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PCS Special:	09 July
09J7	MSIL starts Battery Energy Storage System at Kharkhoda एमएसआईएल ने खरखौदा में बैटरी ऊर्जा भंडारण प्रणाली शुरू की



MSIL starts Battery Energy Storage System at Kharkhoda

Maruti Suzuki India Ltd. (MSIL) has announced the commissioning of a 1 MWh Battery Energy Storage System (BESS) at its Kharkhoda manufacturing facility. In 2025, the company had installed a 20 MWp solar power project at this facility. The BESS will help in storing excess electricity generated during low-demand periods or facility holidays and make it available for use when required, MSIL said. In addition, it would help improve grid stability. As a pilot initiative, BESS has been integrated into the Kharkhoda facility's internal electricity distribution network.

09J7. MSIL starts Battery Energy Storage System at Kharkhoda

एमएसआईएल ने खरखौदा में बैटरी ऊर्जा भंडारण प्रणाली शुरू की

• **Maruti Suzuki India Ltd. (MSIL)** has announced the commissioning of a **1 MWh Battery Energy Storage System (BESS)** at its **Kharkhoda manufacturing facility**.

मारुति सुजुकी इंडिया लिमिटेड (MSIL) ने अपने खरखौदा विनिर्माण संयंत्र में 1 MWh बैटरी ऊर्जा भंडारण प्रणाली (BESS) के चालू होने की घोषणा की है।

• The **BESS** will help in storing excess **electricity** generated during **low-demand periods** or **facility holidays** and make it available for use when required, **MSIL** said.

MSIL ने कहा कि BESS कम मांग की अवधि या संयंत्र की छुट्टियों के दौरान उत्पन्न अतिरिक्त बिजली को संग्रहित करने में मदद करेगा और आवश्यकता पड़ने पर उसे उपयोग के लिए उपलब्ध कराएगा।

• In addition, **it would help improve grid stability**.

इसके अतिरिक्त, यह ग्रिड स्थिरता में सुधार करने में भी मदद करेगा।

GS Paper II: Polity		09 July 2026
TOPICS COVERED		
09J7	T.N. moves SC against HC order on quota for converts to Islam इस्लाम अपनाने वालों के लिए आरक्षण पर उच्च न्यायालय के आदेश के खिलाफ तमिलनाडु ने सर्वोच्च न्यायालय का रुख किया	
09J7	What is the right to be forgotten? भुला दिए जाने का अधिकार क्या है?	



T.N. moves SC against HC order on quota for converts to Islam

CS II: Polity
The Hindu Bureau
NEW DELHI



The special leave petition was filed by the Secretary to the State in the Supreme Court.

The Tamil Nadu government has appealed against a Madras High Court decision that a convert to Islam cannot claim the status of Backward Class Muslim.

The High Court had declared unconstitutional a 2024 government order allowing converts to claim backward status.

The court was hearing the petition filed in 2022 by a man from Thoothukudi district who had embraced Islam and changed his name. He was born to Hindu parents.

The certificate issued by the Sunnath Jamath, Kayathar, in 2015 had stated the petitioner had embraced Islam.

Application rejected

He had applied for a community certificate certifying him as 'Muslim Lebbai', a faith he claimed to follow. However, the Kayathar Tahsildar rejected his application. Challenging it, he had moved court.

Meanwhile, the 2024 government order notified that a convert to Islam from Backward Classes, Most Backward Classes, Denotified Communities or Scheduled Castes ought to be treated as BC (Muslim) for availing the benefit of reservation.

The High Court, however, had held that when a Hindu, on conversion to Islam, did not carry forward the benefits of the Hindu caste or sub-caste.

The convert's status in Islam was not decided by

the caste he was part of prior to the conversion.

Social equality

The court noted that Christian missionaries as well as Islamic preachers had maintained that their religions offered social equality unlike Hinduism, which had a caste hierarchy.

"Having taken such a stand for effecting conversions, it is disingenuous to claim that there is hierarchy in Islam also. In our respectful view, categorising certain sects as Backward and the remaining as Forward is antithetical to Quranic injunctions. Islam seeks to establish an egalitarian society. Everyone is equal in the eye of God. There is no social hierarchy," the court had said.

The special leave petition was filed by the Secretary to the State of Tamil Nadu in the Supreme Court.

The appeal has arraigned the petitioner in the High Court, Sameer Ahamed N., the District Collector, the Revenue Divisional Officer and the Tahsildar as respondents.

09J7. T.N. moves SC against HC order on quota for converts to Islam

इस्लाम अपनाने वालों के लिए आरक्षण पर उच्च न्यायालय के आदेश के खिलाफ तमिलनाडु ने सर्वोच्च न्यायालय का रुख किया

The **Tamil Nadu government** has appealed against a **Madras High Court** decision that a convert to Islam cannot claim the status of **Backward Class Muslim**.

तमिलनाडु सरकार ने मद्रास उच्च न्यायालय के उस निर्णय के खिलाफ अपील की है जिसमें कहा गया था कि इस्लाम अपनाने वाला व्यक्ति पिछड़ा वर्ग मुस्लिम का दर्जा नहीं मांग सकता।

The **High Court** had declared unconstitutional a **2024 government order** allowing converts to claim backward status.

उच्च न्यायालय ने धर्म परिवर्तन करने वालों को पिछड़ा वर्ग का दर्जा मांगने की अनुमति देने वाले **2024 के सरकारी आदेश** को असंवैधानिक घोषित किया था।

The court was hearing the petition filed in **2022** by a man from **Thoothukudi district** who had embraced Islam and changed his name.

न्यायालय **2022** में **थूथुकुडी जिले** के एक व्यक्ति द्वारा दायर याचिका पर सुनवाई कर रहा था, जिसने इस्लाम अपनाया था और अपना नाम बदल लिया था।

Meanwhile, the **2024 government order** notified that a convert to Islam from Backward Classes, Most Backward Classes, Denotified Communities or Scheduled Castes ought to be treated as **BC (Muslim)** for availing the benefit of reservation.

इस बीच, **2024 के सरकारी आदेश** में अधिसूचित किया गया कि पिछड़ा वर्ग, अत्यंत पिछड़ा वर्ग, विमुक्त समुदाय या अनुसूचित जाति से इस्लाम अपनाने वाले व्यक्ति को आरक्षण का लाभ प्राप्त करने के लिए **BC (मुस्लिम)** माना जाना चाहिए।

The **High Court**, however, had held that when a Hindu, on conversion to Islam, did not carry forward the benefits of the Hindu caste or sub-caste.

हालांकि, उच्च न्यायालय ने माना था कि जब कोई हिंदू इस्लाम अपनाता है, तो वह हिंदू जाति या उपजाति से जुड़े लाभों को आगे नहीं ले जाता।

- The convert's status in Islam was not decided by the caste he was part of prior to the conversion.

इस्लाम में धर्मांतरित व्यक्ति की स्थिति उस जाति से निर्धारित नहीं होती जिससे वह धर्म परिवर्तन से पहले संबंधित था।

Social equality

सामाजिक समानता

- The court noted that **Christian missionaries** as well as **Islamic preachers** had maintained that their religions offered social equality unlike Hinduism, which had a caste hierarchy.

न्यायालय ने कहा कि ईसाई मिशनरियों और इस्लामी प्रचारकों ने हमेशा यह दावा किया है कि उनके धर्म हिंदू धर्म के विपरीत सामाजिक समानता प्रदान करते हैं, जिसमें जातिगत पदानुक्रम मौजूद है।

- "Having taken such a stand for effecting conversions, it is disingenuous to claim that there is hierarchy in Islam also.
"धर्म परिवर्तन कराने के लिए ऐसा रुख अपनाने के बाद, यह दावा करना अनुचित है कि इस्लाम में भी पदानुक्रम मौजूद है।
- In our respectful view, categorising certain sects as Backward and the remaining as Forward is antithetical to Quranic injunctions.
हमारे सम्मानजनक विचार में, कुछ वर्गों को पिछड़ा और बाकी को अग्रणी के रूप में वर्गीकृत करना कुरानिक निर्देशों के विपरीत है।
- Islam seeks to establish an egalitarian society.
इस्लाम एक समानतावादी समाज स्थापित करने का प्रयास करता है।
- Everyone is equal in the eye of God.
ईश्वर की दृष्टि में सभी समान हैं।
- There is no social hierarchy," the court had said.
कोई सामाजिक पदानुक्रम नहीं है," न्यायालय ने कहा था।
- The special leave petition was filed by the Secretary to the State of Tamil Nadu in the Supreme Court.
विशेष अनुमति याचिका (SLP) तमिलनाडु राज्य के सचिव द्वारा सर्वोच्च न्यायालय में दायर की गई।

What is the right to be forgotten?

How does the ruling balance privacy with open justice and free speech? What challenges remain in enforcing the right to be forgotten? What role does the DPDP Act play? Who should decide requests for erasure or de-indexing?

GS II: Polity

EXPLAINER

G.S. Bajpai

The story so far:

The Delhi High Court, in its recent ruling, has laid down the principles governing the right to be forgotten. The court has evolved a new jurisprudence to protect the privacy of those who continue to be victimised on account of their digital footprints on social media and elsewhere, despite having those matters settled in their favour.

What is the 'right to be forgotten'?

The "right to be forgotten" is the right to have information erased or de-indexed from the public digital environment when its continued accessibility is harmful and serves no public interest.

The concept came to the fore in 2014, when a Spanish citizen, Mario Costeja González, complained to the European Court of Justice that Google continued to display an old newspaper notice about the auction of his repossessed house even though the debt had been settled. The court ruled in his favour, laying the groundwork for the right to erasure, which was later incorporated into Article 17 of the European Union's General Data Protection Regulation (GDPR).

How has the idea of the right to be forgotten evolved in Indian law?

The Supreme Court's judgment in *K.S. Puttaswamy v. Union of India* (2017) held that privacy is a fundamental right under Article 21, including the right to informational privacy. In the years that followed, however, High Courts adopted divergent approaches.

While some permitted anonymisation in limited cases, such as the Delhi High Court ordering the masking of names in certain matrimonial and criminal matters, others rejected similar requests on



GETTY IMAGES

grounds of open justice.

The real challenge was the lack of a coherent framework to balance these competing interests, which the May 2026 Delhi High Court judgment sought to address.

What did the Delhi High Court decide?

On May 29, the Delhi High Court ruled in a batch of over 30 consolidated petitions, led by *Laksh Vir Singh Yadav v. Union of India*. The core issue was whether informational privacy could justify the de-indexing or masking of judicial records in a system committed to open justice. The court held that the right to be forgotten flows from Article 21's guarantee of dignity and informational privacy. The structured proportionality test is that retention must have a legitimate purpose, that the harm to privacy must be balanced against the public interest, and that the least intrusive means, typically by masking names instead of deleting the entire judgment, should be preferred. The court also prescribed a two-week

deadline for legal databases to comply and explained that only the parties' names should be redacted, not the facts of the case.

