युंजय कुमार नारायण** ने कहा कि लगभग **32 लाख क्षेत्रीय कर्मचारी** तैनात किए जाएंगे ताकि "**राष्ट्रीय महत्व के इस कार्य को निर्धारित समय-सीमा में पूरे देश में पूरा किया जा सके।**"

- To effectively manage and monitor the various census-related activities, a dedicated **web-based portal – the Census Management and Monitoring System (CMMS)** – has been developed, he said.
  उन्होंने कहा कि विभिन्न जनगणना-संबंधी गतिविधियों के प्रभावी प्रबंधन और निगरानी के लिए एक समर्पित **वेब-आधारित पोर्टल – जनगणना प्रबंधन और निगरानी प्रणाली (CMMS)** विकसित किया गया है।

- The first phase of the Census – **houselisting operations (HLO)**, during which **33 questions** regarding housing conditions, amenities etc. will be asked – is scheduled from **April 1 to September 30** in all States and Union Territories.
  जनगणना का पहला चरण – **हाउस लिस्टिंग ऑपरेशंस (HLO)**, जिसके दौरान आवास की स्थिति, सुविधाओं आदि से संबंधित **33 प्रश्न** पूछे जाएंगे – सभी राज्यों और केंद्र शासित प्रदेशों में **1 अप्रैल से 30 सितंबर** तक निर्धारित है।

- The second phase is **population enumeration**, when the demographic, socio-economic, cultural, and caste details are to be collected.
  दूसरा चरण **जनसंख्या गणना** का है, जिसमें जनसांख्यिकीय, सामाजिक-आर्थिक, सांस्कृतिक और जाति से संबंधित विवरण एकत्र किए जाएंगे।

- It will be conducted in **February 2027**.

 यह **फरवरी 2027** में आयोजित किया जाएगा।

- The communication to the States said that the ensuing **Census 2027** will make extensive use of **digital technology** to enhance the **quality, efficiency, and timeliness** of data collection and dissemination.

 राज्यों को भेजे गए संचार में कहा गया है कि आगामी **जनगणना 2027** में डेटा संग्रह और प्रसार की **गुणवत्ता, दक्षता और समयबद्धता** बढ़ाने के लिए **डिजिटल तकनीक** का व्यापक उपयोग किया जाएगा।

- For the first time in Census operations, "**working maps**" shall be generated with the latest available **satellite imagery** to enable clear identification of habitations and settlements on the ground.

 जनगणना कार्यों में पहली बार नवीनतम उपलब्ध **उपग्रह चित्रों** के साथ "**वर्किंग मैप्स**" तैयार किए जाएंगे ताकि ज़मीन पर बस्तियों और आवासीय क्षेत्रों की स्पष्ट पहचान संभव हो सके।

GS Paper 1: Geography

TOPICS COVERED	26 February 2026
26F	**Temperature spikes lead to change in El Nino labelling** तापमान में उछाल से El Nino लेबलिंग में बदलाव होता है

26F. Temperature spikes lead to change in El Nino labelling
तापमान में उछाल से El Nino लेबलिंग में बदलाव होता है

- Earth's average monthly **temperature** took a noticeable jump from the long-term upward trend connected to **human-caused climate change** in early **2023**, and that increase continued through **2025**.

पृथ्वी का औसत मासिक **तापमान 2023** की शुरुआत में **मानव जनित जलवायु परिवर्तन** से जुड़े दीर्घकालिक रुझान से ऊपर चला गया और यह वृद्धि **2025** तक जारी रही।

- Scientists have many theories about what's happening, including **faster global warming**, **less pollution from ships**, an **underwater eruption**, and increased **solar output**.

वैज्ञानिकों के पास कई सिद्धांत हैं, जिनमें **तेज वैश्विक तापन**, **जहाजों से कम प्रदूषण**, समुद्र के **नीचे विस्फोट** और बढ़ी हुई **सौर ऊर्जा** शामिल हैं।

- In a new study in **Nature Geoscience**, Japanese researchers looked at how the difference in energy coming to and leaving the planet — called **earth's energy imbalance** — increased in **2022**.

नेचर जियोसाइंस में प्रकाशित अध्ययन में जापानी शोधकर्ताओं ने देखा कि ग्रह में आने और जाने वाली ऊर्जा का अंतर — जिसे **पृथ्वी ऊर्जा असंतुलन** कहा जाता है — **2022** में कैसे बढ़ा।

- An increased imbalance, or more **trapped heat**, then leads to **warmer temperatures**, scientists said.

अधिक असंतुलन या अधिक **फंसी हुई गर्मी** से **तापमान बढ़ता है**, वैज्ञानिकों ने कहा।

- The researchers calculated that about **three-quarters** of the change in earth's energy imbalance can be attributed to the combination of **long-term human-caused climate change** and a shift from a three-year cooling **La Nina** cycle to a warm **El Nino** one.
  शोधकर्ताओं ने पाया कि पृथ्वी के ऊर्जा असंतुलन में बदलाव का लगभग **तीन-चौथाई** हिस्सा दीर्घकालिक **मानव जनित जलवायु परिवर्तन** और तीन वर्षीय ठंडे **ला नीना** से गर्म **एल नीनो** में बदलाव के कारण है।

- **El Nino** is a cyclical and natural warming of patches of the **equatorial Pacific** that alters the world's **weather patterns**, while **La Nina** is marked by **cooler waters**.
  एल नीनो भूमध्यरेखीय **प्रशांत महासागर** में प्राकृतिक गर्मी का चक्र है जो **वैश्विक मौसम** बदलता है, जबकि **ला नीना** ठंडे पानी से जुड़ा होता है।

- El Ninos tend to increase **global temperatures** and **La Ninas** depress the long-term rise.
  एल नीनो वैश्विक **तापमान बढ़ाता** है जबकि **ला नीना** वृद्धि को कम करता है।

- From **2020 to 2023**, earth had an unusual **"triple dip" La Nina** without an El Nino in between.
  2020 से 2023 के बीच पृथ्वी ने असामान्य **"ट्रिपल डिप" ला नीना** अनुभव किया।

- In a **La Nina**, warm water sticks to a deeper depth, resulting in a **cooler surface**.
  ला नीना में गर्म पानी गहराई में रहता है जिससे सतह **ठंडी** रहती है।

- And that reduces how much energy goes out into **space**, said **Yu Kosaka**, a climate scientist at the **University of Tokyo**.
  इससे **अंतरिक्ष** में जाने वाली ऊर्जा कम हो जाती है, **टोक्यो विश्वविद्यालय** की वैज्ञानिक **यू कोसाका** ने कहा।

- She compared it to **fever** in humans: when temperature rises, more **energy is emitted outward**, and for **three-year La Nina**, it's the opposite.
  उन्होंने इसे मनुष्यों के **बुखार** से तुलना की: तापमान बढ़ने पर अधिक **ऊर्जा बाहर निकलती है**, और **तीन वर्षीय ला नीना** में इसका उल्टा होता है।

- About **23%** of the energy imbalance driving recent higher temperatures comes from this unusually long **La Nina** pattern, with slightly more than half from **burning coal, oil and gas**, the study said.
  हाल के तापमान वृद्धि के ऊर्जा असंतुलन का लगभग **23%** हिस्सा लंबे **ला नीना** से और आधे से अधिक **कोयला, तेल और गैस जलाने** से आता है।

- The rest can be **other factors**.
  बाकी हिस्सा **अन्य कारणों** से हो सकता है।

GS Paper II: Polity,	
TOPICS COVERED	**26 February 2026**
26F	**Balancing faith, dignity and constitutional rights** आस्था, गरिमा और संवैधानिक अधिकारों के बीच संतुलन

Balancing faith, dignity and constitutional rights

When a five-judge Bench of the Supreme Court of India delivered its verdict, in September 2018, in *Indian Young Lawyers Association vs State of Kerala*, opening the doors of Kerala's Sabarimala temple to women of all ages, it provoked a range of reactions. There were protests across the country, especially in Kerala, where many believed that the Court had overlooked, and even disrespected, religious creed. Others saw the verdict as transformative, as outlining a vision that enlivened the Constitution. Now, close to a decade later, the Court will hear final arguments on review petitions that seek to overturn the earlier verdict and the law it laid down.

Suhrith Parthasarathy

is an advocate practising in the Madras High Court

Opinion, dissent and turning point

The original ruling was delivered through a 4:1 majority. There was an opinion from then Chief Justice of India (CJI) Dipak Misra, with Justice A.M. Khanwilkar joined. There were separate, concurring opinions from Justices Rohinton Nariman and D.Y. Chandrachud and a notable dissent from Justice Indu Malhotra. But despite the cleavage in the rationales adopted, the majority's findings were clear.

First, the Court ruled that the devotees of Lord Ayyappa did not constitute a separate religious denomination; second, that the bar enforced on women between the ages of 10 and 50 from entering the temple violated the rights of women to freedom of religion; and third, that Rule 3(b) of the Kerala Hindu Places of Public Worship (Authorisation of Entry) Rules, 1965, on which the ban was grounded, violated not only the Constitution but also Section 3 of its parent law, which promised free access to temples for all classes of Hindus.

In her dissenting opinion, Justice Malhotra found, among other things, that fundamental rights in a secular polity needed harmonising, that a generic doctrine of equality cannot override the collective rights of individuals to practise their faith in line with their customs and ideals. She also found that, as a matter of custom, women of a certain age had been excluded from the temple's precincts, and this constituted a non-derogable "essential religious practice".

The latter finding represented the central axis on which the case turned. The Constitution recognises both the freedom of religion as an individual right and the rights of religious denominations to manage their own affairs in matters of religion. Both rights are subject to public order, morality and health, and in the case of an individual's right to freedom of religion also to other fundamental rights.

Balancing communitarian interests with individual conscience has long plagued our jurisprudence. Over the years, when it has been

The Sabarimala review's final arguments will also centre on the broader architecture of India's religious freedom jurisprudence

called to resolve tensions of this kind, the Court has used a test that has allowed it to virtually sit in theological judgment over religious practice. That is, it examines and arrives at a factual conclusion on whether a practice in question is essential to the religion or not. This has meant that the Court has effectively determined not only those areas where it might be constitutionally justifiable for the state to intervene but has also determined what kinds of practices are deserving of constitutional protection in the first place.

For example, in *Sastri Yagnapurushadji vs Muldas Bhudardas Vaishya* (1966), CJI P.B. Gajendragadkar deduced what was essential to the followers of the Swaminarayan sect through selective references to Hindu texts without so much as asking what the conscience of the followers, in fact, dictated. In one passage, he even concluded that the "genesis of the suit...is founded on superstition, ignorance and complete misunderstanding of the true teachings of Hindu religion".

A court sitting as a moral arbiter on religion ought to be anathema to secularism. Therefore, that we need a theory that departs from the essential religious practices test ought to be beyond doubt. As Justice Chandrachud wrote, in his judgment in Indian Young Lawyers Association, "The rationale for allowing a religious community to define what constitutes an essential aspect of its religion is to protect the autonomy of religions and religious denominations. Protecting that autonomy enhances the liberal values of the Constitution... By entering upon doctrinal issues of what does or does not constitute an essential part of religion, the Court has, as a necessary consequence, been required to adopt a religious mantle."

The test also suffers from other practical limitations. It calls upon a constitutional court to arrive at fully fleshed out factual findings without allowing parties to lead oral evidence or subject witnesses to cross examination. What is more, the doctrine also does not offer a clear solution for what is really an obvious problem: what must a court do when a practice it finds essential to religion also undermines, or is inimical to, the dignity of individuals?

On an 'anti-exclusion test'

It is for this reason that Justice Chandrachud proposed an "anti-exclusion test". In his formulation, this norm would allow for due deference to be shown to each religious group to determine for themselves what doctrines and tenets to follow. At the same time, should any such practice exclude an individual in a manner which impairs their dignity or hampers their access to basic goods, "the freedom of religion must give way to the over-arching values of a liberal constitution".

At a doctrinal level, the test is not beyond complications. At first glance, it might well seem to replicate some of the difficulties that have long beleaguered the essential religious practices doctrine. To determine whether a particular form of exclusion impairs dignity or access to basic goods, a court must inevitably engage with the meaning and purpose of the practice in question. Such an inquiry cannot be carried out in the vacuum. It may have an impact on the normative content of faith itself. But where it differs is that the investigation remains grounded in constitutional terms rather than theological ones.

A crucial distinction

In other words, the anti-exclusion test does not ask whether a practice is essential to religion; it asks whether the consequences of a practice are compatible with the Constitution's guarantees of equal treatment and protection. This distinction is crucial. Under the essential religious practices test, constitutional protection turns on whether a court sees a practice as critical to the exercise of faith.

By contrast, under the anti-exclusion test a court accepts, as a starting point, the autonomy of religious groups to define their own tenets. It only intervenes to ensure that the exercise of that liberty does not lead to a systematic exclusion of individuals from places or benefits that are integral to their ability to lead a life of dignity.

When the nine-judge Bench begins its hearings, it will have the opportunity to reflect on the broader architecture of India's religious freedom clauses. The principles it lays down will have a bearing not only on the Sabarimala dispute but also on a host of other controversies as well – including the rights of Dawoodi Bohra community members against excommunication and of Parsi women to continue to practise the Zoroastrian faith upon marrying outside the religion.

As the framers of the Constitution recognised, religion and social life are inextricably connected in India. This makes it impossible for courts to remain entirely indifferent to the real-life consequences of religious practice. The anti-exclusion test acknowledges that faith must remain autonomous in its own domain, but its outward exercise must comport with the Constitution's commitment to equal moral membership.

If the individual is to remain the basic unit of constitutional concern, communitarian claims cannot override a person's right to access spaces and institutions that shape civic life. In placing dignity at the heart of the inquiry, the anti-exclusion test offers a framework that remains truest to the Constitution's transformative promise, by protecting belief without licensing discrimination in its name.

26F. Balancing faith, dignity and constitutional rights
आस्था, गरिमा और संवैधानिक अधिकारों के बीच संतुलन

- When a **five-judge Bench of the Supreme Court of India** delivered its verdict, in **September 2018**, in **Indian Young Lawyers Association vs State of Kerala**, opening the doors of **Kerala's Sabarimala temple** to **women of all ages**, it provoked a range of reactions.
  जब **भारत के सर्वोच्च न्यायालय की पाँच-न्यायाधीशों की पीठ** ने सितंबर **2018** में इंडियन यंग लॉयर्स एसोसिएशन बनाम केरल राज्य मामले में **केरल के सबरीमाला मंदिर** के द्वार **सभी आयु की महिलाओं** के लिए खोलने का निर्णय दिया, तो इसने विभिन्न प्रतिक्रियाएँ उत्पन्न कीं।

- There were **protests** across the country, especially in **Kerala**, where many believed that the Court had overlooked and even disrespected **religious creed**.
  देशभर में **विरोध प्रदर्शन** हुए, विशेषकर **केरल** में, जहाँ कई लोगों का मानना था कि न्यायालय ने **धार्मिक आस्था** की अनदेखी की और उसका अनादर किया।

- Others saw the verdict as **transformative**, outlining a vision that enlivened the **Constitution**.
  अन्य लोगों ने इस निर्णय को **परिवर्तनकारी** माना, जिसने **संविधान** की भावना को जीवंत किया।

- Now, close to a **decade later**, the Court will hear **final arguments** on **review petitions** seeking to overturn the earlier verdict and the law it laid down.
  अब लगभग **एक दशक बाद**, न्यायालय पहले के निर्णय और स्थापित कानून को पलटने हेतु दायर **पुनर्विचार याचिकाओं** पर **अंतिम बहस** सुनेगा।

Opinion, dissent and turning point
मत, असहमति और मोड़

- The original ruling was delivered through a **4:1 majority**.
  मूल निर्णय **4:1 बहुमत** से दिया गया था।
- There was an opinion from then **Chief Justice Dipak Misra**, joined by **Justice A.M. Khanwilkar**, with separate concurring opinions from **Justices Rohinton Nariman** and **D.Y. Chandrachud**, and a dissent from **Justice Indu Malhotra**.
  तत्कालीन **मुख्य न्यायाधीश दीपक मिश्रा** की राय से **न्यायमूर्ति ए.एम. खानविलकर** सहमत थे, जबकि **न्यायमूर्ति रोहिंटन नरीमन** और **डी.वाई. चंद्रचूड़** की अलग सहमति राय तथा **न्यायमूर्ति इंदु मल्होत्रा** की असहमति राय थी।
- First, the Court ruled that the devotees of **Lord Ayyappa** did not constitute a separate **religious denomination**.
  पहला, न्यायालय ने कहा कि **भगवान अय्यप्पा** के भक्त अलग **धार्मिक संप्रदाय** नहीं हैं।
- Second, the bar on **women aged 10 to 50** violated their **freedom of religion**.
  दूसरा, **10 से 50 वर्ष** की महिलाओं पर लगाया गया प्रतिबंध उनके **धर्म की स्वतंत्रता** के अधिकार का उल्लंघन है।
- Third, **Rule 3(b) of the Kerala Hindu Places of Public Worship Rules, 1965** violated the **Constitution** and **Section 3** of its parent law promising free temple access to all Hindus.
  तीसरा, **केरल हिंदू सार्वजनिक पूजा स्थल नियम, 1965 की धारा 3(b)** ने **संविधान** और मूल कानून की **धारा 3** का उल्लंघन किया, जो सभी हिंदुओं को मंदिर में प्रवेश का अधिकार देती है।
- In her dissent, **Justice Indu Malhotra** said **fundamental rights** must be harmonised and **equality** cannot override the collective right to practise faith according to customs.
  अपनी असहमति में **न्यायमूर्ति इंदु मल्होत्रा** ने कहा कि **मौलिक अधिकारों** में संतुलन आवश्यक है और **समानता** का सिद्धांत धार्मिक परंपराओं के अनुसार आस्था के सामूहिक अधिकार को समाप्त नहीं कर सकता।
- She held that exclusion of women of a certain age was an **essential religious practice**.
  उन्होंने माना कि एक निश्चित आयु की महिलाओं का बहिष्कार एक **आवश्यक धार्मिक प्रथा** है।
- The Constitution recognises both **individual freedom of religion** and the rights of **religious denominations**, subject to **public order, morality and health**.
  संविधान **व्यक्तिगत धर्म की स्वतंत्रता** और **धार्मिक संप्रदायों** के अधिकार दोनों को मान्यता देता है, जो **लोक व्यवस्था, नैतिकता और स्वास्थ्य** के अधीन हैं।
- Balancing **communitarian interests** with **individual conscience** has long challenged jurisprudence.
  सामुदायिक हितों और **व्यक्तिगत अंतरात्मा** के बीच संतुलन बनाना लंबे समय से न्यायशास्त्र के लिए चुनौती रहा है।
- The Court has used the **essential religious practice test**, examining whether a practice is essential to a religion.
  न्यायालय ने **आवश्यक धार्मिक प्रथा परीक्षण** का उपयोग किया, जिसमें यह देखा जाता है कि कोई प्रथा धर्म के लिए आवश्यक है या नहीं।
- This has allowed the Court to determine where the **state may intervene** and which practices deserve **constitutional protection**.
  इससे न्यायालय यह तय करता रहा है कि कहाँ **राज्य हस्तक्षेप** कर सकता है और कौन-सी प्रथाएँ **संवैधानिक संरक्षण** की पात्र हैं।
- For example, in **Sastri Yagnapurushadji vs Muldas Bhudardas Vaishya (1966)**, CJI **P.B. Gajendragadkar** deduced what was essential to the followers of the **Swaminarayan sect** through selective references to **Hindu texts** without asking what the conscience of the followers dictated.
  उदाहरण के लिए, **Sastri Yagnapurushadji बनाम Muldas Bhudardas Vaishya (1966)** में **मुख्य न्यायाधीश पी.बी. गजेन्द्रगडकर** ने **स्वामीनारायण संप्रदाय** के अनुयायियों के लिए क्या आवश्यक है, यह **हिंदू ग्रंथों** के चयनित संदर्भों के आधार पर तय किया, बिना यह पूछे कि अनुयायियों की अंतरात्मा क्या कहती है।