How does the right to be forgotten interact with constitutional values?

This is not a stand-alone right. It frequently conflicts with freedom of speech and press under Article 19(1)(a), the principle of open justice, and the public's right to know. A right to privacy must be sacrificed when the public interest is of a high order, particularly in serious cases of crime, but the digital presence should not destroy a person's life long after the trial ends. The judgments are still publicly accessible by case number or a keyword search; only name-based searches are restricted.

What are the practical challenges?

The toughest aspect is enforcement. An acquittal judgment may still appear highly in name-based searches even after a court has ordered the removal of the search results. Search engines are designed so

that the original accusation, or the "shadow of crime," is often the first thing the user sees. De-indexing can benefit at the search level, but it won't prevent mirrors, archive copies, or social media sharing. Without effective technical compliance and coordination among platforms, the right may remain largely symbolic.

What is the relationship between the right to be forgotten and DPDP Act?

As of now, the Digital Personal Data Protection Act, 2023, offers a limited statutory right to erasure in section 12. It is primarily based on consent and does not explicitly address judicial records and public archives, where the right to be forgotten is most needed. The Act is deficient because rules have not been notified and the data protection board has not been completely effective.

Who should decide requests for erasure or de-indexing?

The challenge lies in balancing efficiency with accountability. Requiring every request to be decided by a court would create significant bottlenecks, while leaving such decisions entirely to technology companies raises concerns about due process and transparency. A more sensible approach would be a tiered system, where cases could be heard by platforms, contested ones by the data protection board, and judicial cases by courts.

The Delhi High Court has established an important framework, but until the Supreme Court rules on the matter, establishes a data protection board, and platforms comply with it, this ruling will be mostly declaratory. The conflict over freedom of expression and open justice is a reality. The task ahead is now to establish the institutions that facilitate it. (G. S. Bajpai is Vice Chancellor at National Law University Delhi. He acknowledges the assistance of Vibhuti Sharma, Academic fellow, NLU Delhi. Views are personal)

THE GIST

The Delhi High Court has recognised the right to be forgotten as part of the fundamental right to privacy under Article 21, laying down a framework that balances informational privacy with open justice and freedom of speech by favouring name-masking over deletion judgments.

While the ruling provides a legal framework for de-indexing and erasure requests, its effectiveness depends on enforcement by platforms, the operationalisation of the DPDP Act, and the establishment of institutions such as the data protection board.

09J7. What is the right to be forgotten?

भुला दिए जाने का अधिकार क्या है?

- The Supreme Court's judgment in **K.S. Puttaswamy v. Union of India (2017)** held that privacy is a fundamental right under **Article 21**, including the right to informational privacy.
के.एस. पुट्टस्वामी बनाम भारत संघ (2017) में सर्वोच्च न्यायालय के निर्णय ने माना कि निजता अनुच्छेद 21 के तहत एक मौलिक अधिकार है, जिसमें सूचना संबंधी निजता का अधिकार भी शामिल है।
- While some permitted **anonymisation** in limited cases, such as the Delhi High Court ordering the masking of names in certain matrimonial and criminal matters, others rejected similar requests on grounds of **open justice**.
जहाँ कुछ न्यायालयों ने सीमित मामलों में गुमनामीकरण की अनुमति दी, जैसे दिल्ली उच्च न्यायालय द्वारा कुछ वैवाहिक और आपराधिक मामलों में नाम छिपाने का आदेश देना, वहीं अन्य ने खुली न्याय व्यवस्था के आधार पर ऐसे अनुरोधों को अस्वीकार कर दिया।
- The real challenge was the lack of a coherent framework to balance these competing interests, which the **May 2026 Delhi High Court judgment** sought to address.
वास्तविक चुनौती इन परस्पर विरोधी हितों को संतुलित करने के लिए एक स्पष्ट ढाँचे की कमी थी, जिसे मई 2026 के दिल्ली उच्च न्यायालय के निर्णय ने हल करने का प्रयास किया।

What did the Delhi High Court decide?

दिल्ली उच्च न्यायालय ने क्या निर्णय दिया?

- On **May 29**, the **Delhi High Court** ruled in a batch of over 30 consolidated petitions, led by **Laksh Vir Singh Yadav v. Union of India**.
29 मई को दिल्ली उच्च न्यायालय ने लक्ष वीर सिंह यादव बनाम भारत संघ के नेतृत्व वाली 30 से अधिक संयुक्त याचिकाओं के समूह पर निर्णय दिया।
- The core issue was whether **informational privacy** could justify the de-indexing or masking of judicial records in a system committed to **open justice**.
मुख्य मुद्दा यह था कि क्या सूचनात्मक गोपनीयता एक ऐसी व्यवस्था में न्यायिक रिकॉर्ड को डी-इंडेक्स करने या छिपाने को उचित ठहरा सकती है, जो खुले न्याय के सिद्धांत के लिए प्रतिबद्ध है।
- The court held that the **right to be forgotten** flows from **Article 21's** guarantee of dignity and informational privacy.
न्यायालय ने माना कि भुलाए जाने का अधिकार (Right to be Forgotten) अनुच्छेद 21 द्वारा प्रदान की गई गरिमा और सूचनात्मक गोपनीयता की गारंटी से उत्पन्न होता है।
- The structured **proportionality test** is that retention must have a legitimate purpose, that the harm to privacy must be balanced against the public interest, and that the least intrusive means, typically by masking names instead of deleting the entire judgment, should be preferred.
संरचित आनुपातिकता परीक्षण यह है कि जानकारी को बनाए रखने का वैध उद्देश्य होना चाहिए, गोपनीयता को होने वाली हानि को सार्वजनिक हित के साथ संतुलित किया जाना चाहिए, और पूरे निर्णय को हटाने के बजाय आमतौर पर नाम छिपाने जैसे कम हस्तक्षेपकारी उपायों को प्राथमिकता दी जानी चाहिए।
- The court also prescribed a **two-week deadline** for legal databases to comply and explained that only the parties' names should be redacted, not the facts of the case.
न्यायालय ने कानूनी डेटाबेस को अनुपालन के लिए दो सप्ताह की समय-सीमा भी निर्धारित की और स्पष्ट किया कि केवल पक्षों के नाम हटाए जाने चाहिए, मामले के तथ्य नहीं।

How does the right to be forgotten interact with constitutional values?

भुलाए जाने का अधिकार संवैधानिक मूल्यों के साथ कैसे जुड़ा है?



- It frequently conflicts with **freedom of speech and press under Article 19(1)(a)**, the principle of open justice, and the public's right to know.
यह अक्सर अनुच्छेद 19(1)(a) के तहत अभिव्यक्ति और प्रेस की स्वतंत्रता, खुले न्याय के सिद्धांत और जनता के जानने के अधिकार से टकराता है।
- A right to privacy must be sacrificed when the public interest is of a high order, particularly in serious cases of crime, but the digital presence should not destroy a person's life long after the trial ends.
जब सार्वजनिक हित अत्यधिक महत्वपूर्ण हो, विशेष रूप से गंभीर अपराधों के मामलों में, तो गोपनीयता के अधिकार को सीमित किया जा सकता है, लेकिन मुकदमा समाप्त होने के लंबे समय बाद भी डिजिटल उपस्थिति किसी व्यक्ति के जीवन को नष्ट नहीं करनी चाहिए।
- The judgments are still publicly accessible by case number or a keyword search; only name-based searches are restricted.
निर्णय अभी भी केस नंबर या कीवर्ड खोज के माध्यम से सार्वजनिक रूप से उपलब्ध रहते हैं; केवल नाम आधारित खोजों को प्रतिबंधित किया जाता है।

What are the practical challenges?

व्यावहारिक चुनौतियां क्या हैं?

- The toughest aspect is **enforcement**.
सबसे कठिन पहलू क्रियान्वयन है।
- An acquittal judgment may still appear highly in name-based searches even after a court has ordered the removal of the search results.
न्यायालय द्वारा खोज परिणाम हटाने का आदेश देने के बाद भी, बरी किए जाने का निर्णय नाम आधारित खोजों में प्रमुख रूप से दिखाई दे सकता है।
- Search engines are designed so that the original accusation, or the "shadow of crime," is often the first thing the user sees.
सर्च इंजन इस प्रकार बनाए गए हैं कि मूल आरोप या "अपराध की छाया" अक्सर पहली चीज होती है जिसे उपयोगकर्ता देखता है।
- De-indexing can benefit at the search level, but it won't prevent mirrors, archive copies, or social media sharing.
डी-इंडेक्सिंग खोज स्तर पर लाभ दे सकती है, लेकिन यह मिरर साइट्स, आर्काइव कॉपी या सोशल मीडिया शेयरिंग को नहीं रोक सकती।
- Without effective technical compliance and coordination among platforms, the right may remain largely symbolic.
प्लेटफॉर्मों के बीच प्रभावी तकनीकी अनुपालन और समन्वय के बिना, यह अधिकार काफी हद तक केवल प्रतीकात्मक रह सकता है।

What is the relationship between the right to be forgotten and DPDP Act?

भुलाए जाने के अधिकार और DPDP अधिनियम के बीच क्या संबंध है?

- As of now, the **Digital Personal Data Protection Act, 2023**, offers a limited statutory right to erasure in section 12.
वर्तमान में, डिजिटल व्यक्तिगत डेटा संरक्षण अधिनियम, 2023 धारा 12 के तहत मिटाने का सीमित वैधानिक अधिकार प्रदान करता है।
- It is primarily based on consent and does not explicitly address judicial records and public archives, where the right to be forgotten is most needed.
यह मुख्य रूप से सहमति पर आधारित है और न्यायिक रिकॉर्ड तथा सार्वजनिक अभिलेखों को स्पष्ट रूप से संबोधित नहीं करता, जहां भुलाए जाने के अधिकार की सबसे अधिक आवश्यकता होती है।



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The Indian diaspora as Australia's identity, its future

GS II: IR

The Indian diaspora is now officially Australia's largest overseas-born community, overtaking the England-born population for the first time. This is not a small demographic footnote. Australia's population has, for two centuries, been anchored by a British-derived majority. An Indian-origin community now outnumbering it marks a genuine inflection point in how the country understands itself. It is against this backdrop that Prime Minister Narendra Modi's visit to Australia – his third visit Down Under – will be a trip in which the diaspora is expected to command the spotlight.

The Australia-India relationship has come a long way, from being defined by the simplistic 'three Cs' – Cricket, Curry and Commonwealth – to a more meaningful 'four Ds': Democracy, Defence, Diaspora and Dosti. This shift reflects a decade of institution-building, including India's participation alongside Australia, the United States and Japan in the Quad, the informal security grouping that has become the backbone of the Indo-Pacific strategy of India and Australia. Mr. Modi's visit will touch on all four pillars, but it is the diaspora event – a large public gathering billed as 'Melbourne Meets Modi' – that is drawing the most attention, precisely because of what this community has come to represent for both nations.