- He concluded that the "genesis of the suit…is founded on **superstition, ignorance and complete misunderstanding** of the true teachings of **Hindu religion**".
  उन्होंने निष्कर्ष निकाला कि मुकदमे की उत्पत्ति **अंधविश्वास, अज्ञानता और पूर्ण गलतफहमी** पर आधारित है, जो **हिंदू धर्म** की सच्ची शिक्षाओं से जुड़ी है।
- A court sitting as a **moral arbiter on religion** ought to be anathema to **secularism**.
  धर्म पर **नैतिक निर्णायक** के रूप में बैठा न्यायालय **धर्मनिरपेक्षता** के विपरीत है।
- Therefore, the need to depart from the **essential religious practices test** ought to be beyond doubt.
  इसलिए **आवश्यक धार्मिक प्रथा परीक्षण** से हटने की आवश्यकता निर्विवाद है।
- As **Justice Chandrachud** wrote in **Indian Young Lawyers Association**, protecting the autonomy of religions enhances the **liberal values of the Constitution**, and by entering doctrinal issues the Court adopts a **religious mantle**.
  जैसा कि **न्यायमूर्ति चंद्रचूड़** ने **इंडियन यंग लॉयर्स एसोसिएशन** में लिखा, धर्मों की स्वायत्तता की रक्षा **संविधान के उदार मूल्यों** को सुदृढ़ करती है, और सिद्धांतगत मुद्दों में प्रवेश कर न्यायालय एक **धार्मिक आवरण** धारण करता है।
- The test suffers from practical limitations as it requires factual findings without **oral evidence** or **cross examination**.
  यह परीक्षण व्यावहारिक सीमाओं से ग्रस्त है क्योंकि इसमें **मौखिक साक्ष्य** या **जिरह** के बिना तथ्यात्मक निष्कर्ष निकालने होते हैं।
- It also does not offer a clear solution when an essential practice undermines the **dignity of individuals**.
  यह स्पष्ट समाधान नहीं देता जब कोई आवश्यक प्रथा **व्यक्तियों की गरिमा** को ठेस पहुँचाती है।

On an 'anti-exclusion test'
'एंटी-एक्सक्लूजन परीक्षण' पर

- **Justice Chandrachud** proposed an **"anti-exclusion test"** allowing deference to religious groups while ensuring that exclusion impairing **dignity** or access to **basic goods** must yield to the values of a **liberal constitution**.
  न्यायमूर्ति चंद्रचूड़ ने **"एंटी-एक्सक्लूजन परीक्षण"** का प्रस्ताव रखा, जो धार्मिक समूहों को सम्मान देता है, परंतु यदि बहिष्कार से **गरिमा** या **मूलभूत अधिकारों** पर असर पड़े तो **उदार संविधान** के मूल्यों को प्राथमिकता देता है।
- At a doctrinal level, the test may replicate some difficulties of the essential practices doctrine.
  सिद्धांत के स्तर पर यह परीक्षण आवश्यक धार्मिक प्रथा सिद्धांत जैसी कठिनाइयों को दोहरा सकता है।
- To determine whether exclusion impairs dignity, a court must engage with the meaning and purpose of the practice.
  यह तय करने के लिए कि बहिष्कार से गरिमा प्रभावित होती है या नहीं, न्यायालय को उस प्रथा के अर्थ और उद्देश्य से जुड़ना होगा।
- Such inquiry may impact the normative content of **faith**, but remains grounded in **constitutional terms** rather than **theological** ones.
  ऐसी जांच **आस्था** की मान्यताओं को प्रभावित कर सकती है, परंतु यह **संवैधानिक आधार** पर टिकी रहती है, न कि **धार्मिक सिद्धांतों** पर।

A crucial distinction
एक महत्वपूर्ण अंतर

- In other words, the **anti-exclusion test** does not ask whether a practice is **essential to religion**; it asks whether the consequences of a practice are compatible with the **Constitution's guarantees of equal treatment and protection**.
  दूसरे शब्दों में, **एंटी-एक्सक्लूजन परीक्षण** यह नहीं पूछता कि कोई प्रथा **धर्म के लिए आवश्यक** है या नहीं; यह पूछता है कि उस प्रथा के परिणाम **संविधान द्वारा समान व्यवहार और संरक्षण की गारंटी** के अनुरूप हैं या नहीं।
- This distinction is **crucial**.
  यह अंतर **महत्वपूर्ण** है।

- Under the **essential religious practices test**, constitutional protection turns on whether a court sees a practice as critical to the exercise of **faith**.
  आवश्यक धार्मिक प्रथा परीक्षण के तहत संवैधानिक संरक्षण इस पर निर्भर करता है कि न्यायालय किसी प्रथा को **आस्था** के अभ्यास के लिए आवश्यक मानता है या नहीं।

- By contrast, under the **anti-exclusion test** a court accepts the **autonomy of religious groups** to define their own tenets.
  इसके विपरीत, **एंटी-एक्सक्लूजन परीक्षण** के तहत न्यायालय **धार्मिक समूहों की स्वायत्तता** को स्वीकार करता है कि वे अपने सिद्धांत स्वयं तय करें।

- It only intervenes to ensure that the exercise of that liberty does not lead to a **systematic exclusion of individuals** from places or benefits integral to a life of **dignity**.
  यह केवल तब हस्तक्षेप करता है जब उस स्वतंत्रता का प्रयोग व्यक्तियों को **गरिमा** से जीने के लिए आवश्यक स्थानों या लाभों से **व्यवस्थित बहिष्कार** की ओर ले जाए।

- When the **nine-judge Bench** begins its hearings, it will reflect on the broader architecture of India's **religious freedom clauses**.
  जब **नौ-न्यायाधीशों की पीठ** सुनवाई शुरू करेगी, तो वह भारत के **धार्मिक स्वतंत्रता प्रावधानों** की व्यापक संरचना पर विचार करेगी।

- Its principles will impact not only the **Sabarimala dispute** but also controversies involving the **Dawoodi Bohra community** and **Parsi women** practising the **Zoroastrian faith** after marrying outside the religion.
  इसके सिद्धांत केवल **सबरीमाला विवाद** ही नहीं बल्कि **दाऊदी बोहरा समुदाय** के सदस्यों के अधिकारों और धर्म से बाहर विवाह करने के बाद **पारसी महिलाओं** द्वारा **जोरोस्ट्रियन आस्था** का पालन करने के मुद्दों को भी प्रभावित करेंगे।

- As the **framers of the Constitution** recognised, religion and social life are **inextricably connected** in India.
  जैसा कि **संविधान निर्माताओं** ने स्वीकार किया, भारत में धर्म और सामाजिक जीवन **अटूट रूप से जुड़े** हैं।

- Courts cannot remain indifferent to the **real-life consequences** of religious practice.
  न्यायालय धार्मिक प्रथाओं के **वास्तविक जीवन के परिणामों** से पूरी तरह उदासीन नहीं रह सकते।

- The **anti-exclusion test** acknowledges that faith must remain autonomous, but its outward exercise must align with the Constitution's commitment to **equal moral membership**.
  एंटी-एक्सक्लूजन परीक्षण स्वीकार करता है कि आस्था अपने क्षेत्र में स्वायत्त रहे, पर उसका बाहरी अभ्यास **समान नैतिक सदस्यता** के संवैधानिक वचन के अनुरूप हो।

- If the **individual** remains the basic unit of constitutional concern, **communitarian claims** cannot override a person's right to access spaces shaping **civic life**.
  यदि **व्यक्ति** संवैधानिक चिंता की मूल इकाई है, तो **सामुदायिक दावे** किसी व्यक्ति के **नागरिक जीवन** को आकार देने वाले स्थानों तक पहुँच के अधिकार को समाप्त नहीं कर सकते।

- By placing **dignity** at the heart of the inquiry, the anti-exclusion test protects **belief** without licensing **discrimination**, remaining true to the Constitution's **transformative promise**.
  जांच के केंद्र में **गरिमा** को रखकर, एंटी-एक्सक्लूजन परीक्षण **आस्था** की रक्षा करता है पर **भेदभाव** को वैधता नहीं देता, और इस प्रकार संविधान के **परिवर्तनकारी वादे** के प्रति सच्चा रहता है।

GS Paper II: Governance,	
TOPICS COVERED	**26 February 2026**
26F	**NCERT issues apology for 'unsuitable material'** **एनसीईआरटी ने 'अनुपयुक्त सामग्री' के लिए माफी जारी की**
26F	**SC takes suo motu case over NCERT corruption remark** **एनसीईआरटी की भ्रष्टाचार संबंधी टिप्पणी पर सुप्रीम कोर्ट ने स्वतः संज्ञान लिया**
26F	**NCERT apologises for 'inappropriate textual material'** **एनसीईआरटी ने 'अनुचित पाठ्य सामग्री' के लिए माफी मांगी**
26F	**Bill to replace UGC, AICTE is with Ministries, says govt.** **यूजीसी, एआईसीटीई को बदलने वाला विधेयक मंत्रालयों के पास है, सरकार ने कहा**

NCERT issues apology for 'unsuitable material'

26F. NCERT issues apology for 'unsuitable material'
एनसीईआरटी ने 'अनुपयुक्त सामग्री' के लिए माफी जारी की

GS II: Governance
The Hindu Bureau
NEW DELHI

Hours after the Supreme Court registered a *suo motu* case on Wednesday over the inclusion of a section on "corruption" in the judiciary in the National Council for Education Research and Training's (NCERT's) newest Social Science textbook for Class 8, the NCERT issued a statement apologising for the "inappropriate textual material". Officials said directions had been issued to keep the distribution of this book on "strict hold until further orders".

- Hours after the **Supreme Court** registered a **suo motu case** on Wednesday over the inclusion of a section on **"corruption"** in the judiciary in the **National Council for Education Research and Training's (NCERT's)** newest **Social Science textbook for Class 8**, the NCERT issued a statement apologising for the **"inappropriate textual material"**.

बुधवार को **सुप्रीम कोर्ट** द्वारा **न्यायपालिका में "भ्रष्टाचार"** से संबंधित एक खंड को **राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद (एनसीईआरटी)** की **कक्षा 8 की नवीनतम सामाजिक विज्ञान की पाठ्यपुस्तक** में शामिल किए जाने पर **स्वतः संज्ञान (सुओ मोटो) मामला** दर्ज किए जाने के कुछ ही घंटों बाद, एनसीईआरटी ने **"अनुचित पाठ्य सामग्री"** के लिए माफी माँगते हुए एक बयान जारी किया।

- **Justice Bagchi** indicated that the mention in the school book affected **Constitutional integrity** and impacted the principle of **separation of powers**, a fundamental part of the **Basic Structure Doctrine**.

न्यायमूर्ति बागची ने संकेत दिया कि स्कूल की किताब में किया गया उल्लेख **संवैधानिक अखंडता** को प्रभावित करता है और **शक्तियों के पृथक्करण** के सिद्धांत पर असर डालता है, जो **मूल संरचना सिद्धांत** का एक मौलिक हिस्सा है।

- The chapter '**The Role of the Judiciary in Our Society**' in a Class 8 **Social Science** book prescribed by **NCERT** mentions that **corruption**, a **massive backlog of cases**, and a **lack of adequate number of judges** were among the "**challenges**" faced by the judicial system.

Bill to replace UGC, AICTE is with Ministries, says govt.

26F. Bill to replace UGC, AICTE is with Ministries, says govt.
यूजीसी, एआईसीटीई को बदलने वाला विधेयक मंत्रालयों के पास है, सरकार ने कहा

GS II: Governance: Education
Abhinay Lakshman
NEW DELHI

The draft Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025, to overhaul the higher education regulatory framework in India, was circulated among 39 Union Ministries and departments as part of inter-ministerial consultations, the government has informed the Joint Parliamentary Committee (JPC) looking into the Bill, *The Hindu* has learnt.

The Bill proposes the setting up of a 12-member umbrella commission - the Viksit Bharat Shiksha Adhishthan - to replace the University Grants Commission (UGC), the All India Council for Technical Education (AICTE), and the National Council for Teacher Education (NCTE).

Unlike the UGC, the new commission will not have the power to disburse grants. The Bill hands over the funding power to "mechanisms devised by the Ministry of Education".

The 31-member JPC is headed by BJP MP D. Purandeswari. In a communi-

The draft Bill seeks to overhaul the higher education regulatory framework. ISTOCK

cation to the JPC ahead of its first meeting on Thursday, the government explained the background to the Bill and its provisions.

Separate councils
The Bill intends to subsume the UGC, AICTE, and NCTE, by repealing the laws under which these bodies were set up. The commission will include separate regulatory standards, and accreditation councils.

The VBSA Bill was introduced by Union Education Minister Dharmendra Pradhan in Parliament in December 2025, even as

MPs from across Opposition parties opposed it. They said the Bill represented "executive overreach", subjected higher educational institutes to "pervasive executive control, graded autonomy, intrusive compliance requirements, severe penalties, and closure powers"; and went against the principles of federalism.

Soon after the Bill's introduction, the government said it would be examined by a JPC, which was constituted earlier this month.

Sources told *The Hindu* that the government, in its communication to the panel, explained the rationale behind separating the grant of disbursal powers from the regulatory authority, saying that this was needed to remove potential conflict of interest, and to ensure transparency.

At the JPC meeting on Thursday, officials of the Education Ministry and the Ministry of Law and Justice (Legislative Department) are expected to brief the panel members on the VBSA Bill.

- The draft **Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025**, to overhaul the **higher education regulatory framework** in India, was circulated among **39 Union Ministries and departments** as part of **inter-ministerial consultations**, the government has informed the **Joint Parliamentary Committee (JPC)** looking into the Bill, *The Hindu* has learnt.

भारत में **उच्च शिक्षा नियामक ढांचे** में व्यापक बदलाव के लिए तैयार **विकसित भारत शिक्षा अधिष्ठान (VBSA) विधेयक, 2025** का मसौदा **अंतर-मंत्रालयी परामर्श** के तहत **39 केंद्रीय मंत्रालयों और विभागों** में प्रसारित किया गया है, सरकार ने इस विधेयक की जांच कर रही **संयुक्त संसदीय समिति (JPC)** को सूचित किया है, ऐसा *द हिंदू* ने जाना।

- The Bill proposes the setting up of a **12-member umbrella commission** – the **Viksit Bharat Shiksha Adhishthan** – to replace the **University Grants Commission (UGC)**, the **All India Council for Technical Education (AICTE)**, and the **National Council for Teacher Education (NCTE)**.

यह विधेयक **12 सदस्यीय छत्र आयोग — विकसित भारत शिक्षा अधिष्ठान —** की स्थापना का प्रस्ताव करता

है, जो **विश्वविद्यालय अनुदान आयोग (UGC)**, **अखिल भारतीय तकनीकी शिक्षा परिषद (AICTE)** और **राष्ट्रीय शिक्षक शिक्षा परिषद (NCTE)** का स्थान लेगा।

- Unlike the **UGC**, the new commission will not have the power to **disburse grants**.
  यूजीसी के विपरीत, नए आयोग के पास **अनुदान वितरित करने** की शक्ति नहीं होगी।
- The **Bill** hands over the funding power to "**mechanisms devised by the Ministry of Education**".
  विधेयक वित्तपोषण की शक्ति "**शिक्षा मंत्रालय द्वारा विकसित तंत्रों**" को सौंपता है।

- The Bill intends to subsume the **UGC, AICTE, and NCTE**, by repealing the laws under which these bodies were set up.
  विधेयक **यूजीसी, एआईसीटीई और एनसीटीई** को उनके गठन से संबंधित कानूनों को निरस्त कर समाहित करने का इरादा रखता है।
- The commission will include separate **regulatory standards** and **accreditation councils**.
  आयोग में अलग-अलग **नियामक मानक** और **मान्यता परिषदें** शामिल होंगी।
- The **VBSA Bill** was introduced by Union Education Minister **Dharmendra Pradhan** in Parliament in **December 2025**, even as MPs from across **Opposition parties** opposed it.
  VBSA विधेयक को केंद्रीय शिक्षा मंत्री **धर्मेंद्र प्रधान** ने **दिसंबर 2025** में संसद में पेश किया, जबकि **विपक्षी दलों** के सांसदों ने इसका विरोध किया।
- They said the Bill represented "**executive overreach**", subjected higher educational institutes to "**pervasive executive control, graded autonomy, intrusive compliance requirements, severe penalties, and closure powers**"; and went against the principles of **federalism**.
  उनका कहना था कि यह विधेयक "**कार्यपालिका की अति**" को दर्शाता है, उच्च शिक्षण संस्थानों को "**व्यापक कार्यकारी नियंत्रण, श्रेणीबद्ध स्वायत्तता, दखलकारी अनुपालन आवश्यकताओं, कठोर दंड और बंद करने की शक्तियों**" के अधीन करता है; और **संघवाद** के सिद्धांतों के विरुद्ध है।
- The government, in its communication to the panel, explained the rationale behind separating the **grant of disbursal powers** from the **regulatory authority**, saying that this was needed to remove potential **conflict of interest**, and to ensure **transparency**.
  सूत्रों ने *द हिंदू* को बताया कि सरकार ने पैनल को भेजे गए अपने संचार में **अनुदान वितरण की शक्तियों** को **नियामक प्राधिकरण** से अलग करने के पीछे का तर्क स्पष्ट किया, यह कहते हुए कि इससे संभावित **हितों के टकराव** को हटाने और **पारदर्शिता** सुनिश्चित करने की आवश्यकता है।

GS Paper II: International Relations	
TOPICS COVERED	**26 February 2026**
26F **India 'stands firmly' with Israel, Modi says in address to Knesset** **भारत इज़राइल के साथ 'दृढ़ता से खड़ा है', केनेस्सेट में संबोधन में मोदी ने कहा**	
26F **Treaty on Chagos deal paused for holding discussions with U.S. govt., says U.K. Minister** **चागोस समझौते पर संधि को अमेरिका सरकार के साथ चर्चा के लिए रोका गया, यू.के. मंत्री ने कहा**	
26F **EU seeks to cut Russia dependence; Hungary, Slovakia have other plans** **ईयू रूस पर निर्भरता कम करना चाहता है; हंगरी और स्लोवाकिया की अलग योजनाएँ हैं**	

India 'stands firmly' with Israel, Modi says in address to Knesset

Prime Minister addresses Israeli parliament as he begins a visit to the West Asian country; Modi says he supports the Gaza Peace Initiative and adds that India has uncompromising policy of zero tolerance for terrorism, with no double standards

GS II: IR

Kallol Bhattacherjee
NEW DELHI

Prime Minister Narendra Modi, in his address to the Knesset on Wednesday, extended a firm hand of friendship to Israel and condemned the Hamas attack on October 7, 2023 as a "barbaric terrorist attack".

Speaking at the Israeli parliament, the Prime Minister supported the Gaza Peace Initiative saying it was necessary to "sustain" the process of peace building in the region. "The Gaza Peace Initiative that was endorsed by the UN Security Council offers a pathway. India has expressed its firm support... We believe that it holds the promise of a just and durable peace for all the people of the region, including by addressing the Palestine issue," he said.

Prime Minister Narendra Modi and his Israeli counterpart, Benjamin Netanyahu, at the Knesset in Jerusalem on Wednesday. ANI

Mr. Modi said India and Israel were working to enhance bilateral relations across sectors such as water management, agriculture, and talent partnership, adding that he had discussed "key developments" in the region with Israeli Prime Minister Benjamin Netanyahu.

"I also carry with me the deepest condolences of the people of India for every life lost and for every family whose world was shattered in the barbaric terrorist attack by Hamas on October 7," said Mr. Modi, adding that India stands with Israel "firmly, with full conviction".

Mr. Modi reminded the members of the Knesset about India's own struggle against terrorism and cited the 26/11 terror attack in Mumbai that killed citizens of India as well as multiple other countries, including Israel. "Like you, we have a consistent and uncompromising policy of zero tolerance for terrorism, with no double standard," he said.

Mr. Modi said India had supported Israel's attempts to build friendly ties with the countries in West Asia and North Africa and said Israeli moves to build relationships with Arab countries under the Abraham Accords showed "courage and vision".

"Since then, the situation has changed significantly. The path is even more challenging. Yet it is important to sustain that hope," he said.

Mr. Modi referred to India's ties with the Jewish community as rooted in ancient trade and movement of people, and said there is "great admiration of Israel's resolve, courage and achievements" in India.

He also talked about the absence of discrimination against the Jewish community in India and specifically referred to the Jewish communities in Kerala, Kolkata and Mumbai.

Mr. Modi said India is committed to expanding trade with Israel and informed that both sides are working on it through "cross-border financial linkages" using "Digital Public Infrastructure". He said the two sides are also working on an ambitious Free Trade Agreement.

Earlier, Mr. Netanyahu said Mr. Modi "did not flinch" and that under his leadership, India provided support to Israel in the challenging times over the recent past. "You stood for Israel. You stood for the Jews. Thank you," said Mr. Netanyahu.

RAHUL TARGETS PM'S TRIP
» PAGE 5

26F. India 'stands firmly' with Israel, Modi says in address to Knesset
भारत इज़राइल के साथ 'दृढ़ता से खड़ा है', केनेस्सेट में संबोधन में मोदी ने कहा

- Prime Minister addresses Israeli parliament as he begins a visit to the West Asian country; Modi says he supports the Gaza Peace Initiative and adds that India has an uncompromising policy of zero tolerance for terrorism, with no double standards.
  प्रधानमंत्री पश्चिम एशियाई देश की यात्रा की शुरुआत में इज़राइली संसद को संबोधित करते हैं; मोदी कहते हैं कि वह **ग़ाज़ा शांति पहल** का समर्थन करते हैं और जोड़ते हैं कि भारत की **आतंकवाद के प्रति शून्य सहिष्णुता** की अडिग नीति है, जिसमें कोई दोहरा मानदंड नहीं है।

- Prime Minister Narendra Modi, in his address to the Knesset on Wednesday, extended a firm hand of friendship to Israel and condemned the Hamas attack on October 7, 2023 as a "barbaric terrorist attack".
  प्रधानमंत्री **नरेंद्र मोदी** ने बुधवार को केनेस्सेट में अपने संबोधन में इज़राइल को मित्रता का दृढ़ हाथ बढ़ाया और 7 अक्टूबर, 2023 को हुए **हमास** हमले को "बर्बर आतंकी हमला" बताया।

- Speaking at the Israeli parliament, the Prime Minister supported the Gaza Peace Initiative saying it was necessary to "sustain" the process of peace building in the region.
  इज़राइली संसद में बोलते हुए प्रधानमंत्री ने **ग़ाज़ा शांति पहल** का समर्थन किया और कहा कि क्षेत्र में शांति निर्माण की प्रक्रिया को "**कायम रखना**" आवश्यक है।

- "The Gaza Peace Initiative that was endorsed by the UN Security Council offers a pathway.
  "**संयुक्त राष्ट्र सुरक्षा परिषद** द्वारा समर्थित ग़ाज़ा शांति पहल एक मार्ग प्रदान करती है।

- India has expressed its firm support...
  भारत ने इसके प्रति अपना **दृढ़ समर्थन** व्यक्त किया है...

- We believe that it holds the promise of a just and durable peace for all the people of the region, including by addressing the Palestine issue," he said.

  हम मानते हैं कि यह **फ़िलिस्तीन मुद्दे** को संबोधित करते हुए क्षेत्र के सभी लोगों के लिए **न्यायसंगत और स्थायी शांति** का वादा रखती है," उन्होंने कहा।

- Mr. Modi said India and Israel were working to enhance bilateral relations across sectors such as water management, agriculture, and talent partnership, adding that he had discussed "key developments" in the region with Israeli Prime Minister Benjamin Netanyahu.

  श्री मोदी ने कहा कि भारत और इज़राइल **जल प्रबंधन**, **कृषि** और **प्रतिभा साझेदारी** जैसे क्षेत्रों में द्विपक्षीय संबंधों को मजबूत करने पर काम कर रहे हैं, और उन्होंने इज़राइली प्रधानमंत्री **बेंजामिन नेतन्याहू** के साथ क्षेत्र के "**महत्वपूर्ण घटनाक्रमों**" पर चर्चा की है।

- "I also carry with me the deepest condolences of the people of India for every life lost and for every family whose world was shattered in the barbaric terrorist attack by Hamas on October 7," said Mr. Modi, adding that India stands with Israel "firmly, with full conviction".

  "मैं 7 अक्टूबर को हमास द्वारा किए गए बर्बर आतंकी हमले में हर जान के नुकसान और हर उस परिवार के लिए, जिनकी दुनिया उजड़ गई, भारत के लोगों की **गहरी संवेदनाएँ** भी साथ लाया हूँ," श्री मोदी ने कहा और जोड़ा कि भारत इज़राइल के साथ "**पूरे विश्वास के साथ दृढ़ता से**" खड़ा है।

- Mr. Modi reminded the members of the Knesset about India's own struggle against terrorism and cited the 26/11 terror attack in Mumbai that killed citizens of India as well as multiple other countries, including Israel.

  श्री मोदी ने केनेस्सेट के सदस्यों को आतंकवाद के खिलाफ भारत के अपने संघर्ष की याद दिलाई और **मुंबई में 26/11 आतंकी हमले** का उल्लेख किया, जिसमें भारत के साथ-साथ इज़राइल सहित कई अन्य देशों के नागरिक मारे गए थे।

- "Like you, we have a consistent and uncompromising policy of zero tolerance for terrorism, with no double standard," he said.

  "आपकी तरह, हमारी भी आतंकवाद के प्रति **शून्य सहिष्णुता** की **सुसंगत और अडिग नीति** है, जिसमें कोई दोहरा मानदंड नहीं है," उन्होंने कहा।

- Mr. Modi said India had supported Israel's attempts to build friendly ties with the countries in West Asia and North Africa and said Israeli moves to build relationships with Arab countries under the Abraham Accords showed "courage and vision".

  श्री मोदी ने कहा कि भारत ने पश्चिम एशिया और उत्तरी अफ्रीका के देशों के साथ मैत्रीपूर्ण संबंध बनाने के इज़राइल के प्रयासों का समर्थन किया है और कहा कि **अब्राहम समझौतों** के तहत अरब देशों के साथ संबंध बनाने के इज़राइली कदम "**साहस और दूरदर्शिता**" को दर्शाते हैं।

- "Since then, the situation has changed significantly.

  "तब से स्थिति **काफी बदल चुकी है**।

- The path is even more challenging.

  रास्ता अब और भी **चुनौतीपूर्ण** हो गया है।

- Yet it is important to sustain that hope," he said.

  फिर भी उस **आशा को बनाए रखना** महत्वपूर्ण है," उन्होंने कहा।

- Mr. Modi referred to India's ties with the Jewish community as rooted in ancient trade and movement of people, and said there is "great admiration of Israel's resolve, courage and achievements" in India.

  श्री मोदी ने यहूदियों के साथ भारत के संबंधों को **प्राचीन व्यापार और लोगों की आवाजाही** में निहित बताया और कहा कि भारत में इज़राइल के "**दृढ़ संकल्प, साहस और उपलब्धियों**" के प्रति गहरा सम्मान है।

- He also talked about the absence of discrimination against the Jewish community in India and specifically referred to the Jewish communities in Kerala, Kolkata and Mumbai.

  उन्होंने भारत में यहूदी समुदाय के खिलाफ **भेदभाव के अभाव** की भी बात की और विशेष रूप से **केरल, कोलकाता और मुंबई** के यहूदी समुदायों का उल्लेख किया।

- Mr. Modi said India is committed to expanding trade with Israel and informed that both sides are working on it through "cross-border financial linkages" using "Digital Public Infrastructure".

  श्री मोदी ने कहा कि भारत इज़राइल के साथ **व्यापार विस्तार** के लिए प्रतिबद्ध है और बताया कि दोनों पक्ष "**डिजिटल पब्लिक इंफ्रास्ट्रक्चर**" का उपयोग करते हुए "**सीमापार वित्तीय संपर्कों**" के माध्यम से इस पर काम कर रहे हैं।

- He said the two sides are also working on an ambitious Free Trade Agreement.

  उन्होंने कहा कि दोनों पक्ष एक **महत्त्वाकांक्षी मुक्त व्यापार समझौते** पर भी काम कर रहे हैं।

- Earlier, Mr. Netanyahu said Mr. Modi "did not flinch" and that under his leadership, India provided support to Israel in the challenging times over the recent past.
  इससे पहले, श्री **नेतन्याहू** ने कहा कि श्री मोदी "**डिगे नहीं**" और उनके नेतृत्व में भारत ने हाल के कठिन समय में इज़राइल को समर्थन दिया।
- "You stood for Israel.
  "आप इज़राइल के लिए खड़े रहे।
- You stood for the Jews.
  आप **यहूदियों** के लिए खड़े रहे।
- Thank you," said Mr. Netanyahu.
  धन्यवाद," श्री नेतन्याहू ने कहा।

Treaty on Chagos deal paused for holding discussions with U.S. govt., says U.K. Minister

GS II: IR

Sriram Lakshman
LONDON

A bill operationalising a U.K.-Mauritius treaty – which recognises the sovereignty of Mauritius over the Chagos Archipelago – is currently on hold in the British Parliament while London holds discussions with Washington. The Indian Ocean islands are home to Diego Garcia, which houses a joint U.K.-U.S. military base.

The treaty, signed in May 2025, would transfer sovereignty over the archipelago to Mauritius, while the U.K. would be given a 99-year lease for Diego Garcia and pay Mauritius an average annual amount of GBP 101 million.

"We will bring that [legislation] back to Parliament at the appropriate time. We are pausing for

Diego Garcia, the site of a joint U.K.-U.S. military base. REUTERS

discussions with our American counterparts," U.K. Foreign Office Minister Hamish Falconer said on Wednesday afternoon.

The treaty, negotiated over 11 rounds between Mauritius and the former Conservative U.K. government, has come into question after U.S. President Donald Trump, who had earlier backed the treaty, changed his position and publicly called for it to be reconsidered in recent weeks. As recently as last

week, Mr. Trump said Diego Garcia should not be given away and suggested it may be needed in the event of a U.S. strike on Iran.

"Nothing in the U.K.-Mauritius deal has changed since the U.S. administration approved it," Mr. Falconer said.

The U.K. government's objective was to ensure that the base in Diego Garcia was secure in the long-term, Mr. Falconer told the House of Commons.

When the Labour government took office, it found that the U.K.'s ability to maintain control of the base was under threat and therefore it was compelled to act, as per the Minister.

"Refusing to act could have exposed one of our most valuable military assets to China," he said, adding that the government had inherited a situation in which the operation of the base was under "immediate jeopardy".

Mr. Falconer's remarks came after an Urgent Question in Parliament from Reform UK leader Nigel Farage.

"There is no basis, historically, culturally, for Mauritius to have a claim on those islands, and the Maldives are upset for two reasons," Mr Farage said. The first reason was the decades-long stability in the

region, as per Mr. Farage.

"And what happens with this treaty, if it goes through, is you finish up with a turf war going on between India and China in the region, and that, indeed, has already started," he said.

Mr. Farage also claimed that the Maldives would, in a "few days" lodge a counter-claim over sovereignty over the Chagos Islands in the International Court of Justice.

Over the weekend, Mr. Farage posted a video on social media from the Maldives, claiming he had been denied entry to the Chagos Islands by the U.K. government.

Mr. Falconer reminded Mr. Farage on Wednesday that he would have been turned away had he attempted to film a video at any U.K. military base.

26F. Treaty on Chagos deal paused for holding discussions with U.S. govt., says U.K. Minister
चागोस समझौते पर संधि को अमेरिका सरकार के साथ चर्चा के लिए रोका गया, यू.के. मंत्री ने कहा

- A bill operationalising a U.K.-Mauritius treaty — which recognises the sovereignty of Mauritius over the **Chagos Archipelago** — is currently on hold in the **British Parliament** while London holds discussions with Washington.
  मॉरीशस की **चागोस द्वीपसमूह** पर संप्रभुता को मान्यता देने वाली **यू.के.-मॉरीशस संधि** को लागू करने वाला एक विधेयक फिलहाल **ब्रिटिश संसद** में रोक दिया गया है, जबकि लंदन वाशिंगटन के साथ चर्चा कर रहा है।
- The Indian Ocean islands are home to **Diego Garcia**, which houses a joint **U.K.-U.S. military base**.
  हिंद महासागर के ये द्वीप **डिएगो गार्सिया** का घर हैं, जहाँ एक संयुक्त **यू.के.-यू.एस. सैन्य अड्डा** स्थित है।
- The treaty, signed in **May 2025**, would transfer sovereignty over the archipelago to Mauritius, while the U.K. would be given a **99-year lease** for Diego Garcia and pay Mauritius an average

annual amount of **GBP 101 million**.

मई 2025 में हस्ताक्षरित यह संधि द्वीपसमूह की संप्रभुता मॉरीशस को सौंप देगी, जबकि यू.के. को डिएगो गार्सिया के लिए **99 वर्षों का पट्टा** मिलेगा और वह मॉरीशस को औसतन **GBP 101 मिलियन** वार्षिक भुगतान करेगा।

- The treaty, negotiated over **11 rounds** between Mauritius and the former Conservative U.K. government, has come into question after **U.S. President Donald Trump**, who had earlier backed the treaty, changed his position and publicly called for it to be reconsidered in recent weeks.

  मॉरीशस और पूर्व कंजरवेटिव यू.के. सरकार के बीच **11 दौर** की बातचीत के बाद तय हुई यह संधि, **अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप** के हाल के हफ्तों में रुख बदलने और सार्वजनिक रूप से पुनर्विचार की मांग करने के बाद सवालों के घेरे में आ गई है।

- "There is no basis, historically, culturally, for Mauritius to have a claim on those islands, and the **Maldives** are upset for two reasons," Mr Farage said.