A new migration era

The settlement trajectory of the Australian-Indian community is very different from its counterparts in the U.S. or the United Kingdom. The first significant wave of Indian professional migration to Australia dates only to the 1960s and 1970s,



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The diaspora must be valued not merely as a symbol of partnership, but as a community whose voices matter

climbing after the dismantling of the White Australia Policy – an explicitly racist immigration regime that excluded all but European migrants.

By diaspora standards, this makes the Australian-Indian community still young. A large share of recent arrivals left India during the 'New India' years since 2014, a period of rapid outward migration driven by a mix of economic ambition and, for some, disillusionment with the state of democratic institutions at home. Whatever the reasons for leaving, this cohort tends to be more recently and more tightly bound to India – through family, business, remittances and a resurgent nationalist identity. That is what makes Australia's Indian community distinct beyond just numbers.

The rise of political backlash

As the anti-immigration wave rises across the globe, in Australia this wave has found a specific target in the Indian community. Nationalist street rallies under banners such as 'March for Australia' have gathered pace over the past year, and the right-wing populist One Nation party is emerging as the main opponent to the left-of-centre Labor party currently in power. Mr. Modi's high-visibility diaspora event lands squarely within this tense landscape. By showcasing the scale, accomplishments and mobilisation of the Indian community, it will reiterate the statement – increasingly co-opted by conservative movements – that this community has grown too large, too fast, and too visible.

For Australia, the Indian diaspora is an economic asset and a force multiplier for the country's multicultural fabric. But a fracturing domestic political landscape means that this asset

can just as easily be recast as a liability in public discourse. Mr. Modi's visit should be a reminder to policymakers that failing to invest in better understanding this growing and dynamic community carries real stakes for the future of this strategic partnership.

Beyond numbers and narratives

For India, the diaspora has long been framed as a source of pride and a connecting tissue of cultural links to Australia as a strategic partner. But pride and sentiment are not the same as understanding. What is missing – on both sides of the relationship – is a serious, evidence-based picture of how this diaspora actually lives, trusts and participates in Australian civic life, beyond the headline statistics on income, education and trade that has long been the mainstay of government discourse. If both countries are serious about treating the diaspora as a genuine pillar of their partnership rather than a talking point, that requires concerted efforts to capture their experiences of settlement which are far from monolithic.

Australia's demographic transformation is not a passing trend. It will permanently reshape its national identity from an antipodean one to one that is far more entangled with India and the wider Indo-Pacific. That means sustained research, stronger engagement with civil society, and policies that build social cohesion rather than taking it for granted. If democracy, defence, diaspora and dosti are to remain the four pillars of the partnership, then the diaspora must be treated not merely as a symbol of the relationship, but as a constituency whose experiences and trust deserve to be understood.

09J7. The Indian diaspora as Australia's identity, its future ऑस्ट्रेलिया की पहचान और उसके भविष्य के रूप में भारतीय प्रवासी समुदाय

- The **Indian diaspora** is now officially Australia's largest overseas-born community, overtaking the England-born population for the first time.

भारतीय प्रवासी समुदाय अब आधिकारिक रूप से ऑस्ट्रेलिया का सबसे बड़ा विदेश में जन्मा समुदाय बन गया है, जिसने पहली बार इंग्लैंड में जन्मी आबादी को पीछे छोड़ दिया है।

- The **Australia-India relationship** has come a long way, from being defined by the simplistic 'three Cs' — Cricket, Curry and Commonwealth — to a more meaningful 'four Ds': Democracy, Defence, Diaspora and Dosti.

ऑस्ट्रेलिया-भारत संबंध ने एक लंबी यात्रा तय की है, जहां यह सरल 'तीन C' — क्रिकेट, करी और कॉमनवेल्थ — से आगे बढ़कर अधिक अर्थपूर्ण 'चार D': लोकतंत्र, रक्षा, प्रवासी समुदाय और दोस्ती तक पहुंच गया है।

- Mr. Modi's visit will touch on all four pillars, but it is the diaspora event — a large public gathering billed as '**Melbourne Meets Modi**' — that is drawing the most attention, precisely because of what this community has come to represent for both nations.

श्री मोदी की यात्रा सभी चार स्तंभों को छुएगी, लेकिन प्रवासी कार्यक्रम — '**मेलबर्न मीट्स मोदी**' नामक एक बड़ा सार्वजनिक आयोजन — सबसे अधिक ध्यान आकर्षित कर रहा है, क्योंकि यह समुदाय दोनों देशों के लिए एक विशेष महत्व रखने लगा है।



A new migration era प्रवासन का नया युग

- The settlement trajectory of the **Australian-Indian community** is very different from its counterparts in the U.S. or the United Kingdom.
ऑस्ट्रेलियाई-भारतीय समुदाय के बसने की प्रक्रिया अमेरिका या यूनाइटेड किंगडम में बसे भारतीय समुदायों से काफी अलग है।
- The **first significant wave of Indian professional migration to Australia dates only to the 1960s and 1970s**, climbing after the dismantling of the **White Australia Policy** — an explicitly racist immigration regime that excluded all but European migrants.
ऑस्ट्रेलिया में भारतीय पेशवरों के प्रवास की पहली महत्वपूर्ण लहर केवल 1960 और 1970 के दशक में शुरू हुई, जो व्हाइट ऑस्ट्रेलिया नीति को समाप्त करने के बाद बढ़ी — यह एक स्पष्ट रूप से नस्लवादी आव्रजन व्यवस्था थी, जो यूरोपीय प्रवासियों को छोड़कर अन्य सभी को बाहर रखती थी।
- By diaspora standards, this makes the **Australian-Indian community still young**.
प्रवासी समुदायों के मानकों के अनुसार, यह ऑस्ट्रेलियाई-भारतीय समुदाय को अभी भी अपेक्षाकृत नया बनाता है।
- By showcasing the scale, accomplishments and mobilisation of the **Indian community**, it will reiterate the statement — increasingly co-opted by conservative movements — that this community has grown too large, too fast, and too visible.
भारतीय समुदाय के आकार, उपलब्धियों और एकजुटता को प्रदर्शित करके, यह उस कथन को दोहराएगा — जिसे रूढ़िवादी आंदोलनों द्वारा तेजी से अपनाया जा रहा है — कि यह समुदाय बहुत बड़ा, बहुत तेजी से बढ़ा है और बहुत अधिक दिखाई देने लगा है।
- For Australia, the **Indian diaspora is an economic asset and a force multiplier for the country's multicultural fabric**.
ऑस्ट्रेलिया के लिए, भारतीय प्रवासी समुदाय एक आर्थिक संपत्ति और देश की बहुसांस्कृतिक संरचना को मजबूत करने वाली शक्ति है।

What is the 'Hummus trail' and why is it under scrutiny?

Can India arrest foreign nationals accused of grave breaches under the Geneva Conventions?

ESIR
Nivedita S.

The story so far:

In June 2, 2026, the Hind Rajab Foundation (HRF), a Palestinian rights organisation based in Brussels, filed a complaint with the Union Ministry of Home Affairs, the Bureau of Immigration and the police to arrest Eitan Gilboa, an Israeli soldier, who was found to be vacationing in Himachal Pradesh. Gilboa, a member of the 271st Combat Engineering Battalion, was accused by the organisation of committing "war crimes in Gaza" in 2024. The organisation submitted evidence that involves specific instances in which he participated in the destruction of residential buildings and civilian infrastructure in Khan Yunis and Rafah. He filmed videos of himself celebrating the execution of these activities, which were later posted on social media by his mother. The HRF provided geo-located videos, social media videos and chain-of-command documentation along with the complaint.

How does Indian law apply to alleged war crimes?

The HRF alleged that these activities by Gilboa were in violation of the Fourth Geneva Convention, to which India is a signatory. Under this convention, any intentional launch of an attack which is known to cause loss of life or injury to civilians, along with severe damage to civilian objects, is considered to be a war crime and a grave breach of the convention.

Though India does not have its own law criminalising war crimes, it has passed the Geneva Conventions Act, 1960. Under this law, any act which constitutes a 'grave breach' under four sections of the Geneva Convention is criminalised. India can arrest any person, irrespective of nationality, if found to have committed an offence under the convention, regardless of the geographical location of the offence.

If an arrest is not possible, the Home Ministry and the Bureau of Immigration can facilitate the deportation of the accused from Indian territory. However,

the Union government did not issue a statement regarding the allegations by HRF, nor initiated a probe.

What is the 'Hummus trail'?

Though Gilboa has now fled India, he was traced by pro-Palestinian activists and the HRF in Old Manali and Gondla Village of Himachal Pradesh, which are popular spots among Israelis along the 'Hummus trail'.

Every year, around 80,000 Israelis visit India, a large number of them young veterans who have been discharged from the mandatory Israeli army service. This trip, known as the Tiul Gadol, could last up to 6 months or a year and is mainly funded by the bonus they receive after serving in the army. In February 2026, the Israeli government allocated four million NIS to boost tourism collaboration with India.

From the north to the south of the country, there are several areas which are frequented by Israelis, and this is colloquially known as the 'Hummus trail in India'. This includes Kasol (also known

as mini-Israel), Kodaikanal, Kerala, Goa, Hampi, Gokarna, Rishikesh, Varanasi, Pushkar, Almore, Dharamkot, and, more recently, the Andaman and Nicobar Islands.

In these places frequented by Israelis, one can observe several changes to the cultural landscape. It is common to see signs in Hebrew, posters promoting the Israeli Defence Forces, along with cafes, stores and hostels run by Israelis. In 2015, an Israeli-run cafe in Himachal Pradesh faced backlash for allegedly denying entry to Indians with a 'whites only' sign.

According to a 2020 study published in the Journal of Travel & Tourism Marketing, drug abuse and rave parties are common along the Hummus trail, with drug peddling cases on the rise in these regions.

The study found that to cope with mental health challenges faced by these veterans during their service in the army, they resort to high drug consumption. Mental health workers from Israel have also been sent to India to aid these reservists.

Why is the issue drawing global attention?

"India-Israel tourism is not merely about routine holidays and cultural exchange. It is part of a broader normalisation process that seeks to deepen social and economic ties between the two countries," Azad Essa, author of Hostile Homelands: The New Alliance Between India and Israel, told *The Hindu*. He added that Israel has thanked India multiple times for being

one of the few countries that have provided political and moral support to Israel, when much of the world has turned its back on it, at least publicly.

As Israel has killed over 73,000 Palestinians in the Gaza Strip since the October 7, 2023, Hamas attack, and is currently facing a case filed by South Africa in the International Court of Justice over allegations of genocide, allowing unrestricted entry of Israeli soldiers to India after their service in Gaza demands scrutiny.

The UN Commission of Inquiry, in its report, has said that the Israeli military "deliberately carried out acts inflicting death and severe bodily and mental harm on hundreds of thousands of Palestinian children."