  "ऐतिहासिक या सांस्कृतिक रूप से मॉरीशस का उन द्वीपों पर दावा करने का कोई आधार नहीं है, और **मालदीव** दो कारणों से नाराज़ हैं," श्री फ़ैराज ने कहा।

- The first reason was the decades-long stability in the region.

  पहला कारण दशकों से चली आ रही स्थिरता थी जिसमें

- **Maldives is about to loadge a complain in ICJ.**

EU seeks to cut Russia dependence; Hungary, Slovakia have other plans

Hungary and Slovakia remain heavily reliant on Russian oil, with reports arguing this dependence is a political choice rather than a necessity; as EU reduces Russian gas, oil imports, the stand-off shows the political and economic hurdles complicating the bloc's roadmap to energy independence

GS II: IR

NEWS ANALYSIS

Sambavi Parthasarathy

Ukraine is, again, under pressure from two neighbouring EU members – Hungary and Slovakia. While Hungary has threatened to block a €90-billion EU loan for the war-torn country, Slovakia has warned it would halt emergency electricity supplies. At the core of both tensions lies the Druzhba pipeline, one of the longest pipelines connecting Russia to various parts of Eastern and Central Europe.

The flows from the Druzhba pipeline were halted last month, with Ukraine reasoning that a Russian drone attack had damaged the infrastructure. However, Hungary and Slovakia allege that Ukraine is deliberately delaying the pipeline's resumption for political reasons.

But why are Hungary and Slovakia still heavily reliant on Russian oil via the Druzhba pipeline, especially when the EU has been trying to reduce its dependence on Russia?

Russia's invasion of Ukraine and the energy crisis that followed in Europe revealed the bloc's high levels of dependence on Russian fuels. In the Versailles Declaration of March 2022, EU leaders agreed to phase out dependence on Russian gas, oil and coal. They agreed to the REPowerEU plan to implement a variety of measures, including boosting renewable investments, reducing demand for gas and finding alterna-

The flows from the Druzhba pipeline were halted last month, with Ukraine reasoning that a Russian drone attack had damaged the infrastructure. FILE PHOTO

tive sources.

In the following months, however, exceptional temporary derogations (exemptions) were provided to Hungary, Slovakia, Czechia and Bulgaria, allowing them to import Russian oil. This was supposed to give landlocked states like Hungary and Slovakia additional time to reduce reliance on Russian energy.

Almost four years later, Hungary and Slovakia remain the only EU countries that are heavily reliant on Russian oil. But this reliance stems more from political and economic reasons.

Energy or politics?
A recent report by the Centre for the Study of Democracy (CSD) argued that Hungary's continued imports of Russian oil are a political choice and not a necessity. The report, titled 'Cutting the Chord', concluded, "Despite full access to alternative supply routes and refineries capable of processing non-

Russian crude, Hungary has deepened its dependence on Russian oil, turning a temporary EU exemption into a permanent loophole in the sanctions regime".

Data from the Centre for Research on Energy and Clean Air show that Russian crude accounted for 87% of Hungary and Slovakia's crude oil imports in 2024. This is much higher than in the pre-war years. This not only means that they failed to diversify, as they were supposed to under the exemption. Instead, the dependence has made Russia its largest supplier.

Hungarian PM Viktor Orban, ahead of a visit to Moscow in November last year, stated that the trip was intended to "ensure Hungary's energy supply is secured for the winter and the following year at an affordable price".

But Russia is not their only option to ensure supply security and affordable fuel prices.

Firstly, both Hungary

and Slovakia have alternative pipelines that transport non-Russian crude. . The Adria pipeline supplies non-Russian crude oil to Hungary directly and to Slovakia through an interconnection where the Adria feeds into the southern part of the Druzhba pipeline. This pipeline, operated by the state-owned Croatian company JANAF, has a transport capacity of 14.4 million tonnes per year. Reports state that this is more than enough to meet Slovakia and Hungary's domestic demand. Further, Hungary also has the option to revive the Odesa-Brody pipeline with increased investments to transport oil from global supplies via the Black Sea.

The alternatives are feasible too. The CSD noted that the MOL group, Hungary's largest oil company and one of the last major buyers of Russian crude in Europe, has already operated without Russian supply during disruptions to the Druzhba pipeline in 2019.

Secondly, Hungary claims that ending russian oil would lead to higher fuel prices. The CSD's report highlighted that Bulgaria, which terminated its derogation in 2024, transitioned away from Russian oil without price shocks. Moreover, Hungary's purchase of Russian oil at discounted prices did not translate into lower fuel prices for consumers.

This is not the first time that the supply via the Druzhba pipeline emerged as a bone of contention.

In August last year, when Russia and Ukraine stepped up attacks on each other's energy infrastructure, a Ukrainian strike on a facility had suspended supplies to Hungary and Slovakia.

Strategic divide
Infrastructure and economic reasons aside, Hungary and Slovakia's continued dependence on Russia stems from their cordial ties with Mr. Putin and their choices in pursuing them.

Only two months ago, in November, Mr. Orban defied the EU by promising the Russian President that energy supplies from Russia formed the basis of Hungary's energy supply and would remain so in the future. Previously, he had vetoed a €50-billion financial aid package that Ukraine had desperately needed in December 2023. Mr. Orban is also scaling up the Ukraine war as a part of his election campaign, claiming that his opponents would drag the country into the war in Ukraine.

Slovakia's Prime Minis-

ter Robert Fico, in October 2023, halted military aid to Ukraine and stated that the EU should change from being an arms supplier to becoming a peacemaker.

While Hungary and Slovakia remain coupled in Russian trade, the EU has slowly moved away from Russia.

The EU has managed to progressively phase out its dependence on Russian gas, oil, and coal imports to some extent. For instance, Russia was the largest supplier of petroleum oils to the EU in early 2021. As of Q3 2025, Russia's share fell to just 1%. Russia was replaced with other partners like the U.S. and Norway.

Russia accounted for 48% of the EU's imports of natural gas in the gaseous state in the pre-war period. This declined to 15% in Q3 of 2025. With an increasing share, Norway emerged as the bloc's largest supplier of natural gas in its gaseous state. However, Russia remained the bloc's second-largest supplier of liquefied natural gas even in Q3 2025, despite its share in imports decreasing to 15% in Q3 2025. This is also because LNG imports were not fully sanctioned by the EU in the same way as oil and coal. The plan to reduce its dependence on liquefied gas was legally updated in its roadmap only last year.

The Druzhba pipeline is only the tip of the iceberg. The latest tensions reflect a much larger issue – the political and economic hurdles in the EU's roadmap to secure energy independence from Russia.

26F. EU seeks to cut Russia dependence; Hungary, Slovakia have other plans
ईयू रूस पर निर्भरता कम करना चाहता है; हंगरी और स्लोवाकिया की अलग योजनाएँ हैं

- Hungary and Slovakia remain heavily reliant on **Russian oil**, with reports arguing this dependence is a **political choice** rather than a necessity; as the EU reduces Russian gas, oil imports, the stand-off shows the **political and economic hurdles** complicating the bloc's roadmap to energy independence.

  हंगरी और स्लोवाकिया **रूसी तेल** पर भारी रूप से निर्भर बने हुए हैं, और रिपोर्टों का तर्क है कि यह निर्भरता आवश्यकता से अधिक एक **राजनीतिक विकल्प** है; जैसे-जैसे ईयू रूसी गैस और तेल आयात घटा रहा है, यह टकराव ऊर्जा स्वतंत्रता की दिशा में ब्लॉक के रोडमैप को जटिल बनाने वाली **राजनीतिक और आर्थिक बाधाओं** को दर्शाता है।

- Ukraine is, again, under pressure from two neighbouring EU members — **Hungary and Slovakia**.

  यूक्रेन एक बार फिर दो पड़ोसी ईयू देशों — **हंगरी और स्लोवाकिया** — के दबाव में है।

- While Hungary has threatened to block a **€90-billion EU loan** for the war-torn country, Slovakia has warned it would halt **emergency electricity supplies**.

  जहाँ हंगरी ने युद्धग्रस्त देश के लिए **€90 अरब के ईयू ऋण** को रोकने की धमकी दी है, वहीं स्लोवाकिया ने **आपातकालीन बिजली आपूर्ति** रोकने की चेतावनी दी है।

- At the core of both tensions lies the **Druzhba pipeline**, one of the longest pipelines connecting Russia to various parts of Eastern and Central Europe.

  दोनों तनावों के केंद्र में **द्रुज़बा पाइपलाइन** है, जो रूस को पूर्वी और मध्य यूरोप के कई हिस्सों से जोड़ने वाली सबसे लंबी पाइपलाइनों में से एक है।

- The flows from the Druzhba pipeline were halted last month, with Ukraine reasoning that a **Russian drone attack** had damaged the infrastructure.

  पिछले महीने द्रुज़बा पाइपलाइन से आपूर्ति रोक दी गई थी, और यूक्रेन ने तर्क दिया कि **रूसी ड्रोन हमले** से बुनियादी ढांचा क्षतिग्रस्त हो गया था।

- However, Hungary and Slovakia allege that Ukraine is deliberately delaying the pipeline's resumption for **political reasons**.

  हालाँकि, हंगरी और स्लोवाकिया का आरोप है कि यूक्रेन **राजनीतिक कारणों** से पाइपलाइन की बहाली में जानबूझकर देरी कर रहा है।

- But why are Hungary and Slovakia still heavily reliant on Russian oil via the Druzhba pipeline, especially when the EU has been trying to reduce its dependence on Russia?

  लेकिन जब ईयू रूस पर अपनी निर्भरता कम करने की कोशिश कर रहा है, तब भी हंगरी और स्लोवाकिया द्रुज़बा पाइपलाइन के माध्यम से रूसी तेल पर इतने अधिक निर्भर क्यों हैं?

- Russia's invasion of Ukraine and the **energy crisis** that followed in Europe revealed the bloc's high levels of dependence on Russian fuels.

  यूक्रेन पर रूस के आक्रमण और उसके बाद यूरोप में उत्पन्न **ऊर्जा संकट** ने रूसी ईंधनों पर ब्लॉक की उच्च निर्भरता को उजागर किया।

- In the **Versailles Declaration of March 2022**, EU leaders agreed to phase out dependence on Russian gas, oil and coal.

  मार्च 2022 की वर्साय घोषणा में, ईयू नेताओं ने रूसी गैस, तेल और कोयले पर निर्भरता को चरणबद्ध तरीके से समाप्त करने पर सहमति जताई।

- They agreed to the **REPowerEU plan** to implement a variety of measures, including boosting renewable investments, reducing demand for gas and finding alternative sources.

  उन्होंने **REPowerEU योजना** पर सहमति दी, जिसमें नवीकरणीय निवेश बढ़ाना, गैस की मांग घटाना और वैकल्पिक स्रोत ढूँढना शामिल था।

- In the following months, however, exceptional temporary **derogations (exemptions)** were provided to Hungary, Slovakia, Czechia and Bulgaria, allowing them to import Russian oil.

  हालाँकि इसके बाद के महीनों में हंगरी, स्लोवाकिया, चेकिया और बुल्गारिया को असाधारण अस्थायी **छूट (डेरोगेशन)** दी गई, जिससे वे रूसी तेल आयात कर सकें।

- This was supposed to give landlocked states like Hungary and Slovakia additional time to reduce reliance on Russian energy.

  इसका उद्देश्य हंगरी और स्लोवाकिया जैसे स्थलरुद्ध देशों को रूसी ऊर्जा पर निर्भरता कम करने के लिए अतिरिक्त समय देना था।

- Almost four years later, Hungary and Slovakia remain the only EU countries that are heavily reliant on Russian oil.

  लगभग चार साल बाद भी हंगरी और स्लोवाकिया ही ऐसे ईयू देश बने हुए हैं जो रूसी तेल पर अत्यधिक निर्भर हैं।

- But this reliance stems more from **political and economic reasons**.
  लेकिन यह निर्भरता मुख्यतः **राजनीतिक और आर्थिक कारणों** से उपजी है।

Energy or politics?
ऊर्जा या राजनीति?

- A recent report by the **Centre for the Study of Democracy (CSD)** argued that Hungary's continued imports of Russian oil are a political choice and not a necessity.
  सेंटर फॉर द स्टडी ऑफ डेमोक्रेसी (CSD) की एक हालिया रिपोर्ट ने तर्क दिया कि हंगरी द्वारा रूसी तेल का निरंतर आयात एक राजनीतिक विकल्प है, न कि आवश्यकता।

- The report, titled **'Cutting the Chord'**, concluded, "Despite full access to alternative supply routes and refineries capable of processing non-Russian crude, Hungary has deepened its dependence on Russian oil."
  'कटिंग द कॉर्ड' शीर्षक वाली रिपोर्ट ने निष्कर्ष निकाला, "गैर-रूसी कच्चे तेल को संसाधित करने में सक्षम वैकल्पिक आपूर्ति मार्गों और रिफाइनरियों तक पूर्ण पहुँच के बावजूद, हंगरी ने रूसी तेल पर अपनी निर्भरता और बढ़ा दी है।"

- Data from the **Centre for Research on Energy and Clean Air** show that Russian crude accounted for **87%** of Hungary and Slovakia's crude oil imports in 2024.
  सेंटर फॉर रिसर्च ऑन एनर्जी एंड क्लीन एयर के आँकड़ों के अनुसार, 2024 में हंगरी और स्लोवाकिया के कच्चे तेल आयात का **87%** रूसी कच्चे तेल से आया।

- Hungarian PM **Viktor Orban**, ahead of a visit to Moscow in November last year, stated that the trip was intended to "ensure Hungary's energy supply is secured for the winter and the following year at an **affordable price**".
  हंगरी के प्रधानमंत्री **विक्टर ऑर्बन** ने पिछले वर्ष नवंबर में मॉस्को यात्रा से पहले कहा था कि यह यात्रा "सर्दियों और अगले वर्ष के लिए हंगरी की ऊर्जा आपूर्ति को **सस्ती कीमत** पर सुरक्षित करने" के उद्देश्य से थी।

- But Russia is not their only option to ensure supply security and affordable fuel prices.
  लेकिन आपूर्ति सुरक्षा और सस्ती ईंधन कीमतें सुनिश्चित करने के लिए रूस ही उनका एकमात्र विकल्प नहीं है।

- Firstly, both Hungary and Slovakia have **alternative pipelines** that transport non-Russian crude.
  पहला, हंगरी और स्लोवाकिया दोनों के पास गैर-रूसी कच्चे तेल को ले जाने वाली **वैकल्पिक पाइपलाइनें** हैं।

- The **Adria pipeline** supplies non-Russian crude oil to Hungary directly and to Slovakia through an interconnection where the Adria feeds into the southern part of the Druzhba pipeline.
  एड्रिया पाइपलाइन सीधे हंगरी को और एक इंटरकनेक्शन के माध्यम से स्लोवाकिया को गैर-रूसी कच्चा तेल आपूर्ति करती है, जहाँ एड्रिया द्रुज़्बा पाइपलाइन के दक्षिणी हिस्से में मिलती है।

- Secondly, Hungary claims that ending Russian oil would lead to **higher fuel prices**.
  दूसरा, हंगरी का दावा है कि रूसी तेल समाप्त करने से **ईंधन की कीमतें बढ़ेंगी**।

- The CSD's report highlighted that **Bulgaria**, which terminated its derogation in 2024, transitioned away from Russian oil without **price shocks**.
  CSD की रिपोर्ट ने बताया कि **बुल्गारिया**, जिसने 2024 में अपनी छूट समाप्त की, रूसी तेल से बिना **मूल्य झटकों** के बाहर निकल आया।

Strategic divide
रणनीतिक विभाजन

- Infrastructure and economic reasons aside, Hungary and Slovakia's continued dependence on Russia stems from their **cordial ties with Mr. Putin**.
  बुनियादी ढाँचे और आर्थिक कारणों से अलग, हंगरी और स्लोवाकिया की रूस पर निरंतर निर्भरता उनके **पुतिन के साथ सौहार्दपूर्ण संबंधों** से उपजती है।

- While Hungary and Slovakia remain coupled in Russian trade, the **EU has slowly moved away from Russia**.
  जहाँ हंगरी और स्लोवाकिया रूसी व्यापार से जुड़े हुए हैं, वहीं **ईयू धीरे-धीरे रूस से दूर हुआ है**।

- The Druzhba pipeline is only the **tip of the iceberg**.
  द्रुज़्बा पाइपलाइन केवल **हिमखंड का सिरा** है।

- The latest tensions reflect a much larger issue — the **political and economic hurdles** in the EU's roadmap to secure **energy independence from Russia**.
  नवीनतम तनाव एक कहीं बड़े मुद्दे को दर्शाते हैं — रूस से **ऊर्जा स्वतंत्रता** हासिल करने के ईयू के रोडमैप में मौजूद **राजनीतिक और आर्थिक बाधाएँ**।

GS Paper III: Economy,	
TOPICS COVERED	**26 February 2026**
26F	**U.S. slaps 126% levy on Indian solar imports**
	अमेरिका ने भारतीय सौर आयात पर 126% शुल्क लगाया

U.S. slaps 126% levy on Indian solar imports

Tariffs were slapped on India, Indonesia and Laos following an ongoing probe; In FY23, India exported $1 billion worth photovoltaics to the U.S.

GS III: Economy

Jacob Koshy
NEW DELHI

The Trump administration slapped 126% levy on solar cell imports from India following a 'preliminary' determination that subsidised exports from Indian firms were hurting the competitiveness of U.S. solar firms and contravened World Trade Organization agreements on subsidies.

The tariffs were collectively imposed on February 24 on India, Indonesia and Laos following a probe by the U.S. Department of Commerce on a complaint by the Alliance for American Solar Manufacturing and Trade, a coalition of leading U.S. solar firms.

Indian firms under the U.S. Commerce Ministry's radar included Mundra Solar Energy Pvt. Ltd. and Mundra Solar PV Ltd. – both part of Adani Group – Premier Energies Photovoltaic Private Ltd., Waaree Energies Ltd. and Waaree Solar Americas. The department set initial rates of 86%-143% for Indonesia and 81% for Laos.

Framework deal
This levy comes after New Delhi and Washington agreed on a framework for the India-U.S. trade deal to cut tariffs on India's exports to 18% from 50% earlier. After this, the U.S. Supreme Court quashed Trump tariffs, calling them unconstitutional. President Trump then came up with a new 15% baseline duty on several imports.

On February 24, per a notice on the U.S. Commerce Ministry site, it was Adani firms that were specifically named with a duty rates of 125.87% though these rates, as of now, apply to all Indian exporters.

May be impacted
The Hindu didn't receive comments from the firms as of press time. However, given the U.S. is the biggest export destination for solar parts, Indian exports could likely be 'impacted.' The implications of the order were still being studied, a spokesperson for Solex Energy Ltd., a Surat-based solar firm told *The Hindu*. "There will be an impact as the U.S. is a major export destination. How much... still needs to be determined. Some months sees a surge in exports and less in others, so it could well be, we won't see an impact beyond the immediate quarter," the person explained.

Currently duties of up to 40% are imposed on such export of solar cells.

These duties are additional to existing tariffs. The final determination in the CVD investigations are now scheduled to be issued on July 6, 2026. The U.S. Commerce Department is conducting concurrent anti-dumping duty probe of solar cells from India, Indonesia and Laos.

According to data cited by U.S. authorities, Indian firms in 2022 exported 232 mega watts (MW) worth of solar cells which rose to 2049 MW in 2023 and 2297 MW in 2024.

In 2022-23 $1,000 million worth photovoltaics were exported and that rose to $1,939.92 million in 2023-24. Exports stood at $954 million in April-December 2025.

Dark days: Staff inspecting solar panels on assembly lines at an Adani Group factory in Gujarat's port city of Mundra. AFP FILE

26F. U.S. slaps 126% levy on Indian solar imports
अमेरिका ने भारतीय सौर आयात पर 126% शुल्क लगाया

- Tariffs were slapped on **India, Indonesia and Laos** following an ongoing probe; In **FY23**, India exported **$1 billion worth photovoltaics** to the U.S.
  चल रही जांच के बाद **भारत, इंडोनेशिया और लाओस** पर शुल्क लगाया गया; **वित्त वर्ष 23** में भारत ने अमेरिका को **1 अरब डॉलर** के फोटोवोल्टाइक निर्यात किए।

- The **Trump administration** slapped a 126% **levy** on **solar cell imports from India** following a '**preliminary**' determination that **subsidised exports** from Indian firms were hurting the competitiveness of **U.S. solar firms** and contravened **World Trade Organization** agreements on subsidies.
  ट्रंप प्रशासन ने भारत से **सोलर सेल आयात** पर **126% शुल्क** लगाया, एक '**प्रारंभिक**' निष्कर्ष के बाद कि भारतीय कंपनियों से होने वाले **सब्सिडी युक्त निर्यात अमेरिकी सौर कंपनियों** की प्रतिस्पर्धात्मकता को नुकसान पहुँचा रहे थे और **विश्व व्यापार संगठन** के सब्सिडी संबंधी समझौतों का उल्लंघन कर रहे थे।

- The tariffs were collectively imposed on **February 24** on **India, Indonesia and Laos** following a probe by the **U.S. Department of Commerce** on a complaint by the **Alliance for American Solar Manufacturing and Trade**, a coalition of leading U.S. solar firms.

24 फरवरी को **भारत, इंडोनेशिया और लाओस** पर सामूहिक रूप से शुल्क लगाए गए, यह कार्रवाई **अमेरिकी वाणिज्य विभाग** द्वारा **एलायंस फॉर अमेरिकन सोलर मैन्युफैक्चरिंग एंड ट्रेड** की शिकायत पर की गई जांच के बाद हुई, जो प्रमुख अमेरिकी सौर कंपनियों का गठबंधन है।

- **The Hindu** didn't receive comments from the firms as of press time.
  प्रेस समय तक **द हिंदू** को कंपनियों से कोई टिप्पणी नहीं मिली।

- However, given the U.S. is the **biggest export destination for solar parts**, Indian exports could likely be '**impacted**.'
  हालांकि, चूंकि अमेरिका **सौर उपकरणों के लिए सबसे बड़ा निर्यात गंतव्य** है, इसलिए भारतीय निर्यात पर '**प्रभाव**' पड़ सकता है।

- The **U.S. The Commerce Department** is conducting a concurrent **anti-dumping duty probe** of solar cells from **India, Indonesia and Laos**.
  अमेरिकी वाणिज्य विभाग भारत, इंडोनेशिया और लाओस से सोलर सेल पर समानांतर **एंटी-डंपिंग शुल्क जांच** कर रहा है।

- According to data cited by **U.S. authorities**, Indian firms in **2022** exported **232 mega watts (MW)** worth of solar cells which rose to **2049 MW in 2023** and **2297 MW in 2024**.
  अमेरिकी अधिकारियों द्वारा उद्धृत आंकड़ों के अनुसार, भारतीय कंपनियों ने **2022** में **232 मेगावाट (MW)** सोलर सेल निर्यात किए, जो **2023 में 2049 MW** और **2024 में 2297 MW** हो गए।

- In **2022-23 $1,000 million** worth of photovoltaics were exported and that rose to **$1,939.92 million in 2023-24**.
  2022-23 में **1,000 मिलियन डॉलर** के फोटोवोल्टाइक निर्यात किए गए, जो **2023-24** में बढ़कर **1,939.92 मिलियन डॉलर** हो गए।

- Exports stood at **$954 million** in **April-December 2025**.
  अप्रैल-दिसंबर 2025 में निर्यात **954 मिलियन डॉलर** रहा।

GS Paper III: S&T,	
TOPICS COVERED	**26 February 2026**
26F Loose connection made satellite miss orbit: panel ढीले कनेक्शन के कारण उपग्रह कक्षा में नहीं पहुँच सका: समिति	
26F Decolonising and de-Nobelising science विज्ञान का उपनिवेश-मुक्तिकरण और नोबेल-केंद्रिकता का अंत	
26F How are Indian firms training LLMs? भारतीय कंपनियाँ LLMs को कैसे प्रशिक्षित कर रही हैं?	

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Loose connection made satellite miss orbit: panel

The apex committee says the signal meant to activate a key valve in the engine's oxidiser line never reached it; this valve is crucial for firing the engine to raise the orbit of NVS-02

GS III: S&T

Jacob Koshy
NEW DELHI

After nearly a year's delay, the Indian Space Research Organisation (ISRO) made public the report of a committee constituted to analyse why the NVS-02 satellite, which was launched aboard a GSLV rocket on January 29 last year, could not be placed in its intended orbit.

The apex committee, as it is called, concluded that the main reason for what happened was that the signal meant to activate a key valve in the engine's oxidiser line never reached it. This valve is crucial for firing the engine to raise the spacecraft's orbit.

Faulty connection
The committee said the most likely explanation was that at least one connection in the electrical connector – in both the primary and back-up lines

Off track: The NVS-02 navigation satellite aboard the launch vehicle GSLV-F15 in Sriharikota on January 29, 2025. ANI

– came loose or failed, preventing the signal from getting through.

NVS-02, the second spacecraft in the NVS series, was placed successfully into an 'elliptical transfer' orbit on January 29, 2025 at 00:53 UT but its subsequent transfer to a circular orbit was unsuccessful. This was also a special occasion being the 100th launch from the Sriharikota launchpad. The spacecraft was separated from the launch vehicle (GSLVF15) following which a series of autonomous activities on the satellite were carried out, including deploying the solar panel and stabilising the orientation for power generation.

The NVS-02 was to be the second satellite in the NVS series, and part of India's Navigation with Indian Constellation (NavIC).

The committee, an ISRO statement said, gave a set of recommendations to

"enhance" the redundancy and reliability of pyro system operations for future missions. These were "successfully implemented in CMS-03 spacecraft launched on November 2, 2025 by LVM-3 M5, and the pyro systems performed satisfactorily placing the satellite in the intended orbit."

The CMS-03, or GSAT-7R, is an indigenously designed and developed satellite, weighing approximately 4,400 kg – India's heaviest communication satellite – and is critical to the Navy's space-based communications and maritime domain awareness.

The Hindu reported this week that a committee that includes K. Vijayraghavan, former Principal Scientific Adviser, and S. Somanath, former Chairman, ISRO, will probe "systemic issues" underlying the successive failures of ISRO's Polar Satellite Launch Vehicle (PSLV).

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and stabilising the orientation for power generation.

अंतरिक्ष यान को प्रक्षेपण यान (GSLV-F15) से अलग किया गया, जिसके बाद उपग्रह पर स्वायत्त गतिविधियों की एक श्रृंखला पूरी की गई, जिसमें सौर पैनल का विस्तार और ऊर्जा उत्पादन के लिए अभिविन्यास को स्थिर करना शामिल था।

- The **NVS-02** was to be the second satellite in the **NVS series**, and part of India's **Navigation with Indian Constellation (NavIC)**.

  NVS-02, **NVS श्रृंखला** का दूसरा उपग्रह होना था और भारत की **नेविगेशन विद इंडियन कॉन्स्टेलेशन (NavIC)** का हिस्सा था।

- The committee, an **ISRO statement** said, gave a set of recommendations to "**enhance**" the redundancy and reliability of **pyro system operations** for future missions.

  इसरो के एक बयान में कहा गया कि समिति ने भविष्य के अभियानों के लिए **पायरो सिस्टम संचालन** की पुनरावृत्ति और विश्वसनीयता को "**बढ़ाने**" हेतु सिफारिशों का एक समूह दिया।

- These were "**successfully implemented** in **CMS-03 spacecraft** launched on **November 2, 2025** by **LVM-3 M5**, and the pyro systems performed satisfactorily placing the satellite in the intended orbit."

  इन्हें **LVM-3 M5** द्वारा **2 नवंबर 2025** को प्रक्षेपित **CMS-03 अंतरिक्ष यान** में "**सफलतापूर्वक लागू किया गया**", और पायरो सिस्टम ने संतोषजनक प्रदर्शन करते हुए उपग्रह को उसकी निर्धारित कक्षा में स्थापित किया।

- The **CMS-03**, or **GSAT-7R**, is an indigenously designed and developed satellite, weighing approximately **4,400 kg** — India's **heaviest communication satellite** — and is critical to the **Navy's space-based communications and maritime domain awareness**.

  CMS-03, या **GSAT-7R**, स्वदेशी रूप से डिजाइन और विकसित किया गया उपग्रह है, जिसका वजन लगभग **4,400 किलोग्राम** है — भारत का **सबसे भारी संचार उपग्रह** — और यह **नौसेना की अंतरिक्ष-आधारित संचार प्रणाली और समुद्री क्षेत्र जागरूकता** के लिए अत्यंत महत्वपूर्ण है।

- **The Hindu** reported this week that a committee that includes **K. Vijayraghavan**, former Principal Scientific Adviser, and **S. Somanath**, former Chairman, ISRO, will probe "**systemic issues**" underlying the successive failures of ISRO's **Polar Satellite Launch Vehicle (PSLV)**.

  द हिंदू ने इस सप्ताह रिपोर्ट किया कि एक समिति, जिसमें पूर्व प्रधान वैज्ञानिक सलाहकार **के. विजय राघवन** और **इसरो** के पूर्व अध्यक्ष **एस. सोमनाथ** शामिल हैं, इसरो के **पोलर सैटेलाइट लॉन्च व्हीकल (PSLV)** की लगातार विफलताओं के पीछे निहित "**प्रणालीगत मुद्दों**" की जाँच करेगी।

Decolonising and de-Nobelising science

GS III: S&T

MQB

Vasudevan Mukunth

Every February 28, India celebrates National Science Day to commemorate C.V. Raman's announcement of the Raman effect in 1928, a discovery that won him the Nobel Prize in Physics in 1930. Such national rituals are said to be just acts of remembrance, but they are not; they also legitimise what the state says counts as science.

Three keywords

A new book about keywords offers a useful way to read this ritual itself as a word with a political life. *Decolonial Keywords*, edited by anthropologists Renny Thomas and Sasanka Perera, argues that some everyday terms can be treated as archives of history and power and that their definitions are often a political rather than a linguistic achievement. 'National Science Day' and 'Nobel Prize' can also be treated as such keywords: ones that organise India's public imagination of science. There is a reason we mark a date that can be narrated with a "world-class discovery" rather than a date on which, say, a public hospital improved maternal outcomes.

If decolonising science is to mean anything in India, it must include the need to de-Nobelise how the state understands and valorises science. Specifically, it must stop treating external prestige as the main proof of scientific worth and expand the cast of legitimate scientific actors and sites. Three keywords from the book – 'jugaad', 'poromboke', and 'laboratory' – help show how this recognition works through institutional infrastructures.

Researcher and author Pankaj Sekhsaria's essay on 'jugaad' begins by using the word's instability – it can plausibly be read as a virtue, a compromise, or corruption – to explain how it creates space for powerful actors to amplify the meanings that suit them and discard those that don't. He also shows how the word has been absorbed into managerial talk as a laudable synonym for frugal innovation while other

National Science Day should not just reproduce a story about genius and external validation. It should become an annual day of discussion of what counts as science, including the work of field staff, nurses, and others

resonances remain harder to hear or take seriously.

This is how innovation tends to behave in the public theatre of National Science Day. It becomes a stage-managed synonym for ingenuity that the stage packages for elite consumption, preferably in English, preferably legible to global management culture, and preferably compatible with award narratives. Prof. Sekhsaria ends with a question that cuts through this template: what words do farmers, fishers, and craftspeople use to describe their own inventiveness? Answering this question forces our attention away from the elite markers of prestige and towards the vocabularies that people use to produce and name practical knowledge.

Professor Banu Subramaniam's chapter on 'poromboke' makes a parallel argument about classification, anchored in Tamil political ecology. The state often glosses over 'poromboke' as wasteland, or land that does not generate revenue for the state. Her point is that the revenue category has always been a social category in disguise because the state's accounting decides which landscapes count as productive and so which people's uses count as legitimate. Historically, the term also referred to land set aside for public use, whereas in contemporary practice it covers a range of commons that remain essential for marginalised communities precisely because they are not private property.

She also remarks on how the word has become a pejorative in common Tamil speech, meaning 'good for nothing'. When the state declares a landscape to be disposable, the people who depend on it become easier to declare disposable as well. In the same way, some kinds of inquiry are said to be 'national science' while others of less prestige are rendered 'routine work' or 'local practice'. This is why what we celebrate on National Science Day is not value-neutral but a way to sort the labour of science.

Dr. Thomas focuses on 'laboratory' and his analysis begins by distinguishing between elite 'mega labs' and the 'minor labs' ubiquitous in towns and villages, especially diagnostic centres ('pathology labs'). Raman's own story is inseparable from laboratory infrastructure – he announced the Raman effect while working at the Indian Association for the Cultivation of Science in Calcutta – but Dr. Thomas's point is that this recognisability is something we manufacture. When schools teach the laboratory as the place where great people work in isolation, the everyday diagnostic lab, where most Indians actually encounter scientific authority, becomes conceptually minor even though it is central to society.

And once we treat a 'lab' as a social institution, its politics become part of its definition. Dr. Thomas has found in his own work that lab-mates do science but also share rituals, gossip, and celebrate occasions together, and is often a space where people reproduce hierarchies of caste and gender. But in other settings, it is also a place where the authority of 'science' is routinely performed before the public.

What counts as science

The keywords thus clarify what a de-Nobelised imagination of science, paralleling the decolonisation of science, would require. It would force India to ask how Indians produce the thing called 'recognition' – through discoveries and papers as much as by institutions that sort labour into celebrated and hidden.

National Science Day, then, should not simply reproduce a Nobel-shaped story about genius and external validation. It should become an annual day of discussion of what counts as science, including the work of technicians, field staff, nurses, lab attendants, data collectors, and others whose labour is essential to make new knowledge but is rarely commemorated.

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26F. Decolonising and de-Nobelising science
विज्ञान का उपनिवेश-मुक्तिकरण और नोबेल-केंद्रिकता का अंत

- Every **February 28**, India celebrates **National Science Day** to commemorate **C.V. Raman's** announcement of the **Raman effect** in 1928, a discovery that won him the **Nobel Prize in Physics in 1930**.