Five-year-old Hind Rajab is among the thousands of children killed by the Israeli forces in Gaza.

The HRF's legal action in other countries against Israeli soldiers travelling there has resulted in successful outcomes in Brazil, Romania, Peru, Belgium, and Canada, according to its website. A court in Chile is the latest to recognise universal jurisdiction over war crimes in Gaza while hearing HRF's complaint against Rom Kovtun, an Israeli-Ukrainian citizen accused of war crimes during the siege of Al-Shifa Hospital in Gaza.

"The 'Hummus Trail' — or these extended trips that IDF soldiers take to decompress after military duties — cannot become a route for impunity," Natacha Bracq, Head of Litigation at the HRF, said in a statement.

09J7. What is the 'Hummus trail' and why is it under scrutiny?
'हम्मस ट्रेल' क्या है और यह जांच के दायरे में क्यों है?

- Can India arrest foreign nationals accused of grave breaches under the **Geneva Conventions**
क्या भारत जिनेवा कन्वेंशन के तहत गंभीर उल्लंघनों के आरोपी विदेशी नागरिकों को गिरफ्तार कर सकता है?
- On June 2, 2026, the **Hind Rajab Foundation (HRF)**, a Palestinian rights organisation based in Brussels, filed a complaint with the Union Ministry of Home Affairs, the Bureau of Immigration and the police to arrest **Eitan Gilboa**, an Israeli soldier, who was found to be vacationing in Himachal Pradesh.
2 जून 2026 को, ब्रुसेल्स स्थित फिलिस्तीनी अधिकार संगठन **हिंद रजब फाउंडेशन (HRF)** ने केंद्रीय गृह मंत्रालय, आव्रजन ब्यूरो और पुलिस के पास **ईतान गिलबोआ**, एक इजरायली सैनिक, को गिरफ्तार करने के लिए शिकायत दर्ज की, जो हिमाचल प्रदेश में छुट्टियां मनाते हुए पाया गया था।
- Gilboa, a member of the **271st Combat Engineering Battalion**, was accused by the organisation of committing "war crimes in Gaza" in 2024.
271वीं कॉम्बैट इंजीनियरिंग बटालियन के सदस्य गिलबोआ पर संगठन ने 2024 में "गाजा में युद्ध अपराध" करने का आरोप लगाया।
- The organisation submitted evidence that involves specific instances in which he participated in the destruction of residential buildings and civilian infrastructure in **Khan Yunis and Rafah**.
संगठन ने ऐसे विशिष्ट मामलों से जुड़े प्रमाण प्रस्तुत किए जिनमें उसने **खान यूनिस और राफा** में आवासीय इमारतों और नागरिक बुनियादी ढांचे के विनाश में भाग लिया था।
- He filmed videos of himself celebrating the execution of these activities, which were later posted on social media by his mother.
उसने इन गतिविधियों को अंजाम देने का जश्न मनाते हुए अपने वीडियो बनाए, जिन्हें बाद में उसकी मां द्वारा सोशल मीडिया पर पोस्ट किया गया।
- The **HRF** provided geo-located videos, social media videos and chain-of-command documentation along with the complaint.
HRF ने शिकायत के साथ भू-स्थान आधारित वीडियो, सोशल मीडिया वीडियो और कमांड श्रृंखला से जुड़े दस्तावेज उपलब्ध कराए।

How does Indian law apply to alleged war crimes?

कथित युद्ध अपराधों पर भारतीय कानून कैसे लागू होता है?

- The **HRF** alleged that these activities by Gilboa were in violation of the **Fourth Geneva Convention**, to which India is a signatory.
HRF ने आरोप लगाया कि गिलबोआ की ये गतिविधियां चौथे जिनेवा कन्वेंशन का उल्लंघन थीं, जिसका भारत एक हस्ताक्षरकर्ता देश है।
- Under this convention, any intentional launch of an attack which is known to cause loss of life or injury to civilians, along with severe damage to civilian objects, is considered to be a **war crime** and a grave breach of the convention.
इस कन्वेंशन के तहत, ऐसा कोई भी जानबूझकर किया गया हमला जिसके कारण नागरिकों की मृत्यु या चोट होने की संभावना हो, साथ ही नागरिक संपत्तियों को गंभीर नुकसान पहुंचे, उसे **युद्ध अपराध** और कन्वेंशन का गंभीर उल्लंघन माना जाता है।
- Though India does not have its own law criminalising war crimes, it has passed the **Geneva Conventions Act, 1960**.
हालांकि भारत के पास युद्ध अपराधों को अपराध घोषित करने वाला अपना अलग कानून नहीं है, लेकिन उसने **जिनेवा कन्वेंशन अधिनियम, 1960** पारित किया है।
- Under this law, any act which constitutes a '**grave breach**' under four sections of the Geneva Convention is criminalised.
इस कानून के तहत, जिनेवा कन्वेंशन की चार धाराओं के अंतर्गत आने वाले किसी भी '**गंभीर उल्लंघन**' को अपराध माना गया है।

- India can arrest any person, irrespective of nationality, if found to have committed an offence under the convention, regardless of the geographical location of the offence.
भारत किसी भी व्यक्ति को, उसकी राष्ट्रियता की परवाह किए बिना, गिरफ्तार कर सकता है यदि वह कन्वेंशन के तहत अपराध करता पाया जाता है, चाहे अपराध किसी भी भौगोलिक स्थान पर हुआ हो।
- If an arrest is not possible, the **Home Ministry** and the **Bureau of Immigration** can facilitate the deportation of the accused from Indian territory.
यदि गिरफ्तारी संभव नहीं होती है, तो गृह मंत्रालय और आब्रजन ब्यूरो आरोपी को भारतीय क्षेत्र से निर्वासित करने की प्रक्रिया को सुविधाजनक बना सकते हैं।
- However, the Union government did not issue a statement regarding the allegations by HRF, nor initiated a probe.
हालांकि, केंद्र सरकार ने HRF द्वारा लगाए गए आरोपों पर कोई बयान जारी नहीं किया और न ही कोई जांच शुरू की।

What is the 'Hummus trail'?

'हम्मस ट्रेल' क्या है?

- Though **Gilboa** has now fled India, he was traced by pro-Palestinian activists and the HRF in **Old Manali and Gondla Village of Himachal Pradesh, which are popular spots among Israelis along the 'Hummus trail.'**
हालांकि गिलबोआ अब भारत छोड़ चुका है, लेकिन उसे फिलिस्तीन समर्थक कार्यकर्ताओं और HRF द्वारा हिमाचल प्रदेश के ओल्ड मनाली और गोंडला गाँव में खोजा गया था, जो 'हम्मस ट्रेल' के अंतर्गत इज़राइलियों के बीच लोकप्रिय स्थान हैं।
- Every year, around **80,000 Israelis** visit India, a large number of them young veterans who have been discharged from the mandatory Israeli army service.
हर वर्ष लगभग **80,000 इज़राइली** भारत आते हैं, जिनमें बड़ी संख्या ऐसे युवा पूर्व सैनिकों की होती है जिन्हें अनिवार्य इज़राइली सैन्य सेवा से मुक्त किया गया होता है।
- This trip, known as the **Tiul Gadol**, could last up to 6 months or a year and is mainly funded by the bonus they receive after serving in the army.
यह यात्रा, जिसे **Tiul Gadol** कहा जाता है, 6 महीने से लेकर एक वर्ष तक चल सकती है और इसका मुख्य खर्च उस बोनस से पूरा किया जाता है जो उन्हें सेना में सेवा देने के बाद मिलता है।
- From the north to the south of the country, there are several areas which are frequented by Israelis, and this is colloquially known as the **'Hummus trail in India'**.
देश के उत्तर से दक्षिण तक कई ऐसे क्षेत्र हैं जहाँ इज़राइली अक्सर जाते हैं, और इसे आम बोलचाल में 'भारत में हम्मस ट्रेल' कहा जाता है।
- This includes **Kasol (also known as mini-Israel), Kodaikanal, Kerala, Goa, Hampi, Gokarna, Rishikesh, Varanasi, Pushkar, Almora, Dharamkot, and, more recently, the Andaman and Nicobar Islands.**
इसमें कसोल (जिसे मिनी-इज़राइल भी कहा जाता है), कोडाइकनाल, केरल, गोवा, हम्पी, गोकर्ण, ऋषिकेश, वाराणसी, पुष्कर, अल्मोड़ा, धर्मकोट और हाल ही में अंडमान एवं निकोबार द्वीप समूह शामिल हैं।
- In 2015, an Israeli-run cafe in Himachal Pradesh faced backlash for allegedly denying entry to Indians with a **'whites only' sign**.
2015 में, हिमाचल प्रदेश में इज़राइलियों द्वारा संचालित एक कैफे को कथित रूप से 'केवल श्वेत लोगों के लिए' संकेत लगाकर भारतीयों को प्रवेश न देने के कारण आलोचना का सामना करना पड़ा।
- The study found that to cope with **mental health challenges** faced by these veterans during their service in the army, they resort to high drug consumption.
अध्ययन में पाया गया कि सेना में सेवा के दौरान इन पूर्व सैनिकों द्वारा झेली गई मानसिक स्वास्थ्य चुनौतियों से निपटने के लिए वे अधिक मात्रा में नशीले पदार्थों का उपयोग करते हैं।
- As Israel has killed over **73,000 Palestinians in the Gaza Strip** since the October 7, 2023, Hamas attack, and is currently facing a case filed by **South Africa** in the International Court

of Justice over allegations of genocide, allowing unrestricted entry of Israeli soldiers to India after their service in Gaza demands scrutiny.

चूँकि 7 अक्टूबर 2023 के हमला हमले के बाद से इज़राइल द्वारा गाजा पट्टी में 73,000 से अधिक फिलिस्तीनियों की हत्या की गई है, और वर्तमान में नरसंहार के आरोपों को लेकर दक्षिण अफ्रीका द्वारा अंतरराष्ट्रीय न्यायालय में मामला दायर किया गया है, इसलिए गाजा में सेवा के बाद इज़राइली सैनिकों को भारत में बिना प्रतिबंध प्रवेश देने की समीक्षा की मांग उठती है।

- The HRF's legal action in other countries against Israeli soldiers travelling there has resulted in successful outcomes in **Brazil, Romania, Peru, Belgium, and Canada**, according to its website.

HRF की वेबसाइट के अनुसार, अन्य देशों में यात्रा करने वाले इज़राइली सैनिकों के विरुद्ध उसकी कानूनी कार्रवाइयों के **ब्राजील, रोमानिया, पेरू, बेल्जियम और कनाडा** में सफल परिणाम सामने आए हैं।

- A court in Chile is the latest to recognise **universal jurisdiction over war crimes in Gaza** while hearing HRF's complaint against Rom Kovtun, an Israeli-Ukrainian citizen accused of war crimes during the siege of **Al-Shifa Hospital in Gaza**.