  हर **28 फरवरी**, भारत **राष्ट्रीय विज्ञान दिवस** मनाता है, जो **सी.वी. रमन** द्वारा 1928 में **रमन प्रभाव** की घोषणा की स्मृति में है, जिसके लिए उन्हें **1930 में भौतिकी का नोबेल पुरस्कार** मिला।

- 'National Science Day' and 'Nobel Prize' organise India's public imagination of science.
  'राष्ट्रीय विज्ञान दिवस' और 'नोबेल पुरस्कार' भारत की विज्ञान संबंधी सार्वजनिक कल्पना को संगठित करते हैं।

- We mark a date narrated with a "world-class discovery" rather than one where a public hospital improved maternal outcomes.
  हम उस तिथि को चिन्हित करते हैं जिसे "विश्वस्तरीय खोज" के रूप में बताया जा सके, न कि उस दिन को जब किसी सार्वजनिक अस्पताल ने मातृ परिणामों में सुधार किया।

- Decolonising science must include the need to de-Nobelise how the state valorises science.
  विज्ञान के उपनिवेशमुक्तिकरण में यह शामिल होना चाहिए कि राज्य विज्ञान को कैसे नोबेल-केंद्रित दृष्टि से देखता है, इसे बदला जाए।

- The state must stop treating external prestige as proof of scientific worth and expand legitimate scientific actors and sites.
  राज्य को बाहरी प्रतिष्ठा को वैज्ञानिक मूल्य का प्रमाण मानना बंद करना चाहिए और वैध वैज्ञानिक कर्ताओं व स्थलों का विस्तार करना चाहिए।

- The word has entered managerial talk as a synonym for frugal innovation.
  यह शब्द प्रबंधकीय भाषा में मितव्ययी नवाचार का पर्याय बन गया है।

- On National Science Day, innovation becomes a packaged synonym for ingenuity, tailored for elite and global management culture.
  राष्ट्रीय विज्ञान दिवस पर नवाचार को चतुराई के रूप में पैकेज किया जाता है, जो अभिजात और वैश्विक प्रबंधन संस्कृति के अनुरूप हो।

- Sekhsaria asks what words farmers, fishers and craftspeople use for their inventiveness.
  सेखसरिया पूछते हैं कि किसान, मछुआरे और कारीगर अपनी सृजनात्मकता के लिए कौन से शब्द प्रयोग करते हैं।

- This shifts attention from elite prestige markers to practical knowledge vocabularies.
  यह ध्यान को अभिजात प्रतिष्ठा संकेतकों से हटाकर व्यावहारिक ज्ञान की शब्दावली की ओर ले जाता है।

- The state glosses 'poromboke' as wasteland, or land not generating revenue.
  राज्य 'पोरोम्बोके' को बंजर भूमि या राजस्व न देने वाली भूमि के रूप में परिभाषित करता है।

- She also remarks on how the word has become a pejorative in common Tamil speech, meaning 'good for nothing'.
  वह यह भी बताती हैं कि यह शब्द सामान्य तमिल भाषा में नकारात्मक अर्थ में प्रयोग होने लगा है, जिसका अर्थ 'किसी काम का नहीं' होता है।

- When the state declares a landscape to be disposable, the people who depend on it become easier to declare disposable as well.
  जब राज्य किसी भू-दृश्य को त्याज्य घोषित करता है, तो उस पर निर्भर लोगों को भी त्याज्य घोषित करना आसान हो जाता है।

- In the same way, some kinds of inquiry are called 'national science' while others are rendered 'routine work' or 'local practice'.
  इसी प्रकार कुछ प्रकार की जाँच को 'राष्ट्रीय विज्ञान' कहा जाता है जबकि अन्य को 'सामान्य कार्य' या 'स्थानीय अभ्यास' बना दिया जाता है।

- Raman's story is inseparable from laboratory infrastructure; he announced the Raman effect at the Indian Association for the Cultivation of Science in Calcutta.
  रमन की कहानी प्रयोगशाला संरचना से जुड़ी है; उन्होंने कलकत्ता के इंडियन एसोसिएशन फॉर द कल्टिवेशन ऑफ साइंस में रमन प्रभाव की घोषणा की थी।

- India must ask how recognition is produced through discoveries, papers, and institutions that sort labour into celebrated and hidden.
  भारत को पूछना चाहिए कि मान्यता खोजों, शोधपत्रों और उन संस्थानों के माध्यम से कैसे बनती है जो श्रम को प्रमुख और छिपे रूप में बाँटते हैं।

- National Science Day should not reproduce a Nobel-shaped story of genius and external validation.
  राष्ट्रीय विज्ञान दिवस को प्रतिभा और बाहरी मान्यता की नोबेल-आधारित कहानी को दोहराना नहीं चाहिए।

- It should become a day to discuss what counts as science, including work of technicians, field staff, nurses, lab attendants, and data collectors.
  इसे ऐसा दिन बनना चाहिए जब यह चर्चा हो कि विज्ञान क्या है, जिसमें तकनीशियन, फील्ड स्टाफ, नर्स, लैब सहायक और डेटा संग्राहकों का कार्य भी शामिल हो।

- Their labour is essential to produce new **knowledge** but is rarely commemorated.
उनका श्रम नए **ज्ञान** के निर्माण के लिए आवश्यक है, फिर भी शायद ही कभी उसका स्मरण किया जाता है।

How are Indian firms training LLMs?

Why is training a Large Language Model on Indian soil with Indian capital a challenge? How has the IndiaAI Mission subsidised efforts to conduct training in India? Why is a Mixture of Experts (MoE) architecture inexpensive than other comparable models?

GS III: S&T | MQB

EXPLAINER

Aroon Deep

The story so far:

At the AI Impact Summit, the Bengaluru-based startup Sarvam AI released two Large Language Models (LLMs), which are the foundation for AI systems that power services like Google's Gemini and OpenAI's ChatGPT. The two models were trained on 35 billion and 105 billion parameters respectively, and were less power- and compute-intensive than comparable models, while demonstrating improvements over other models in Indian languages, Pratyush Kumar, a Sarvam co-founder said.

How are LLMs trained?
LLMs are trained and operated on clusters of Graphics Processing Units (GPUs). The combined cost of the GPUs and the electricity needed to run them long enough to train a model, run into millions of dollars. The grist for this mill is data, largely scraped from the Internet, where English, European languages and East Asian languages like Korean and Japanese are more richly represented than Indian languages.

This creates a twofold challenge for training an LLM on Indian soil with Indian capital: for one thing, with scarce data sources, many LLMs either perform worse when operating on Indian languages, or burn more "tokens" on inference to translate sentences into English (and translating responses back) to perform better. Since machine translation has improved dramatically for Indian languages, this remains the gold standard for many LLMs. Secondly, since capital is also scarce, efforts to train an LLM by Indian firms targeting Indian users can be challenging, especially if there is no immediate business use case for doing so.

Using translations as a fulcrum can be a challenge for developers who want to leverage local LLMs – like Sarvam's 35 billion parameter model, which was shown off in a demo during the summit's research symposium working on a feature phone – where suboptimal performance in Indian languages can impact adoption and quality of performance.

Has there been government support?
The IndiaAI Mission has subsidised efforts to conduct training in India, by commissioning over 36,000 GPUs in data centres operated by Indian firms like Yotta, and allowing researchers and startups to run training and inference workloads at a relatively nominal fee. The government gave Sarvam access to 4,096 GPUs from its common compute cluster, and the subsidy so far is estimated at almost ₹100 crore. The "bill of materials" for this cluster is ₹246 crore, though these GPUs can probably be continued to be used by others.

The Ministry of Electronics and Information Technology has encouraged domestic LLM development for many reasons. The main one is a belief that foreign-developed LLMs can't possibly find the capabilities or the business case to develop the capacity to work well with Indian languages. Additionally, encouraging talent that can train LLMs has been seen as important to foster the Indian AI ecosystem.

As such, Sarvam's announcement of its two models is a significant development in India's own quest to develop a powerful and relatively inexpensive LLM. When China's DeepSeek developed its R1

New innovations: Prime Minister Narendra Modi with Sarvam co-founder Pratyush Kumar at the AI Impact Summit, at Bharat Mandapam, in New Delhi on February 19. PTI

LLM, the entire AI industry quickly adopted its techniques, as it saved on cost for training and inference without compromising output quality. The government has sought to spark a similar cost advantage.

Mr. Kumar of Sarvam said that the LLM was trained "from scratch," and that the model would be made open source. However, while it has been made available on an app named Indus, it is not available on platforms like Hugging Face, making it difficult for outside experts to scrutinise the claims the firm has made.

What is the MoE architecture?
A key breakthrough for AI models seeking to function locally was the Mixture of Experts (MoE) architecture. When the first LLMs trained on hundreds of billions or even over a trillion parameters were launched, inference was typically run by "activating" all parameters, making queries expensive. But an MoE model only activates a fraction of the overall parameters of a model, making it run faster and also consume a lower level of computing resources.

Even 105 billion parameters, Sarvam acknowledges, "is significantly smaller than the frontier models powering global consumer chat applications today," and the firm says it is "intentionally focused on accuracy, usefulness, efficiency, and alignment for the Indian context before training bigger foundational models".

As such, the answers are not as in-depth as a response from paid versions of Gemini or ChatGPT. That part will come later, Sarvam says, when it has the necessary investments to put money into a larger training run.

Another LLM developed and trained on the common compute cluster was by BharatGen, the IIT Bombay-incubated firm that was able to train a "multilingual" 17 billion parameter model. That model, the firm says, is for use in sectors like education and healthcare. Gnani.ai, another firm, launched a small text-to-speech model.

THE GIST

▼ LLMs are trained and operated on clusters of Graphics Processing Units (GPUs). The combined cost of the GPUs and the electricity needed to run them long enough to train a model, run into millions of dollars.

▼ The IndiaAI Mission has subsidised efforts to conduct training in India, by commissioning over 36,000 GPUs in data centres operated by Indian firms like Yotta.

▼ A key breakthrough for AI models seeking to function locally was the Mixture of Experts (MoE) architecture.

26F. How are Indian firms training LLMs?
भारतीय कंपनियाँ LLMs को कैसे प्रशिक्षित कर रही हैं?

AI Impact Summit — Sarvam AI LLM Release
एआई इम्पैक्ट समिट — सर्वम एआई एलएलएम जारी

- At the **AI Impact Summit**, Bengaluru-based startup **Sarvam AI** released **two Large Language Models (LLMs)**, the foundation for AI systems powering services like **Google Gemini** and **OpenAI ChatGPT**.
एआई इम्पैक्ट समिट में बेंगलुरु स्थित स्टार्टअप **सर्वम एआई** ने **दो लार्ज लैंग्वेज मॉडल (LLMs)** जारी किए, जो **Google Gemini** और **OpenAI ChatGPT** जैसे एआई सिस्टम की नींव हैं।
- The two models were trained on **35 billion** and **105 billion parameters**, were less **power- and compute-intensive**, and showed improvements in **Indian languages**, said co-founder **Pratyush Kumar**.
इन दोनों मॉडलों को **35 बिलियन** और **105 बिलियन पैरामीटर** पर प्रशिक्षित किया गया, ये कम **ऊर्जा और कंप्यूट-इंटेंसिव** थे और **भारतीय भाषाओं** में बेहतर प्रदर्शन दिखाया, सह-संस्थापक **प्रत्युष कुमार** ने कहा।

How are LLMs trained?
एलएलएम कैसे प्रशिक्षित होते हैं?

- LLMs are trained and operated on clusters of **Graphics Processing Units (GPUs)**.
एलएलएम को **ग्राफिक्स प्रोसेसिंग यूनिट (GPU)** के क्लस्टर पर प्रशिक्षित और संचालित किया जाता है।
- The combined cost of **GPUs and electricity** to train a model runs into **millions of dollars**.
मॉडल को प्रशिक्षित करने के लिए **GPU और बिजली** की संयुक्त लागत **मिलियन डॉलर** तक पहुंचती है।
- Training data is largely scraped from the **Internet**, where **English, European and East Asian languages** are more represented than **Indian languages**.
प्रशिक्षण डेटा मुख्यतः **इंटरनेट** से लिया जाता है, जहां **अंग्रेजी, यूरोपीय और पूर्वी एशियाई भाषाएं भारतीय भाषाओं** से अधिक मौजूद हैं।
- This creates a **twofold challenge** for training LLMs in India with Indian capital.
इससे भारत में भारतीय पूंजी से एलएलएम प्रशिक्षण के लिए **दोहरी चुनौती** पैदा होती है।
- With **scarce data**, many LLMs perform worse in **Indian languages** or use more **tokens** translating into English and back.
कम डेटा के कारण कई एलएलएम **भारतीय भाषाओं** में खराब प्रदर्शन करते हैं या अंग्रेजी अनुवाद के लिए अधिक **टोकन** खर्च करते हैं।
- Despite advances in **machine translation**, it remains the **gold standard** for many LLMs.
मशीन अनुवाद में प्रगति के बावजूद यह कई एलएलएम के लिए **गोल्ड स्टैंडर्ड** बना हुआ है।
- **Scarce capital** makes it difficult for Indian firms to train LLMs for Indian users, especially without a clear **business use case**.
कम पूंजी के कारण भारतीय कंपनियों के लिए भारतीय उपयोगकर्ताओं हेतु एलएलएम प्रशिक्षण कठिन है, खासकर जब स्पष्ट **व्यावसायिक उपयोग** न हो।
- Using translations as a fulcrum can challenge developers using local LLMs like **Sarvam's 35-billion-parameter model**, demonstrated on a **feature phone**.
अनुवाद को आधार बनाना स्थानीय एलएलएम जैसे **सर्वम के 35-बिलियन पैरामीटर मॉडल** के लिए चुनौती बन सकता है, जिसे **फीचर फोन** पर प्रदर्शित किया गया।
- Suboptimal performance in **Indian languages** can impact **adoption** and **quality of performance**.
भारतीय भाषाओं में कमज़ोर प्रदर्शन **अपनाने** और **प्रदर्शन की गुणवत्ता** को प्रभावित कर सकता है।

Has there been government support?
क्या सरकार का समर्थन रहा है?

- The **IndiaAI Mission** has subsidised training in India by commissioning over **36,000 GPUs** in data centres run by firms like **Yotta**, enabling researchers and startups to run workloads at a nominal fee.
IndiaAI Mission ने भारत में प्रशिक्षण को सब्सिडी दी है, **36,000 से अधिक GPU** को **Yotta** जैसी कंपनियों के डेटा सेंटर में स्थापित करके, जिससे शोधकर्ता और स्टार्टअप कम शुल्क पर कार्यभार चला सकें।
- The government provided **Sarvam** access to **4,096 GPUs** from its common compute cluster, with subsidy estimated at nearly **₹100 crore**.
सरकार ने **सर्वम** को अपने कॉमन कंप्यूट क्लस्टर से **4,096 GPU** उपलब्ध कराए, जिसकी सब्सिडी लगभग **₹100 करोड़** आंकी गई है।
- The **bill of materials** for this cluster is **₹246 crore**, though these GPUs can continue to be used by others.
इस क्लस्टर की **कुल लागत ₹246 करोड़** है, हालांकि ये GPU अन्य लोगों द्वारा भी उपयोग किए जा सकते हैं।
- The **Ministry of Electronics and Information Technology** encouraged domestic LLM development, believing foreign LLMs may not develop strong capabilities for **Indian languages**.
इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय ने घरेलू LLM विकास को बढ़ावा दिया, क्योंकि विदेशी LLM **भारतीय भाषाओं** में मजबूत क्षमता विकसित नहीं कर सकते।
- Encouraging talent capable of training LLMs is seen as vital for building the **Indian AI ecosystem**.
LLM प्रशिक्षण में सक्षम प्रतिभा को बढ़ावा देना **भारतीय एआई इकोसिस्टम** के निर्माण के लिए महत्वपूर्ण माना गया है।
- Sarvam's release of two models marks a significant step in India's effort to build a powerful and cost-effective **LLM**.

सर्वम द्वारा दो मॉडल जारी करना भारत के शक्तिशाली और कम लागत वाले **LLM** निर्माण प्रयास में महत्वपूर्ण कदम है।

- When China's **DeepSeek** developed its **R1 LLM**, the industry adopted its cost-saving techniques for training and inference.
  जब चीन की **DeepSeek** ने **R1 LLM** विकसित किया, तो उद्योग ने प्रशिक्षण और इन्फेरेंस लागत कम करने की उसकी तकनीक अपनाई।

- The government aims to create a similar **cost advantage**.
  सरकार भी ऐसा ही **लागत लाभ** पैदा करना चाहती है।

- Sarvam said the model was trained **"from scratch"** and would be **open source**.
  सर्वम ने कहा कि मॉडल **"शुरुआत से"** प्रशिक्षित किया गया और इसे **ओपन सोर्स** बनाया जाएगा।

- Though available on the **Indus app**, it is not on platforms like **Hugging Face**, limiting external scrutiny.
  हालांकि यह **Indus ऐप** पर उपलब्ध है, पर **Hugging Face** जैसे प्लेटफॉर्म पर नहीं है, जिससे बाहरी जांच सीमित होती है।

What is the MoE architecture?
MoE आर्किटेक्चर क्या है?

- The **Mixture of Experts (MoE)** architecture is a breakthrough enabling efficient local AI models.
  Mixture of Experts (MoE) आर्किटेक्चर स्थानीय एआई मॉडल को अधिक कुशल बनाने वाली महत्वपूर्ण प्रगति है।

- Earlier LLMs activated **all parameters**, making inference expensive.
  पहले LLM सभी **पैरामीटर सक्रिय** करते थे, जिससे इन्फेरेंस महंगा होता था।

- MoE activates only a **fraction of parameters**, improving speed and reducing computing needs.
  MoE केवल **कुछ पैरामीटर सक्रिय** करता है, जिससे गति बढ़ती है और कंप्यूटिंग आवश्यकता कम होती है।

- Even **105 billion parameters** is smaller than frontier global models, and Sarvam focuses on **accuracy, efficiency and Indian alignment**.
  105 बिलियन पैरामीटर भी वैश्विक मॉडलों से छोटा है, और सर्वम **सटीकता, दक्षता और भारतीय संदर्भ** पर ध्यान दे रहा है।

- Responses are currently less detailed than paid versions of **Gemini or ChatGPT**, but improvements will come with larger training.
  अभी उत्तर **Gemini या ChatGPT** के पेड संस्करण से कम विस्तृत हैं, पर बड़े प्रशिक्षण के साथ सुधार होगा।

- Another model trained on the common cluster by **BharatGen (IIT Bombay)** is a **multilingual 17-billion-parameter LLM** for sectors like **education and healthcare**.
  कॉमन क्लस्टर पर **BharatGen (IIT Bombay)** द्वारा प्रशिक्षित एक **17-बिलियन पैरामीटर बहुभाषी LLM** भी विकसित हुआ, जो **शिक्षा और स्वास्थ्य** क्षेत्रों के लिए है।

- Another firm **Gnani.ai** launched a small **text-to-speech model**.
  एक अन्य कंपनी **Gnani.ai** ने छोटा **टेक्स्ट-टू-स्पीच मॉडल** लॉन्च किया।

GS Paper III: Environment,	
TOPICS COVERED	**26 February 2026**
26F	**What are carbon capture and utilisation technologies?** **कार्बन कैप्चर और उपयोग (CCU) प्रौद्योगिकियाँ क्या हैं?**
26F	**PMO meets on CAFE-3 norms** **पीएमओ ने CAFE-3 मानकों पर बैठक की**
26F	**Sea ice melt pushes penguins into small patches: researchers** **समुद्री बर्फ के पिघलने से पेंगुइन छोटे क्षेत्रों में सिमट रहे हैं: शोधकर्ता**

What are carbon capture and utilisation technologies?

How can such technologies reduce carbon dioxide emissions? What is the EU Bioeconomy Strategy and Circular Economy Action Plan? How can India scale-up CCU technology?

GS III: Environment   MQB

Shambhavi Naik

The story so far:

Carbon Capture and Utilisation (CCU) refers to a set of technologies that capture carbon dioxide emissions from industrial sources or directly from the air and convert them into useful products. This process removes carbon from the atmosphere and puts it into the economy as inputs for fuels, chemicals, building materials, or polymers. Unlike carbon capture and storage, where captured CO_2 is permanently stored underground rather than reused, CCU uses up the captured carbon.

Why does India need CCU?
India has consistently been the world's third-largest emitter of CO_2, with emissions driven largely by power generation, cement, steel, and chemicals.

While renewable energy may reduce future emissions, many industrial processes are inherently carbon-intensive and difficult to decarbonise. CCU offers a pathway to reduce emissions from these "hard-to-abate" sectors while simultaneously creating new industrial value chains. It also aligns with India's net-zero target for 2070 and its push to build a circular, low-carbon economy.

Where does India stand today?
India has begun supporting CCU through research funding from the Department of Science and Technology which has created a specific research and development roadmap for these technologies. The draft 2030 roadmap for Carbon Utilisation and Storage (CCUS) presented by the Ministry of Petroleum and Natural gas has identified projects that can be used for CCUS purposes. In the private sector, Ambuja Cements

(Adani Group) is working on an Indo-Swedish CCU pilot with IIT Bombay to convert captured CO_2 into fuels and materials. JK Cement is collaborating on a CCU testbed to capture CO_2 for applications such as lightweight concrete blocks and olefins. Beyond cement, Organic Recycling Systems Limited (ORSL) is leading India's first pilot-scale Bio-CCU platform, valorising CO_2 from biogas streams into bio-alcohols and specialty chemicals.

What are other countries doing?
The EU Bioeconomy Strategy and Circular Economy Action Plan explicitly supports CCU as a way to turn CO_2 into feedstocks for chemicals, fuels, and materials, linking it to circularity and sustainability targets. ArcelorMittal and Mitsubishi Heavy Industries, Ltd. are working with a climate tech company, D-CRBN, to trial a new technology to convert $CO2$ captured

at ArcelorMittal's plant in Gent, Belgium into carbon monoxide which can be used in steel and chemical production. The U.S. uses a combination of tax credits and funding to scale CCUs, particularly for CO_2-derived fuels and chemicals. The UAE's Al Reyadah project and planned CO_2-to-chemicals hubs leverage CCU with green hydrogen.

What are the risks ahead?
The foremost risk in scaling CCU in India is cost competitiveness. Capturing, purifying, and converting CO_2 is energy-intensive and expensive. Without policy incentives, CCU-derived products will struggle to compete with cheaper, fossil-based alternatives. A second risk lies in infrastructure readiness. CCU requires co-located industrial clusters, reliable transport of CO_2, and integration with downstream manufacturing, all of which are unevenly developed across Indian industrial regions. Finally, the absence of clear standards, certification, and market signals creates uncertainty for investors and limits demand for CO_2-derived products.

India has taken positive steps through the development of roadmaps to achieving CCU, and their appropriate implementation will be necessary for achieving India's goals.

Shambhavi Naik is chairperson, Takshashila Institution's Health & Life Sciences Policy,

THE GIST

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Carbon Capture and Utilisation (CCU) refers to a set of technologies that capture carbon dioxide emissions from industrial sources or directly from the air and convert them into useful products.

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India has consistently been the world's third-largest emitter of CO_2.

▼

The foremost risk in scaling CCU in India is cost competitiveness. Capturing, purifying, and converting CO_2 is energy-intensive and expensive.

26F. What are carbon capture and utilisation technologies?
कार्बन कैप्चर और उपयोग (CCU) प्रौद्योगिकियाँ क्या हैं?

Carbon Capture and Utilisation (CCU)
कार्बन कैप्चर एंड यूटिलाइजेशन (CCU)

- Carbon Capture and Utilisation (**CCU**) refers to technologies that capture **carbon dioxide (CO2)** from industrial sources or air and convert it into **useful products**.
  कार्बन कैप्चर एंड यूटिलाइजेशन (**CCU**) उन तकनीकों को दर्शाता है जो **कार्बन डाइऑक्साइड (CO2)** को औद्योगिक स्रोतों या हवा से पकड़कर **उपयोगी उत्पादों** में बदलती हैं।

- This process removes **carbon from the atmosphere** and puts it into the economy as inputs for **fuels, chemicals, building materials, or polymers**.
  यह प्रक्रिया **वायुमंडल से कार्बन हटाकर** उसे अर्थव्यवस्था में **ईंधन, रसायन, निर्माण सामग्री या पॉलिमर** के रूप में उपयोग करती है।

- Unlike **Carbon Capture and Storage (CCS)**, where CO2 is stored underground, **CCU reuses captured carbon**.
  Carbon Capture and Storage (CCS) से अलग, जहां CO2 को जमीन के नीचे संग्रहित किया जाता है, **CCU पकड़े गए कार्बन का पुनः उपयोग करता है**।

Why does India need CCU?
भारत को CCU की आवश्यकता क्यों है?

- India is the **third-largest CO2 emitter**, mainly from **power, cement, steel and chemicals**.
  भारत **तीसरा सबसे बड़ा CO2 उत्सर्जक** है, मुख्यतः **ऊर्जा, सीमेंट, स्टील और रसायन** क्षेत्रों से।

- Many industrial processes are **carbon-intensive and hard-to-decarbonise** despite renewable energy growth.
  नवीकरणीय ऊर्जा के बावजूद कई औद्योगिक प्रक्रियाएं **कार्बन-गहन और डीकार्बोनाइज करना कठिन** हैं।

- CCU helps reduce emissions from **"hard-to-abate" sectors** while creating **new industrial value chains**.
  CCU **"कम-न-होने वाले क्षेत्रों"** से उत्सर्जन कम करने और **नए औद्योगिक मूल्य श्रृंखला** बनाने में मदद करता है।

- It supports India's **net-zero target 2070** and transition to a **circular low-carbon economy**.
  यह भारत के **नेट-जीरो लक्ष्य 2070** और **परिपत्र निम्न-कार्बन अर्थव्यवस्था** के लक्ष्य को समर्थन देता है।

Where does India stand today?
भारत वर्तमान में कहाँ खड़ा है?

- India supports CCU via **Department of Science and Technology** research funding and roadmap.
  भारत **विज्ञान एवं प्रौद्योगिकी विभाग** के अनुसंधान और रोडमैप के माध्यम से CCU को समर्थन देता है।
- The draft **2030 CCUS roadmap** by the **Ministry of Petroleum and Natural Gas** identified CCUS projects.
  पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय के **2030 CCUS ड्राफ्ट रोडमैप** में CCUS परियोजनाएं चिन्हित की गईं।
- **Ambuja Cements (Adani Group)** with **IIT Bombay** is piloting CCU to convert CO2 into **fuels and materials**.
  अंबुजा सीमेंट (अडानी समूह) IIT बॉम्बे के साथ CO2 को **ईंधन और सामग्री** में बदलने का CCU पायलट चला रहा है।
- **JK Cement** is testing CCU for **lightweight concrete blocks and olefins**.
  JK सीमेंट CCU को **हल्के कंक्रीट ब्लॉक और ओलेफिन** के लिए परीक्षण कर रहा है।
- **Organic Recycling Systems Limited (ORSL)** runs India's first **Bio-CCU platform**, converting CO2 from biogas into **bio-alcohols and specialty chemicals**.
  ऑर्गेनिक रीसाइक्लिंग सिस्टम्स लिमिटेड (ORSL) भारत का पहला **बायो-CCU प्लेटफॉर्म** चला रहा है, जो बायोगैस CO2 को **बायो-अल्कोहल और विशेष रसायनों** में बदलता है।

What are other countries doing?
अन्य देश क्या कर रहे हैं?

- The **EU Bioeconomy Strategy and Circular Economy Action Plan** supports CCU to convert CO2 into **chemicals, fuels and materials**.
  EU बायोइकोनॉमी रणनीति और सर्कुलर इकॉनॉमी एक्शन प्लान CO2 को **रसायन, ईंधन और सामग्री** में बदलने के लिए CCU का समर्थन करता है।
- **ArcelorMittal, Mitsubishi Heavy Industries and D-CRBN** are converting captured CO2 into **carbon monoxide** for **steel and chemical production**.
  आर्सेलरमित्तल, मित्सुबिशी हेवी इंडस्ट्रीज और D-CRBN CO2 को **कार्बन मोनोऑक्साइड** में बदल रहे हैं, जो **स्टील और रसायन उत्पादन** में उपयोगी है।
- The **U.S.** uses **tax credits and funding** to scale CCU for CO2-based fuels and chemicals.
  अमेरिका CO2 आधारित ईंधन और रसायनों के लिए CCU विस्तार हेतु **कर प्रोत्साहन और वित्त** देता है।
- The **UAE Al Reyadah project** integrates CCU with **green hydrogen**.
  UAE का अल रियादाह प्रोजेक्ट CCU को **ग्रीन हाइड्रोजन** से जोड़ता है।

What are the risks ahead?
आगे क्या जोखिम हैं?

- The biggest risk is **high cost**, as capturing and converting CO2 is **energy-intensive and expensive**.
  सबसे बड़ा जोखिम **उच्च लागत** है, क्योंकि CO2 पकड़ना और बदलना **ऊर्जा-गहन और महंगा** है।
- Without **policy incentives**, CCU products may not compete with **cheaper fossil-based alternatives**.
  नीतिगत प्रोत्साहन के बिना CCU उत्पाद **सस्ते जीवाश्म विकल्पों** से प्रतिस्पर्धा नहीं कर पाएंगे।
- Another risk is **infrastructure readiness**, requiring **industrial clusters, CO2 transport and integration**.
  दूसरा जोखिम **इन्फ्रास्ट्रक्चर** है, जिसमें **औद्योगिक क्लस्टर, CO2 परिवहन और एकीकरण** जरूरी है।
- Lack of **standards, certification and market signals** creates uncertainty and limits investment.
  मानक, प्रमाणन और बाजार संकेतों की कमी अनिश्चितता पैदा करती है और निवेश सीमित करती है।
- India has taken positive steps through **roadmaps**, and proper implementation is crucial for achieving its **climate goals**.

भारत ने **रोडमैप** के माध्यम से सकारात्मक कदम उठाए हैं, और सही क्रियान्वयन उसके **जलवायु लक्ष्यों** की प्राप्ति के लिए आवश्यक है।

PMO meets on CAFE-3 norms

GS III: Environment

Jagriti Chandra
NEW DELHI

The Prime Minister's Office (PMO) held a meeting on Wednesday to review the proposed carbon emission norms for passenger vehicles slated to take effect from 2027, though no final decision was reached.

A senior government official who was part of the high-level meeting said that there was "no final decision yet", on the contentious issue of draft Corporate Average Fuel Efficiency (CAFE)-3 norms which have divided small and big carmakers.

Officials of the Ministry of Power, Bureau of Energy Efficiency, and Ministry of Heavy Industries were part of the meeting.

Speaking to reporters on the sidelines of a FICCI event, Minister for Heavy Industries H.D. Kumaraswamy said about the proposal, "We already had a meeting with stakeholders and Power Ministry. The Power Ministry, according to my information, sent the proposal to the PMO."

On contents of the proposal, he said, "whatever best way we have to encourage for electric mobility, we are going to take."

Revised draft

The Bureau of Energy Efficiency recently circulated a revised draft of the CAFE III norms to the industry after the earlier version released in September last year triggered divisions among automakers with larger vehicle manufacturers opposing certain relaxations extended to small-car makers.

No final decision was taken on CAFE-3 norms.

The latest proposal, shared with car manufacturers but not yet made public, has removed the 3 g CO2/km waiver for cars weighing up to 909 kg and with engine capacity not exceeding 1200 cc. It has also made the emission slope flatter. Against the initial 0.002 value for all five years, the new proposal is 0.00153 in year one, followed by an annual reduction so as to reach 0.00128 in the fifth year. This means permissible emissions for heavier vehicles are lower than before, while small cars get some relief.

Addressing the third FICCI National Conference on Electric Vehicles, Mr. Kumaraswamy said, "electric mobility today is not merely a climate initiative, it is an industrial strategy, a manufacturing opportunity, supply-chain recalibration and a technological leap." Citing the progress of the ₹10,900 crore PM E-DRIVE scheme, he said as of February, over 28 lakh EVs have been sold under the scheme.

26F. PMO meets on CAFE-3 norms
पीएमओ ने CAFE-3 मानकों पर बैठक की

- The **Prime Minister's Office (PMO)** held a meeting on Wednesday to review the proposed **carbon emission norms for passenger vehicles** slated to take effect from **2027**, though no final decision was reached.
  प्रधानमंत्री कार्यालय (PMO) ने बुधवार को **यात्री वाहनों के लिए प्रस्तावित कार्बन उत्सर्जन मानकों** की समीक्षा के लिए एक बैठक की, जो 2027 से लागू होने वाले हैं, हालांकि कोई अंतिम निर्णय नहीं लिया गया।

- A senior government official who was part of the high-level meeting said that there was "**no final decision yet**", on the contentious issue of draft **Corporate Average Fuel Efficiency (CAFE)-3 norms** which have divided small and big carmakers.
  उच्चस्तरीय बैठक का हिस्सा रहे एक वरिष्ठ सरकारी अधिकारी ने कहा कि **कॉर्पोरेट एवरेज फ्यूल एफिशिएंसी (CAFE)-3 मानकों** के मसौदे जैसे विवादास्पद मुद्दे पर, जिसने छोटे और बड़े वाहन निर्माताओं को विभाजित कर दिया है, अभी "**कोई अंतिम निर्णय नहीं**" हुआ है।

- Officials of the **Ministry of Power**, **Bureau of Energy Efficiency**, and **Ministry of Heavy Industries** were part of the meeting.
  विद्युत मंत्रालय, **ऊर्जा दक्षता ब्यूरो**, और **भारी उद्योग मंत्रालय** के अधिकारी बैठक का हिस्सा थे।

- Speaking to reporters on the sidelines of a **FICCI** event, Minister for Heavy Industries **H.D. Kumaraswamy** said about the proposal, "We already had a meeting with stakeholders and the Power Ministry. The Power Ministry, according to my information, sent the proposal to the PMO."
  FICCI के एक कार्यक्रम के दौरान पत्रकारों से बातचीत करते हुए, **भारी उद्योग मंत्री एच.डी. कुमारस्वामी** ने प्रस्ताव के बारे में कहा, "हम पहले ही हितधारकों और विद्युत मंत्रालय के साथ बैठक कर चुके हैं। मेरी जानकारी के अनुसार, विद्युत मंत्रालय ने यह प्रस्ताव पीएमओ को भेज दिया है।"

- On the contents of the proposal, he said, "whatever best way we have to encourage for **electric mobility**, we are going to take."
  प्रस्ताव की सामग्री पर उन्होंने कहा, "**इलेक्ट्रिक मोबिलिटी** को प्रोत्साहित करने के लिए जो भी सबसे अच्छा तरीका होगा, हम वही अपनाएंगे।"

- **Revised draft**
  संशोधित मसौदा

- The **Bureau of Energy Efficiency** recently circulated a revised draft of the **CAFE III norms** to the industry after the earlier version released in **September last year** triggered divisions among automakers with larger vehicle manufacturers opposing certain relaxations extended to small car makers.
  ऊर्जा दक्षता ब्यूरो ने हाल ही में **CAFE III मानकों** का एक संशोधित मसौदा उद्योग को भेजा, जब **पिछले वर्ष सितंबर** में जारी पहले संस्करण ने वाहन निर्माताओं के बीच मतभेद पैदा कर दिए थे, जिसमें बड़े वाहन निर्माता छोटे कार निर्माताओं को दी गई कुछ छूटों का विरोध कर रहे थे।

- The latest proposal, shared with car manufacturers but not yet made public, has removed the **3 g CO2/km waiver** for cars weighing up to **909 kg** and with engine capacity not exceeding **1200 cc**.

नवीनतम प्रस्ताव, जो कार निर्माताओं के साथ साझा किया गया है लेकिन अभी सार्वजनिक नहीं हुआ है, ने **909 किलोग्राम** तक वजन वाली और **1200 सीसी** से अधिक इंजन क्षमता न रखने वाली कारों के लिए **3 ग्राम CO2/किमी छूट** को हटा दिया है।

- It has also made the **emission slope flatter**.
  इसमें **उत्सर्जन ढाल को भी समतल** किया गया है।

- Against the initial **0.002 value** for all five years, the new proposal is **0.00153 in year one**, followed by an annual reduction so as to reach **0.00128 in the fifth year**.
  सभी पाँच वर्षों के लिए प्रारंभिक **0.002 मान** के मुकाबले, नया प्रस्ताव **पहले वर्ष में 0.00153** है, जिसके बाद हर वर्ष कमी करते हुए **पाँचवें वर्ष में 0.00128** तक पहुँचना है।

- This means permissible emissions for **heavier vehicles** are lower than before, while **small cars** get some relief.
  इसका अर्थ है कि **भारी वाहनों** के लिए अनुमेय उत्सर्जन पहले से कम होगा, जबकि **छोटी कारों** को कुछ राहत मिलेगी।

- Addressing the third **FICCI National Conference on Electric Vehicles**, Mr. Kumaraswamy said, "**electric mobility** today is not merely a climate initiative, it is an **industrial strategy**, a **manufacturing opportunity**, **supply-chain recalibration** and a **technological leap**."
  तीसरे **FICCI राष्ट्रीय इलेक्ट्रिक वाहन सम्मेलन** को संबोधित करते हुए, श्री कुमारस्वामी ने कहा, "आज **इलेक्ट्रिक मोबिलिटी** केवल एक जलवायु पहल नहीं है, बल्कि यह एक **औद्योगिक रणनीति**, एक **विनिर्माण अवसर**, आपूर्ति-श्रृंखला का पुनर्संतुलन और एक **तकनीकी छलांग** है।"

- Citing the progress of the **₹10,900 crore PM EDRIVE scheme**, he said as of February, over **28 lakh EVs** have been sold under the scheme.
  ₹10,900 करोड़ की पीएम ई-ड्राइव योजना की प्रगति का उल्लेख करते हुए उन्होंने कहा कि फरवरी तक इस योजना के तहत **28 लाख से अधिक इलेक्ट्रिक वाहन** बेचे जा चुके हैं।

Sea ice melt pushes penguins into small patches: researchers

GS III: Environment

Agence France Presse
PARIS

Emperor penguins shed all their feathers once a year, a precarious ritual that may have become deadly as climate change pushes them into shrinking patches of Antarctic sea ice, researchers said on Wednesday.