चिली की एक अदालत हाल ही में गाजा में **युद्ध अपराधों पर सार्वभौमिक क्षेत्राधिकार** को मान्यता देने वाली अदालत बनी, जब उसने गाजा के अल-शिफा अस्पताल की घेराबंदी के दौरान युद्ध अपराधों के आरोपी इज़राइली-यूक्रेनी नागरिक रोम कोवतुन के विरुद्ध HRF की शिकायत पर सुनवाई की।

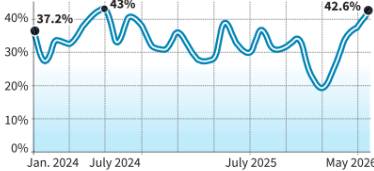
GS Paper III: Economy		09 July 2026
TOPICS COVERED		
09J7	Russian share in India's oil imports rises above 40% भारत के तेल आयात में रूस की हिस्सेदारी 40% से ऊपर पहुँची	
09J7	India added 52.5 mtpa regasification capacity in 2025: IGU World LNG Report IGU वर्ल्ड LNG रिपोर्ट: भारत ने 2025 में 52.5 एमटीपीए पुनर्गैसीकरण क्षमता जोड़ी	



Russian share in India's oil imports rises above 40%

Russian dependence

Moscow's share in New Delhi's oil import bill has continued to grow as India's other sources remain constrained



SOURCE: MINISTRY OF COMMERCE AND INDUSTRY

GS III: Economy
T.C.A. Sharad Raghavan
NEW DELHI

Russia's share in India's oil imports rose above 40% in May 2026, the highest in nearly two years, according to official government data.

Further, the data shows that Russia charged India a premium for its oil, while other sources such as the U.S. and even the UAE sold India oil at lower-than-average prices.

Russia had been providing India a discount on its oil as recently as February.

Notably, an analysis by *The Hindu* of the data released by the Ministry of Commerce and Industry shows that India is trying to diversify its sources of oil, including once again importing oil from Iran and Venezuela in April and continuing to do so in May 2026.

The U.S. had, in February, started allowing Venezuela to export oil.

India's total oil imports stood at 21.82 million tonnes in May 2026, the highest since January and about 12% higher than what it imported in April. This was, however, about 2.6% lower than what it imported in May last year.

Despite this, the higher oil prices meant that India's oil import bill still rose significantly in May 2026 – by 23.5% compared to April, and by a sizable 66% over May of last year.

This is because the price of oil that India imported stood at \$106 per barrel in May 2026 as compared to \$64 a barrel in May 2025, according to data from the Ministry of Petroleum and Natural Gas.

This price effect is visible

in India's oil imports from Russia as well. While the value of oil imports from Russia grew 83% in May 2026 over its level in May last year, the actual volume of oil imported from Russia fell by 2% over this period.

That said, the share of Russian oil in India's total oil imports stood at 40.5% in terms of volume and 42.6% in terms of value in May 2026.

A simple calculation based on the volume and value of oil imports from Russia shows that the total price paid by Indian importers stood at \$916 per tonne of Russian oil in May 2026, as compared to the average price of \$870 per tonne that India paid for all its oil imports. This works out to a premium of about \$46 per tonne.

According to Prerna Prabhakar, fellow at the Centre for Social and Economic Progress (CSEP), the premium charged by Russia is likely a result of the dependence India and China have on it for oil.

Sanctioned sources

The Commerce Ministry data also shows that India has been sourcing some of its oil from countries that were previously restricted from selling their oil.

India imported \$605 million worth of oil from Venezuela in April 2026, which rose to \$984 million in May. Notably, the data shows that India imported \$430.5 million worth of oil from Iran in April 2026, which fell to \$277 million in May. However, it was only in late June that the U.S. had given Iran a 60-day waiver to export oil, which it rescinded on Tuesday.

09J7. Russian share in India's oil imports rises above 40%

भारत के तेल आयात में रूस की हिस्सेदारी 40% से ऊपर पहुँची

• This is because the price of oil that India imported stood at **\$106 per barrel** in May 2026 as compared to **\$64 a barrel** in May 2025, according to data from the Ministry of Petroleum and Natural Gas.

ऐसा इसलिए हुआ क्योंकि पेट्रोलियम और प्राकृतिक गैस मंत्रालय के आँकड़ों के अनुसार, भारत द्वारा आयात किए गए तेल की कीमत मई 2026 में **106 डॉलर प्रति बैरल** थी, जबकि मई 2025 में यह **64 डॉलर प्रति बैरल** थी।

• That said, the **share of Russian oil in India's total oil imports stood at 40.5% in terms of volume and 42.6% in terms of value in May 2026.**

इसके बावजूद, मई 2026 में भारत के कुल तेल आयात में रूसी तेल की हिस्सेदारी **मात्रा के आधार पर 40.5% और मूल्य के आधार पर 42.6%** रही।



India added 52.5 mtpa regasification capacity in 2025: IGU World LNG Report

GS III: Economy

Santosh V. Perumal
CHENNAI

India added 52.5 million tonnes per annum (mtpa) of regasification capacity across eight terminals, as it surpassed Spain to become the fourth largest market for regasification capacity in 2025, according to the International Gas Union's (IGU) World LNG Report.

Rising demand for fertilizer, city gas and utilities as well as the government's push for enhanced share of liquefied natural gas (LNG) in the energy mix was seen helping the country

Among operational LNG regasification terminals in India, Dahej LNG (17.5 mtpa) stands out as the only ultra-large facility and ranks as the sixth largest globally.

Large-scale category

The remaining seven terminals fall into the large-scale category, each with a regasification capacity of 5 mtpa.

In 2025, India commissioned two LNG regasification projects, including one new onshore terminal, Chhara LNG, with a regasification capacity of 5 mtpa, and one expansion project at the Dabhol LNG terminal through the completion of its breakwater infrastructure.

The project has effectively enhanced the terminal's operational efficiency and has increased its capacity to 5 mtpa from 2.9 mtpa. Previously idle during the monsoon season, the Dabhol LNG terminal now enables uninterrupted, year-round operations after commissioning of the breakwater.

India currently has four LNG projects under construction, including one new terminal and three ex-



Dahej LNG terminal ranks as the sixth largest globally.

pansion projects at existing facilities, including the expansion of India's largest terminal, Dahej LNG.

Once commissioned, these projects are expected to add a combined 11.3 mtpa of regasification capacity by 2028.

According to the International Energy Agency, India's natural gas consumption is forecast to increase by nearly 60% by 2030, driven by robust growth in city gas distribution, industrial demand, and power generation.

India's LNG regasification utilisation fell to about 47% in 2025, down from 58% in 2024, reflecting a combination of weaker LNG imports during the summer months and an increase in regasification capacity following recent infrastructure additions.

Asia led the global LNG regasification capacity additions in 2025, with all new capacity coming from China and India, contributing 15.1 mtpa and 7.1 mtpa, representing 24% and 11.3% of global additions, respectively.

Although the Asia Pacific remained the largest LNG-importing region, IGU found imports into Asia fell by 9.2 MT to 108.7 MT, driven mainly by lower intake in China and India.

09J7. India added 52.5 mtpa regasification capacity in 2025: IGU World LNG Report

IGU वर्ल्ड LNG रिपोर्ट: भारत ने 2025 में 52.5 एमटीपीए

पुनर्गैसीकरण क्षमता जोड़ी

• India added **52.5 million tonnes per annum (mtpa)** of **regasification capacity** across **eight terminals**, as it surpassed **Spain** to become the **fourth largest market** for regasification capacity in **2025**, according to the **International Gas Union's (IGU) World LNG Report**.

इंटरनेशनल गैस यूनियन (IGU) की वर्ल्ड LNG रिपोर्ट के अनुसार, भारत ने आठ टर्मिनलों में 52.5 मिलियन टन प्रति वर्ष (mtpa) की पुनर्गैसीकरण क्षमता जोड़ी और स्पेन को पीछे छोड़ते हुए 2025 में पुनर्गैसीकरण क्षमता के मामले में विश्व का चौथा सबसे बड़ा बाजार बन गया।

• Among operational **LNG regasification terminals** in India, **Dahej LNG (17.5 mtpa)** stands out as the only **ultra-large facility** and ranks as the **sixth largest globally**.

भारत के परिचालित LNG पुनर्गैसीकरण टर्मिनलों में दहेज LNG (17.5 mtpa) एकमात्र अति-बड़ा संयंत्र है और यह विश्व का छठा सबसे बड़ा टर्मिनल है।

Large-scale category

बड़े पैमाने की श्रेणी

• The remaining **seven terminals** fall into the **large-scale category**, each with a regasification capacity of **5 mtpa**.

शेष सात टर्मिनल बड़े पैमाने की श्रेणी में आते हैं, जिनमें प्रत्येक की पुनर्गैसीकरण क्षमता 5 mtpa है।

• In **2025**, India commissioned **two LNG regasification projects**, including one new **onshore terminal**, **Chhara LNG**, with a **regasification capacity of 5 mtpa**, and one expansion project at the **Dabhol LNG terminal** through the completion of its **breakwater infrastructure**.

2025 में भारत ने दो LNG पुनर्गैसीकरण परियोजनाएँ शुरू कीं, जिनमें एक नया ऑनशोर टर्मिनल, चारा LNG, जिसकी पुनर्गैसीकरण क्षमता 5 mtpa है, तथा दाभोल LNG टर्मिनल में ब्रेकवॉटर अवसंरचना पूर्ण होने के बाद एक विस्तार परियोजना शामिल है।

International Gas Union (IGU) is a **global non-profit organisation** representing the **natural gas and gas industry** worldwide.

It was founded in **1931** and is registered in **Vevey, Switzerland**, with its Secretariat in **London, United Kingdom**.

Main Functions

It works to promote:

- **Natural gas**
- **LNG**



- Renewable gas
- Hydrogen
- Decarbonised gas
- Safe production, transmission, distribution and use of gas

IGU represents members from **over 70 countries** and covers **over 90% of the global gas market**.

GS Paper III: Science and Technology		09 July 2026
TOPICS COVERED		
09J7	Quantum computing age will only begin when we silence the noise क्वांटम कंप्यूटिंग युग तभी शुरू होगा जब हम शोर को शांत कर पाएंगे	
09J7	Countries try again to seal pandemic treaty after Ebola jolt इबोला के झटके के बाद देश महामारी संधि को अंतिम रूप देने के लिए फिर प्रयास कर रहे हैं	
09J7	OpenAI to launch new model GPT-5.6 after U.S. freeze अमेरिकी रोक के बाद OpenAI नया मॉडल GPT-5.6 लॉन्च करेगा	



Quantum computing age will only begin when we silence the noise

Among other things, quantum computers are expected to herald a new era in how we optimise complex logistical networks and model natural phenomena that overwhelm even our most powerful supercomputers; however, hardware limitations stand between promise and performance.

Soyamini Datta
BENGALURU

In a paper published in the *Journal of Statistical Physics* in 1980, the American physicist Paul Benioff described what is now called the quantum Turing machine: a model of a computer that operated according to the laws of quantum mechanics.

Quantum mechanics is the branch of physics that studies the behaviour of matter and light at atomic and subatomic scales. At these scales, the certainty associated with classical mechanics disappears. Instead of pinpointing a particle's properties, scientists can only make educated guesses.

This uncertainty may sound daunting. But Benioff – and other scientists like the British physicist David Deutsch, American physicist Richard Feynman, and American computer scientist Peter Shor – suggested ways to harness it for computation. Their work eventually became the foundation for one of the contemporary world's most ambitious technological pursuits, one for which the Government of India sanctioned over 66,000 crore in April 2023.

By 2031, the National Quantum Mission (NQM) – whose objectives include building “intermediate-scale quantum computers” – is expected to “make India one of the leading nations in the development of Quantum Technologies & Applications,” according to the Department of Science & Technology website.

Beyond hype

Beyond nationalistic pride, the possibilities of a quantum computer are tantalising. Among other things, quantum computers are expected to herald a new era in how we simulate molecules and their interactions, secure our digital lives, optimise complex logistical networks, and model natural phenomena that overwhelm even our most powerful supercomputers.

However, those in the thick of it warn against hype. “It is worth treating claims you hear in the field with scepticism,” Jason Freidenfelds, spokesperson for Google Quantum AI, the tech giant's quantum computing research division, said. “To date no one has experimentally demonstrated a commercially relevant problem that can be solved by today's quantum computers that could not be solved by a classical supercomputer.”

Indian Institute of Science physicist Arindam Ghosh, who chairs the Karnataka Government's Quantum Task Force, agreed. “At least at this point of time, there is no reason to believe that the classical computing that we know as of today is going to go away in any form,” he said. Dr. Ghosh also led the vision document for the NQM's Quantum Materials and Devices vertical.

At the heart of this gap between promise and performance is hardware.

Building a quantum computer

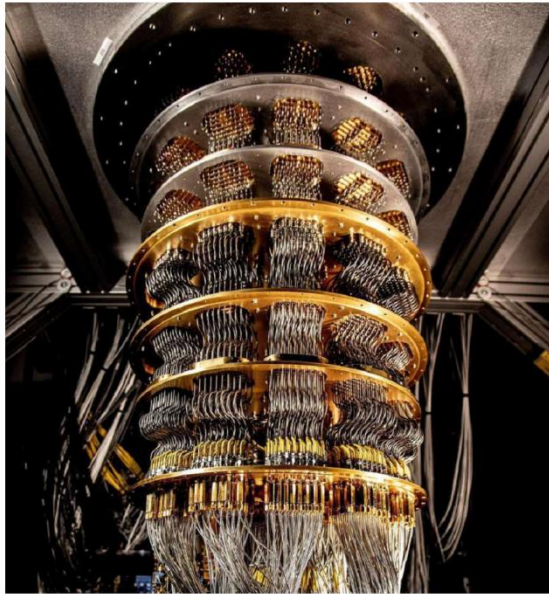
The processors of classical computers are made of billions of tiny devices called transistors. Made of silicon, these can amplify or block electrical signals. If a transistor allows current to pass through it, it is said to be in the ON state (represented by the number 1); conversely, if it blocks electrical signals from passing, it is said to be in the OFF state (represented by 0).

These states of a transistor form the fundamental unit of data in classical computers: a bit. Quantum computers replace the bit with a qubit (quantum bit). Unlike a bit, which can be either in the 0 or 1 states at any point of time, a qubit can exist in multiple states simultaneously: 0, 1, and any of the infinite states between them. This is like a coin tossed in the air; it is both heads and tails until it falls on the ground. This property is called superposition. It allows qubits to represent much larger amounts of information as compared with classical bits.

Further, thanks to the laws of quantum mechanics, qubits can also be entangled. That is, their states can become inextricably linked regardless of the physical distance between them. Any action or measurement made on one of the qubits will then affect the state of all other entangled qubits.

This makes quantum computers “massively parallel versions of a classical machine,” explained IITM quantum computing researcher Prabhu Rajagopal, the current Director-in-Charge of IITM's Zambur campus.

Superposition and entanglement massively increase the speed of processing – especially for tasks that



A cryostat refrigerator for cooling quantum computing chips is seen at the Google Quantum AI lab in California, U.S., on December 6, 2024. REUTERS

require a machine to work with large amounts of data and compare many different solutions of a problem. Examples of such tasks include “sorting algorithms and search algorithms,” Dr. Ghosh suggested.

Sorting algorithms provide instructions on how to rearrange a group of items into a specific order; for example, an online store that organises products by price in real-time. Search algorithms dictate how to find specific data points from a large set of data for example, finding which two metals will form an alloy with required properties from all possible combinations of metals.

Depending on their origin, qubits can be of different types. Superconducting qubits are made from a device called the Josephson junction. It involves two superconductors – materials that allow current to flow through them with almost negligible resistance – separated by a thin barrier. Google's quantum processor Willow, launched in December 2024, is an example.

Other ways of fabricating qubits include using tiny particles of semiconductors like silicon, gallium arsenide, or germanium (called quantum dot qubits); trapping and manipulating individual ions (trapped ion qubits); manipulating particles of light (photonic qubits); and using the angular momentum of nuclei within molecules (nuclear magnetic resonance, or NMR, qubits).

Perfect machine, imperfect parts

In 1998, two groups of researchers – one from Oxford University, and another consisting of scientists from IBM, University of California Berkeley, Stanford University, and the Massachusetts Institute of Technology – unveiled for the first time a quantum computer consisting of two NMR qubits. On that computer, they solved the Deutsch-Jozsa problem, demonstrating for the first time that quantum computers can solve certain problems dramatically faster than classical computers.

The Deutsch-Jozsa problem asks a computer to determine whether a mathematical function is constant or balanced. Functions are rules that take an input and process it to produce a corresponding output. A constant function would return the same value for all possible inputs. A balanced function, on the other hand, would return different outputs for different inputs. Although the problem was of little practical use, the milestone was important. A quantum

computer had been realised.

Since then, tech companies have raced to create increasingly larger processors, with California-based Atom Computing having reported in 2023 a quantum computer with over 1,000 qubits. Today's quantum computers have outperformed classical computers on a benchmark, successfully ran algorithms that would take classical computers impractically long amounts of time, and have computed the structures of some small molecules.

Yet they are still years away from being practically useful, all researchers this reporter spoke to agreed. Part of the challenge is to make processors with more qubits. The other, more important part is to deal with “noise and errors,” Dr. Rajagopal, the IITM quantum computing researcher, pointed out. This is why California Institute of Technology quantum computing researcher John Preskill called contemporary quantum processors “Noisy Intermediate-Scale Quantum Computing.”

Qubits are incredibly sensitive and short-lived. Any interaction with the environment – including with particles of light – lead to qubits losing their quantum states, a phenomenon called decoherence. To prevent this, qubits are isolated from the environment and cooled to temperatures near absolute zero (273 °C).

Further, the mechanisms by which qubits are controlled and manipulated, like lasers or microwave pulses, are themselves rarely perfect. Together, these lead to quantum processors being prone to noise, and, eventually, errors.

Contemporary quantum processors have error rates of 1% to 0.1%. That is, one out of every 100 to 1,000 quantum operations results in an error. In contrast, classical computers make errors at the rate of one out of every quintillion (10 followed by 17 zeroes) operations. In fact, some researchers, like University of Copenhagen's Michael Kastoryano, have suggested that error rates of quantum processors are unlikely to decrease beyond one out of 1,000,000,000 operations.

Then the challenge facing quantum computing is, in the words of *Quanta Magazine*, “how do you construct a perfect machine out of imperfect parts?”

Fixing errors
The answer: error correction. This is a set of techniques that forces several qubits to work together as a single “logical qubit”.

A computer can then use several such logical qubits to perform calculations.

There is, however, one problem. Merely adding more qubits doesn't help. If each qubit is prone to errors, adding more qubits could worsen the performance of logical qubits. But if scientists can push the error rate for individual qubits below a certain threshold, we get a system whose error rate drops exponentially with each additional qubit.

That is exactly what Google Quantum AI researchers showed for the first time in a 2024 *Nature* paper with their processor Willow. “Each time we increase our encoded qubits from a 3x3 to a 5x5 to a 7x7 lattice of physical qubits, the encoded error rate is suppressed by a factor of two,” team members Michael Newman and Kevin Satzinger wrote in a 2024 blog post explaining the study. “This culminates in a logical qubit whose lifetime is more than twice of its best constituent physical qubit,” they added.

With that, Google is working on its next target: “a long-lived logical, or error-corrected, qubit,” spokesperson Freidenfelds said. “We expect the first useful quantum computing applications within the next five years.”

Ultimately, Google plans to tile thousands of these logical qubits together to create a “fully fault-tolerant quantum computer,” he added. IBM expects to debut theirs by 2029.

“Everything will change”
If these projections are correct, a practically useful quantum computer is practically knocking at our doors. The anticipation among scientists is palpable. “Everything would change” is their common refrain.

“The day we get an industrial-grade quantum computer, everything in this field of climate modelling [will] change,” Manmeet Singh, climate modeller and assistant professor at the Western Kentucky University, said. Dr. Ghosh and Dr. Rajagopal echoed his excitement, albeit about the role of quantum computers in materials modelling and cryptography.

While it may take some time for quantum computers to make their way to laptops, if at all, “it could cause a technological revolution well before that,” Dr. Ghosh said.

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09J7. Quantum computing age will only begin when we silence the noise

क्वांटम कंप्यूटिंग युग तभी शुरू होगा जब हम शोर को शांत कर पाएंगे

• In a paper published in the *Journal of Statistical Physics* in 1980, the American physicist **Paul Benioff** described what is now called the **quantum Turing machine: a model of a computer that operated according to the laws of quantum mechanics.**

वर्ष 1980 में जर्नल ऑफ स्टैटिस्टिकल फिजिक्स में प्रकाशित एक शोधपत्र में, अमेरिकी भौतिक विज्ञानी पॉल बेनिऑफ ने उस अवधारणा का वर्णन किया जिसे आज **क्वांटम ट्यूरिंग मशीन** कहा जाता है: यह एक ऐसे कंप्यूटर का मॉडल था जो क्वांटम यांत्रिकी के नियमों के अनुसार कार्य करता था।

• **Quantum mechanics is the branch of physics that studies the behaviour of matter and light at atomic and subatomic scales.**

क्वांटम यांत्रिकी भौतिकी की वह शाखा है जो परमाणु और उप-परमाणु स्तरों पर पदार्थ और प्रकाश के व्यवहार का अध्ययन करती है।

• **At these scales, the certainty associated with classical mechanics disappears.**

इन स्तरों पर शास्त्रीय यांत्रिकी से जुड़ी निश्चितता समाप्त हो जाती है।

• **By 2031, the National Quantum Mission (NQM) — whose objectives include building “intermediate-scale quantum computers” — is expected to “make India one of the leading nations in the development of Quantum Technologies & Applications,” according to the Department of**

Science & Technology website.