The flightless birds moult during summer, relying on stored fat to survive for several weeks until their waterproof coat grows back so they can swim and hunt in icy waters again.

Researchers from the British Antarctic Survey, analysing seven years of satellite images, accidentally discovered several moulting colonies along the extremely remote coastline of an area known as Marie Byrd Land.

As sea ice melted, the penguins were forced onto smaller spaces in increasingly large and tightly packed groups, the U.K. polar research organisation said in a statement.

In 2025, only 25 small groups of penguins were visible in the satellite images, it said. Prior to 2022, more than 100 groups had been spotted in the same region.

"While we don't know for sure what happened to those penguins, we know they can find new suitable breeding sites after ice loss, so it's possible they have established new moulting sites elsewhere," said Peter Fretwell, lead author and mapping expert at the British Antarctic Survey.

"But also it's possible that huge numbers of penguins perished after entering the Southern Ocean before they had replaced their waterproof feathers," Mr. Fretwell said.

"If this has happened, the situation for emperors as a species is even worse than we thought."

The researchers said that if emperor penguins are forced into the ocean before their feathers are replaced, they face exhaustion from increased energy use, hypothermia and increased risk from predators.

Emperor penguin populations have shrunk by almost a quarter as global warming transforms their icy habitat, the British Antarctic Survey said in research published last year.

26F. Sea ice melt pushes penguins into small patches: researchers
समुद्री बर्फ के पिघलने से पेंगुइन छोटे क्षेत्रों में सिमट रहे हैं: शोधकर्ता

- Emperor penguins shed all their feathers once a year, a precarious ritual that may have become deadly as **climate change** pushes them into shrinking patches of **Antarctic sea ice**, researchers said on Wednesday.
  एम्परर पेंगुइन साल में एक बार अपने सभी पंख झाड़ते हैं, यह एक जोखिमभरा अनुष्ठान है जो **जलवायु परिवर्तन** के कारण **अंटार्कटिक समुद्री बर्फ** के सिमटते क्षेत्रों में सिमटने से घातक बन सकता है, शोधकर्ताओं ने बुधवार को कहा।

- The flightless birds moult during summer, relying on stored fat to survive for several weeks until their **waterproof coat** grows back so they can swim and hunt in icy waters again.
  ये उड़ानहीन पक्षी गर्मियों में पंख बदलते हैं और कई हफ्तों तक जीवित रहने के लिए संचित वसा पर निर्भर रहते हैं, जब तक कि उनका **जलरोधी आवरण** दोबारा न उग आए ताकि वे फिर से बर्फीले पानी में तैर और शिकार कर सकें।

- Researchers from the **British Antarctic Survey**, analysing seven years of satellite images, accidentally discovered several moulting colonies along the extremely remote coastline of an area known as **Marie Byrd Land**.
  ब्रिटिश अंटार्कटिक सर्वेक्षण के शोधकर्ताओं ने सात वर्षों की उपग्रह

तस्वीरों का विश्लेषण करते हुए **मैरी बर्ड लैंड** नामक क्षेत्र के अत्यंत दूरस्थ तट पर कई मोल्टिंग कॉलोनियाँ संयोगवश खोजीं।

- As sea ice melted, the penguins were forced onto smaller spaces in increasingly large and tightly packed groups, the **U.K. polar research organisation** said in a statement.
  जैसे-जैसे समुद्री बर्फ पिघली, पेंगुइनों को छोटे स्थानों में अधिक बड़े और सघन समूहों में सिमटना पड़ा, **यू.के. ध्रुवीय अनुसंधान संगठन** ने एक बयान में कहा।

- In 2025, only **25 small groups** of penguins were visible in the satellite images, it said.
  बयान में कहा गया कि 2025 में उपग्रह तस्वीरों में पेंगुइनों के केवल **25 छोटे समूह** दिखाई दिए।

- Prior to 2022, more than **100 groups** had been spotted in the same region.
  2022 से पहले, उसी क्षेत्र में **100 से अधिक समूह** देखे गए थे।

- "While we don't know for sure what happened to those penguins, we know they can find new suitable breeding sites after ice loss, so it's possible they have established new moulting sites elsewhere," said **Peter Fretwell**, lead author and mapping expert at the **British Antarctic Survey**.
  ब्रिटिश अंटार्कटिक सर्वेक्षण के प्रमुख लेखक और मानचित्रण विशेषज्ञ **पीटर फ्रेटवेल** ने कहा, "हालाँकि हमें निश्चित रूप से नहीं पता कि उन पेंगुइनों के साथ क्या हुआ, लेकिन हम जानते हैं कि बर्फ के नुकसान के बाद वे नए उपयुक्त प्रजनन स्थल खोज सकते हैं, इसलिए संभव है कि उन्होंने कहीं और नए मोल्टिंग स्थल बना लिए हों।"

- "But also it's possible that huge numbers of penguins perished after entering the **Southern Ocean** before they had replaced their waterproof feathers," Mr. Fretwell said.
  "लेकिन यह भी संभव है कि अपने जलरोधी पंख बदलने से पहले **दक्षिणी महासागर** में प्रवेश करने के बाद बड़ी संख्या में पेंगुइन मारे गए हों," श्री फ्रेटवेल ने कहा।

- "If this has happened, the situation for emperors as a species is even worse than we thought."
  "यदि ऐसा हुआ है, तो एक प्रजाति के रूप में एम्परर पेंगुइनों की स्थिति हमारी सोच से भी अधिक खराब है।"

- The researchers said that if **emperor penguins** are forced into the ocean before their feathers are replaced, they face **exhaustion**, **hypothermia** and increased risk from **predators**.
  शोधकर्ताओं ने कहा कि यदि एम्परर पेंगुइनों को पंख बदलने से पहले समुद्र में उतरना पड़े, तो उन्हें **अत्यधिक थकान**, **हाइपोथर्मिया** और **शिकारियों** से बढ़े हुए खतरे का सामना करना पड़ता है।

- Emperor penguin populations have shrunk by **almost a quarter** as **global warming** transforms their icy habitat, the **British Antarctic Survey** said in research published last year.
  वैश्विक तापवृद्धि के कारण उनके बर्फीले आवास के बदलने से एम्परर पेंगुइनों की आबादी **लगभग एक-चौथाई** तक घट गई है, ऐसा **ब्रिटिश अंटार्कटिक सर्वेक्षण** ने पिछले वर्ष प्रकाशित शोध में कहा।

GS Paper III: IS	
TOPICS COVERED	**26 February 2026**
26F	**When home becomes hostile: women of the Northeast write their stories** **जब घर ही शत्रुतापूर्ण हो जाए: पूर्वोत्तर की महिलाएँ अपनी कहानियाँ लिखती हैं**

When home becomes hostile: women of the Northeast write their stories

Manipur. Nagaland. Assam — many States in the region have never really known peace. In the ebbs and flows of violence, thanks to insurgencies, encounters with security forces and ethnic strife, it's the women who have borne the brunt, living in the shadow of conflict

GS III: Internal Security: North East Insurgency

Sudipta Datta

A new government is in place in Manipur after two years of violence. In an attempt to represent the three major communities in the government, a Chief Minister and two Deputy Chief Ministers were announced. While Chief Minister Yumnam Khemchand Singh is a Meitei, Nemcha Kipgen, a Kuki, and Losii Dikho, a Naga, were named Deputy Chief Ministers. But Kipgen not only had to take the oath virtually, she has also not been able to set foot in the Meitei-dominated Imphal Valley due to security reasons. She has to work from Kuki-dominated Kangpokpi, trying to help her community heal and bridge the divide.

In her new book, *Stories the Fire Could Not Burn* (Speaking Tiger Books), journalist and writer Hoihnu Hauzel traces the reasons for the ethnic strife that erupted between the Meiteis and Kuki-Zomi people on May 3, 2023. "It is the Kuki-Zomi/Mizo people - my people - who have borne the brunt of the inhumanity unleashed in Manipur," she writes in the Preface, "...hill communities [who] have lived under systemic neglect, routine violence, and constant threat" ever since the inception of the State in 1972.

But what unfolded in 2023 and beyond, says Hauzel, "shattered what little illusion of safety that remained." Healing takes time, Kipgen said in an interview to The Hindu, urging the government to let the buffer zones between the Meiteis and the Kuki-Zo communities remain for now, particularly in areas where the violence was high, because safety comes first.

'No hierarchy of horror'

Hauzel poignantly writes about the night her family had to flee Imphal – "how silence hung heavier than the air, how we carried not just our belongings, but our memories, our dead, our dread. That night, we didn't just leave behind homes. We left behind parts of ourselves we may never be able to reclaim."

Many people were not as lucky. At least 250 people lost their lives in the violence, and over 60,000 people have been displaced. "There is no hierarchy of horror," says Hauzel, "but each story demands to be told. Each name deserves remembrance."

Hauzel asks a pertinent question that every marginalised person will identify with: What does one do when home becomes hostile? Manipur has seen waves of violence through the years due to insurgencies and ethnic conflagrations. Growing up in Manipur during the 1980s, violence wasn't an exception, writes Hauzel - "it was part of the routine", and she could tell the difference between the sound of a cracker and the pop of a pistol, "the way someone else might know birds by their calls." In neighbouring Nagaland, no stranger to violence herself, schools would often accommodate students from Manipur fleeing the heightened tension.

When "fear became ordinary and survival instinctive", Hauzel says she and others like her learned resilience, unwittingly preparing themselves for "a life lived in the shadow of conflict."

How did Manipur reach this point? Hauzel points out that to understand Manipur, one must begin with its geography. While Imphal Valley is at the centre, its land covers just 10% of the State but is home to most of the population, particularly the dominant Meitei community. All around the valley are the hill districts which make up 90% of the terrain, not all hospitable. They are inhabited by at least 38 Scheduled Tribes, mostly belonging to the Naga and Kuki-Zomi/Mizo/Chin groups. The hill people have long argued that the valley has cornered a lion's share of funds, leaving a huge developmental disparity between the valley and the hills.

Hauzel's book is filled with stories about "voices that don't make headlines", and the long, hard road to truth and reconciliation.

Home fires

Women often have to stand up to gendered violence, patriarchal mindsets and other upheavals. Writer Temsula Ao underscores this in her memoir, *Once Upon a Life: Burnt Curry and Bloody Rags* (Zubaan), in which she writes about her "fractured childhood" which was ripped apart by a series of tragedies, not least the loss of her parents in quick succession. For her, an important reason for writing her account was a "sense of wonder" at being able to achieve "a measure of success" from being an "absolute destitute".

The poet, novelist, short story writer and teacher went on to write several best-selling books including *Laburnum For My Head*, *These Hills Called Home*, *Book of Songs* and *The Tombstone in My Garden*. But before that, right after secondary school, due to the circumstances she was in, decisions about her life were taken without taking into account what she wanted. Ao had dreamed of becoming a doctor, but who was going to pay for her studies? Forget education, she found herself stranded without a 'home' to take shelter in. The "obvious solution" the extended family arrived at was marriage. It was a "mad plunge into the unknown" for Ao, and her only weapons of self-defence were "natural instincts and a will to survive."

Early on in her remarkable life, during her high school years in the mid-1950s, she encountered the violent fallout of the Naga freedom movement. Encounters between the insurgents and security forces made the hills of Nagaland, and her village, "almost inaccessible and extremely dangerous."

Everyday struggles

In much of the Northeast, the central theme in literature has been conflict. As Banamallika writes in her Introduction to *Riverside Stories: Writings from Assam* (Zubaan), "...conflict features as a background, in the foreground, in dreams or rather nightmares" in the stories she chose to represent Assam through the decades.

In one of the stories, 'Kaike Atomo' (an everyday story) by Klirni Terangpi, a school teacher, Manai, who has not been paid in months, "buys the safety and perhaps lives of her family by giving away her last remaining pieces of bangles from her wedding. The boy from the forest with a gun, her ex-student, assures her it is for the cause of their community."

This could be the everyday story for many women in the Northeast, carrying the burden of conflict and uncertainty.

26F. When home becomes hostile: women of the Northeast write their stories
जब घर ही शत्रुतापूर्ण हो जाए: पूर्वोत्तर की महिलाएँ अपनी कहानियाँ लिखती हैं

- **Manipur**. **Nagaland**. **Assam** — many **States** in the region have never really known **peace**.
  मणिपुर। नागालैंड। असम — इस क्षेत्र के कई **राज्य** वास्तव में कभी **शांति** नहीं जान पाए।
- In the **ebbs and flows of violence**, thanks to **insurgencies**, **encounters with security forces** and **ethnic strife**, it's the **women** who have borne the **brunt**, living in the shadow of **conflict**
  हिंसा के उतार-चढ़ाव में, **उग्रवाद, सुरक्षा बलों के साथ मुठभेड़ों** और **जातीय संघर्ष** के कारण, **महिलाओं** ने ही इसका **सबसे अधिक भार** उठाया है, **संघर्ष** की छाया में जीवन जीते हुए

'No hierarchy of horror'
'भय की कोई श्रेणी नहीं'

- Hauzel recounts the night her family fled **Imphal**, carrying memories, fear, and loss.
  हाउज़ेल उस रात का वर्णन करती हैं जब उनका परिवार **इम्फाल** से भागा, यादें, भय और हानि साथ लेकर।
- At least **250 people died** and over **60,000 were displaced** in the violence.
  हिंसा में कम से कम **250 लोगों की मृत्यु** हुई और **60,000 से अधिक लोग विस्थापित** हुए।
- Growing up in the **1980s**, violence was part of routine life, and she learned to distinguish gunshots from crackers.
  1980 के दशक में पली-बढ़ी हाउज़ेल लिखती हैं कि हिंसा दिनचर्या का हिस्सा थी और वे पटाखे और पिस्तौल की आवाज में फर्क पहचानती थीं।
- In neighbouring **Nagaland**, schools accommodated students fleeing violence from Manipur.
  पड़ोसी **नागालैंड** में स्कूलों ने मणिपुर से हिंसा के कारण भागे छात्रों को शरण दी।

- When "fear became ordinary and survival instinctive," resilience developed for a life under the **shadow of conflict**.
  जब "भय सामान्य और जीवित रहना सहज" हो गया, तब लोगों में **संघर्ष की छाया** में जीने की दृढ़ता विकसित हुई।

How did Manipur reach this point?
मणिपुर इस स्थिति तक कैसे पहुँचा?

- Hauzel says that to understand **Manipur**, one must begin with its **geography**.
  हाउज़ेल कहती हैं कि **मणिपुर** को समझने के लिए उसकी **भौगोलिक संरचना** से शुरुआत करनी होगी।
- The **Imphal Valley** covers only **10% of the State's land** but houses most of the population, especially the dominant **Meitei community**.
  इम्फाल घाटी राज्य की केवल **10% भूमि** पर फैली है, लेकिन अधिकांश आबादी, विशेषकर **मेइती समुदाय**, यहीं रहती है।
- The surrounding **hill districts** make up **90% of the terrain** and are inhabited by at least **38 Scheduled Tribes**, mainly **Naga and Kuki-Zomi/Mizo/Chin groups**.
  आसपास के **पहाड़ी जिले** राज्य की **90% भूमि** बनाते हैं और यहाँ कम से कम **38 अनुसूचित जनजातियाँ** रहती हैं, जिनमें मुख्यतः **नागा और कुकी-जोमी/मिजो/चिन समूह** शामिल हैं।
- Hill communities argue that the valley has cornered most funds, creating a **developmental disparity**.
  पहाड़ी समुदायों का कहना है कि घाटी ने अधिकतर संसाधन अपने पास रखे, जिससे **विकासात्मक असमानता** उत्पन्न हुई।

Home fires
घर की आग

- Women often confront **gendered violence**, patriarchal mindsets and upheavals.
  महिलाएँ अक्सर **लैंगिक हिंसा**, पितृसत्तात्मक सोच और उथल-पुथल का सामना करती हैं।
- Without support or a home, the family decided on **marriage** as the "obvious solution."
  सहायता या घर के बिना, परिवार ने **विवाह** को "स्पष्ट समाधान" माना।
- It was a "mad plunge into the unknown," and her survival relied on **instinct and will**.
  यह "अज्ञात में पागल छलांग" थी और उनका बचाव केवल **स्वाभाविक प्रवृत्ति और जीवित रहने की इच्छा** पर आधारित था।
- During her high school years in the **mid-1950s**, she witnessed violence from the **Naga freedom movement**.
  1950 के दशक के मध्य में अपने हाई स्कूल के दौरान उन्होंने **नागा स्वतंत्रता आंदोलन** की हिंसा देखी।
- Encounters between insurgents and security forces made **Nagaland hills** dangerous and inaccessible.
  विद्रोहियों और सुरक्षा बलों के बीच संघर्ष ने **नागालैंड की पहाड़ियों** को खतरनाक और दुर्गम बना दिया।

- This reflects the everyday reality of many women in the **Northeast**, bearing the burden of **conflict and uncertainty**.
  यह **पूर्वोत्तर** की कई महिलाओं की दैनिक वास्तविकता को दर्शाता है, जो **संघर्ष और अनिश्चितता** का बोझ उठाती हैं।