विज्ञान और प्रौद्योगिकी विभाग की वेबसाइट के अनुसार, वर्ष 2031 तक **राष्ट्रीय क्वांटम मिशन (NQM)** — जिसका उद्देश्य “मध्यम-स्तरीय क्वांटम कंप्यूटरों” का निर्माण करना भी है — भारत को **क्वांटम प्रौद्योगिकियों और अनुप्रयोगों के विकास में अग्रणी देशों में शामिल करने की उम्मीद रखता है।**

**Beyond hype
प्रचार से आगे**

- Beyond nationalistic pride, the possibilities of a **quantum computer** are tantalising. राष्ट्रीय गौरव से आगे, क्वांटम कंप्यूटर की संभावनाएं अत्यंत आकर्षक हैं।
- Among other things, quantum computers are expected to herald a new era in **how we simulate molecules and their interactions, secure our digital lives, optimise complex logistical networks, and model natural phenomena that overwhelm even our most powerful supercomputers.** अन्य बातों के साथ-साथ, क्वांटम कंप्यूटरों से यह अपेक्षा की जाती है कि वे अणुओं और उनकी अंतःक्रियाओं का अनुकरण करने, हमारे डिजिटल जीवन को सुरक्षित करने, जटिल लॉजिस्टिक नेटवर्क को अनुकूलित करने और उन प्राकृतिक घटनाओं का मॉडल बनाने के तरीके में एक नए युग की शुरुआत करेंगे, जो हमारे सबसे शक्तिशाली सुपरकंप्यूटरों को भी चुनौती देती हैं।
- Depending on their origin, **qubits** can be of different types. अपने स्रोत के आधार पर, क्यूबिट्स विभिन्न प्रकार के हो सकते हैं।
- Superconducting qubits are made from a device called the Josephson junction.** सुपरकंडक्टिंग क्यूबिट्स एक उपकरण से बनाए जाते हैं जिसे जोसेफसन जंक्शन कहा जाता है।
- It involves two superconductors – materials that allow current to flow through them with almost negligible resistance – separated by a thin barrier.** इसमें दो सुपरकंडक्टर शामिल होते हैं – ऐसे पदार्थ जो लगभग नगण्य प्रतिरोध के साथ विद्युत धारा को गुजरने देते हैं – जिन्हें एक पतली बाधा द्वारा अलग किया जाता है।
- Google's quantum processor Willow, launched in December 2024, is an example.** दिसंबर 2024 में लॉन्च किया गया Google का क्वांटम प्रोसेसर Willow इसका एक उदाहरण है।
- Other ways of fabricating qubits include using tiny particles of semiconductors like silicon, gallium arsenide, or germanium (called quantum dot qubits); trapping and manipulating individual ions (trapped ion qubits); manipulating particles of light (photonic qubits); and using the angular momentum of nuclei within molecules (nuclear magnetic resonance, or NMR, qubits).** क्यूबिट बनाने के अन्य तरीकों में सिलिकॉन, गैलियम आर्सेनाइड या जर्मेनियम जैसे अर्धचालकों के छोटे कणों का उपयोग करना (जिन्हें क्वांटम डॉट क्यूबिट्स कहा जाता है); व्यक्तिगत आयनों को कैद और नियंत्रित करना (ट्रैप्ड आयन क्यूबिट्स); प्रकाश के कणों को नियंत्रित करना (फोटोनिक क्यूबिट्स); और अणुओं के भीतर नाभिक के कोणीय संवेग का उपयोग करना (न्यूक्लियर मैग्नेटिक रेजोनेंस या NMR क्यूबिट्स) शामिल है।
- On that computer, they solved the **Deutsch-Jozsa problem**, demonstrating for the first time that quantum computers can solve certain problems dramatically faster than classical computers. उस कंप्यूटर पर उन्होंने Deutsch-Jozsa समस्या को हल किया, जिससे पहली बार यह प्रदर्शित हुआ कि क्वांटम कंप्यूटर कुछ समस्याओं को क्लासिकल कंप्यूटरों की तुलना में अत्यधिक तेजी से हल कर सकते हैं।
- The **Deutsch-Jozsa problem asks a computer to determine whether a mathematical function is constant or balanced.** Deutsch-Jozsa समस्या कंप्यूटर से यह निर्धारित करने को कहती है कि कोई गणितीय फलन स्थिर है या संतुलित।
- Functions are rules that take an input and process it to produce a corresponding output.** फलन वे नियम होते हैं जो इनपुट लेते हैं और उसे संसाधित करके संबंधित आउटपुट उत्पन्न करते हैं।
- A constant function would return the same value for all possible inputs.** एक स्थिर फलन सभी संभावित इनपुट के लिए समान मान लौटाएगा।
- A balanced function, on the other hand, would return different outputs for different inputs.** दूसरी ओर, एक संतुलित फलन अलग-अलग इनपुट के लिए अलग-अलग आउटपुट देगा।
- Although the problem was of little practical use, the milestone was important.** हालाँकि यह समस्या व्यावहारिक रूप से अधिक उपयोगी नहीं थी, फिर भी यह उपलब्धि महत्वपूर्ण थी।
- Since then, tech companies have raced to create increasingly larger processors, with California-based Atom Computing having reported in 2023 a quantum computer with over**

1,000 qubits.

तब से, तकनीकी कंपनियाँ लगातार बड़े प्रोसेसर बनाने की दौड़ में लगी हैं, जिसमें कैलिफोर्निया स्थित Atom Computing ने 2023 में 1,000 से अधिक क्यूबिट्स वाले क्वांटम कंप्यूटर की जानकारी दी।

- The other, more important part is to deal with “noise and errors,” Dr. Rajagopal pointed out. दूसरा और अधिक महत्वपूर्ण हिस्सा “शोर और त्रुटियों” से निपटना है, ऐसा डॉ. राजगोपाल ने बताया।
- This is why California Institute of Technology quantum computing researcher John Preskill called contemporary quantum processors “Noisy Intermediate-Scale Quantum Computing”.

इसी कारण कैलिफोर्निया इंस्टीट्यूट ऑफ टेक्नोलॉजी के क्वांटम कंप्यूटिंग शोधकर्ता जॉन प्रेस्किल ने वर्तमान क्वांटम प्रोसेसर को “Noisy Intermediate-Scale Quantum Computing” कहा।

- Qubits are incredibly sensitive and short-lived.
क्यूबिट्स अत्यधिक संवेदनशील और अल्पकालिक होते हैं।
- Any interaction with the environment – including with particles of light – lead to qubits losing their quantum states, a phenomenon called **decoherence**.

पर्यावरण के साथ कोई भी संपर्क – जिसमें प्रकाश कणों के साथ संपर्क भी शामिल है – क्यूबिट्स को उनकी क्वांटम अवस्थाएँ खोने की ओर ले जाता है, इस घटना को **डीकोहेरेंस** कहा जाता है।

- To prevent this, qubits are isolated from the environment and cooled to temperatures near **absolute zero (-273 °C)**.

इसे रोकने के लिए, क्यूबिट्स को पर्यावरण से अलग किया जाता है और **परम शून्य (-273 °C)** के निकट तापमान तक ठंडा किया जाता है।

- Further, the mechanisms by which qubits are controlled and manipulated, like lasers or microwave pulses, are themselves rarely perfect.

इसके अतिरिक्त, जिन प्रणालियों द्वारा क्यूबिट्स को नियंत्रित और संचालित किया जाता है, जैसे लेजर या माइक्रोवेव पल्स, वे स्वयं भी शायद ही पूर्ण होती हैं।

- Together, these lead to quantum processors being prone to noise, and, eventually, errors.
ये सभी मिलकर क्वांटम प्रोसेसर को शोर और अंततः त्रुटियों के प्रति संवेदनशील बनाते हैं।

- Contemporary quantum processors have **error rates of 1% to 0.1%**.

वर्तमान क्वांटम प्रोसेसर में त्रुटि दर 1% से 0.1% तक होती है।

- That is, one out of every 100 to 1000 quantum operations results in an error.

अर्थात प्रत्येक 100 से 1000 क्वांटम ऑपरेशन में से एक में त्रुटि होती है।

- In contrast, classical computers make errors at the rate of one out of every quintillion (10 followed by 17 zeroes) operations.

इसके विपरीत, क्लासिकल कंप्यूटर प्रत्येक क्विंटिलियन (10 के बाद 17 शून्य) ऑपरेशनों में केवल एक बार त्रुटि करते हैं।

- A computer can then use several such logical qubits to perform calculations.

इसके बाद एक कंप्यूटर गणना करने के लिए ऐसे कई लॉजिकल क्यूबिट्स का उपयोग कर सकता है।

- There is, however, one problem.

हालाँकि, इसमें एक समस्या है।

- Merely adding more qubits doesn't help.

केवल अधिक क्यूबिट्स जोड़ने से सहायता नहीं मिलती है।

- If each qubit is prone to errors, adding more qubits could worsen the performance of logical qubits.

यदि प्रत्येक क्यूबिट में त्रुटियों की संभावना होती है, तो अधिक क्यूबिट्स जोड़ने से लॉजिकल क्यूबिट्स का प्रदर्शन खराब हो सकता है।

- But if scientists can push the **error rate** for individual qubits below a certain threshold, we get a system whose error rate drops exponentially with each additional qubit.

लेकिन यदि वैज्ञानिक व्यक्तिगत क्यूबिट्स की त्रुटि दर को एक निश्चित सीमा से नीचे ला सकते हैं, तो हमें ऐसी प्रणाली मिलती है जिसकी त्रुटि दर प्रत्येक अतिरिक्त क्यूबिट के साथ तेजी से घटती जाती है।

- That is exactly what **Google Quantum AI** researchers showed for the first time in a 2024 Nature paper with their processor **Willow**.
यही बात **Google Quantum AI** के शोधकर्ताओं ने पहली बार 2024 के Nature शोध-पत्र में अपने प्रोसेसर **Willow** के साथ प्रदर्शित की।
- “Each time we increase our encoded qubits from a **3x3 to a 5x5 to a 7x7 lattice of physical qubits**, the encoded error rate is suppressed by a factor of two,” team members Michael Newman and Kevin Satzinger wrote in a 2024 blog post explaining the study.
“हर बार जब हम अपने एन्कोडेड क्यूबिट्स को **भौतिक क्यूबिट्स के 3x3 से 5x5 और फिर 7x7 लैटिस** तक बढ़ाते हैं, तो एन्कोडेड त्रुटि दर दो गुना कम हो जाती है,” टीम सदस्यों माइकल न्यूमैन और केविन सैटज़िंगर ने अध्ययन को समझाते हुए 2024 के एक ब्लॉग पोस्ट में लिखा।
- “This culminates in a logical qubit whose lifetime is more than twice of its best constituent physical qubit,” they added.
उन्होंने आगे कहा, “इसका परिणाम एक ऐसे लॉजिकल क्यूबिट के रूप में होता है जिसका जीवनकाल इसके सबसे अच्छे घटक भौतिक क्यूबिट से दोगुने से भी अधिक होता है।”
- With that, Google is working on its next target: “a **long-lived logical, or error-corrected, qubit**,” spokesperson Freidenfelds said.
इसके साथ, Google अपने अगले लक्ष्य पर कार्य कर रहा है: “**एक लंबे समय तक चलने वाला लॉजिकल या त्रुटि-सुधारित क्यूबिट**,” ऐसा प्रवक्ता फ्रीडेनफेल्ड्स ने कहा।
- “We expect the first useful quantum computing applications within the next **five years**.”
“हम अगले **पाँच वर्षों** के भीतर पहले उपयोगी क्वांटम कंप्यूटिंग अनुप्रयोगों की उम्मीद करते हैं।”
- Ultimately, Google plans to tile thousands of these logical qubits together to create a “**fully fault-tolerant quantum computer**,” he added.
अंततः, Google इन हजारों लॉजिकल क्यूबिट्स को एक साथ जोड़कर एक “**पूर्ण रूप से त्रुटि-सहिष्णु क्वांटम कंप्यूटर**” बनाने की योजना बना रहा है, उन्होंने आगे कहा।
- IBM expects to debut theirs by **2029**.
IBM अपने ऐसे कंप्यूटर को **2029** तक प्रस्तुत करने की उम्मीद करता है।

‘Everything will change’

‘सब कुछ बदल जाएगा’

- If these projections are correct, a practically useful quantum computer is practically knocking at our doors.
यदि ये अनुमान सही हैं, तो व्यावहारिक रूप से उपयोगी क्वांटम कंप्यूटर लगभग हमारे दरवाजे पर दस्तक दे रहा है।
- The anticipation among scientists is palpable.
वैज्ञानिकों के बीच इसकी प्रतीक्षा स्पष्ट रूप से महसूस की जा सकती है।
- “**Everything would change**” is their common refrain.
“**सब कुछ बदल जाएगा**” उनका सामान्य कथन है।
- “The day we get an **industrial-grade quantum computer**, everything in this field of **climate modelling** [will] change,” Manmeet Singh, climate modeller and assistant professor at the Western Kentucky University, said.
“जिस दिन हमें एक **औद्योगिक-स्तर का क्वांटम कंप्यूटर** मिलेगा, **जलवायु मॉडलिंग** के इस पूरे क्षेत्र में सब कुछ बदल जाएगा,” ऐसा जलवायु मॉडलर और वेस्टर्न केंटकी विश्वविद्यालय के सहायक प्रोफेसर मनमीत सिंह ने कहा।
- Dr. Ghosh and Dr. Rajagopal echoed his excitement, albeit about the role of quantum computers in **materials modelling and cryptography**.
डॉ. घोष और डॉ. राजगोपाल ने भी उनके उत्साह को दोहराया, हालांकि उनका उत्साह **सामग्री मॉडलिंग और क्रिप्टोग्राफी** में क्वांटम कंप्यूटरों की भूमिका को लेकर था।

- While it may take some time for quantum computers to make their way to laptops, if at all, "it could cause a **technological revolution** well before that," Dr. Ghosh said.
हालाँकि क्वांटम कंप्यूटरों को लैपटॉप तक पहुँचने में कुछ समय लग सकता है, यदि ऐसा होता भी है, तो "यह उससे बहुत पहले एक तकनीकी क्रांति ला सकता है," डॉ. घोष ने कहा।

Countries try again to seal pandemic treaty after Ebola jolt

Agence France-Presse

GENEVA
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World Health Organisation (WHO) member states kicked off another attempt at finalising the missing piece of the pandemic treaty here on Monday, with the Ebola outbreak in Democratic Republic of Congo (DRC) injecting a fresh sense of urgency.

Wealthy countries and developing nations are at loggerheads in talks at the WHO's headquarters over how the pandemic agreement, adopted last year, will work in practice.

Though the treaty was agreed in May 2025, how its key mechanism would operate was left out to get the deal over the line.

The accord aims at preventing a repeat of the disjointed international response that surrounded COVID-19, by improving global coordination and timely access to vaccines

The agreement's Pathogen Access and Benefit-Sharing (PABS) system deals with sharing access to pathogens with pandemic potential, then sharing benefits derived from them such as vaccines, tests, and treatments.

It was meant to be finalised by May 2026, but progress has been agonisingly slow.

Negotiations have often gone late into the night, producing slender advances and leaving diplomats drained. This two-week session until July 17 is the seventh such round of talks.

As the number of confirmed Ebola deaths in the DRC outbreak topped 500, WHO chief Tedros Adhanom Ghebreyesus urged countries to grasp the nettle.

"Keep the destination in sight," pleaded the UN health agency's Director-General.

"A future in which pathogen samples and information move quickly, without needless delay; and in which the benefits that come from them reach the people who need them most, fairly and in time."

The Ebola outbreak in the DRC, declared in mid-May, is a "painful" reminder that "the threat never truly goes away", Mr. Ghebreyesus said.

There have been 1,561 confirmed cases in the DRC, including 506 confirmed deaths, and the outbreak has spilled over into neighbouring Uganda.

"Danger can emerge from anywhere, at any time, in ways we don't always expect," he added.

Before last month's G7 summit, the WHO chief and Brazilian President Luiz Inacio Lula da Silva urged its leaders to find the "political will" themselves ensure the PABS annex gets finished, and "treat July 17 as a deadline, not a milestone".

The pandemic agreement was struck after more than three years of negotiations sparked by the shock of COVID-19.

The accord aims at preventing a repeat of the disjointed international response that surrounded the coronavirus crisis, by improving global coordination, surveillance and access to vaccines.

The Third World Network, an NGO that is monitoring the negotiations, has insisted that meaningful progress "requires developed countries coming down from their maximalist positions and adopting a positive and a constructive outlook".

09J7. Countries try again to seal pandemic treaty after Ebola jolt

इबोला के झटके के बाद देश महामारी संधि को अंतिम रूप देने के लिए फिर प्रयास कर रहे हैं

• Wealthy countries and developing nations are at loggerheads in talks at the **WHO's headquarters** over how the **pandemic agreement, adopted last year**, will work in practice.

WHO मुख्यालय में बातचीत के दौरान धनी देश और विकासशील राष्ट्र इस बात पर मतभेद में हैं कि पिछले वर्ष अपनाया गया महामारी समझौता व्यवहार में कैसे कार्य करेगा।

• Though the treaty was agreed in **May 2025**, how its key mechanism would operate was left out to get the deal over the line.

हालाँकि इस संधि पर **मई 2025** में सहमति बनी थी,

लेकिन इसके प्रमुख तंत्र के संचालन के तरीके को समझौते को अंतिम रूप देने के लिए छोड़ दिया गया था।

- The **agreement's Pathogen Access and Benefit-Sharing (PABS) system** deals with sharing access to pathogens with pandemic potential, then sharing benefits derived from them such as vaccines, tests, and treatments.
इस समझौते की **पैथोजन एक्सेस एंड बेनिफिट-शेयरिंग (PABS)** प्रणाली महामारी की संभावना वाले

रोगजनकों तक पहुंच साझा करने और फिर उनसे प्राप्त लाभों जैसे टीकों, परीक्षाओं और उपचारों को साझा करने से संबंधित है।

- As the number of confirmed **Ebola deaths** in the DRC outbreak topped **500**, WHO chief **Tedros Adhanom Ghebreyesus** urged countries to grasp the nettle.
DRC में इबोला से पुष्टि की गई मौतों की संख्या 500 से अधिक होने के बाद, WHO प्रमुख **टेड्रोस अधानोम घेब्रेयेसस** ने देशों से कठिन स्थिति का सामना करने का आग्रह किया।

OpenAI to launch new model GPT-5.6 after U.S. freeze

GS III: S&T

Agence France Presse
SAN FRANCISCO

ChatGPT-maker OpenAI said its latest and most powerful artificial intelligence model will be released to the public on Thursday, as the U.S. government reportedly approved a broader launch.

The company's new GPT-5.6 offerings and other cutting-edge AI models, including Anthropic's Mythos series, have drawn concern over what researchers have described as an unprecedented ability to identify weaknesses in code that hackers can exploit.

That has raised national security fears, and OpenAI said in June it had shared preview access to GPT-5.6 with a limited group of trusted U.S.-based partners at Washington's request.

Large language models are the technology that underpins chatbots and many other AI tools, with their capacity to crunch through colossal amounts of digital data. The GPT-5.6 series has three tiers: Sol, the company's new flagship model; Terra, a mid-range version for everyday work; and Luna, a fast, low-cost option. "GPT-5.6 Sol, along with Terra and Luna, will launch publicly this Thursday. We're expanding preview access globally now," OpenAI said in an X post Tuesday.

U.S. news outlet Axios reported, that the Trump administration had given the company the green light for a broad launch of GPT-5.6, following technical testing and meetings.

OpenAI has said Terra, once broadly available, will be priced at half the cost of its predecessor GPT-5.5, as the company seeks to lock in customers amid fierce competition from Anthropic and Google. Both OpenAI and Anthropic have filed confidential IPO documents with U.S. regulators and are targeting public listings at valuations approaching \$1 trillion, raising the commercial stakes of the AI arms race between them.

09J7. OpenAI to launch new model GPT-5.6 after U.S. freeze

अमेरिकी रोक के बाद OpenAI नया मॉडल GPT-5.6 लॉन्च करेगा

- The company's new **GPT-5.6** offerings and other cutting-edge **AI models**, including **Anthropic's Mythos series**, have drawn concern over what researchers have described as an unprecedented ability to identify weaknesses in code that hackers can exploit.

कंपनी की नई **GPT-5.6** श्रृंखला और अन्य अत्याधुनिक **AI मॉडल**, जिनमें **Anthropic की Mythos श्रृंखला** भी शामिल है, को लेकर चिंताएँ व्यक्त की गई हैं। शोधकर्ताओं के अनुसार इनमें कोड की उन कमजोरियों की पहचान करने की अभूतपूर्व क्षमता है जिनका दुरुपयोग हैकर कर सकते हैं।

- The **GPT-5.6** series has **three tiers**: **Sol**, the company's new **flagship model**; **Terra**, a mid-range version for everyday work; and **Luna**, a fast, low-cost option.

GPT-5.6 श्रृंखला में तीन स्तर हैं: **Sol**, जो कंपनी का नया फ्लैगशिप मॉडल है; **Terra**, जो दैनिक कार्यों के लिए मध्यम श्रेणी का संस्करण है; और **Luna**, जो तेज़ और कम लागत वाला विकल्प है।



GS Paper III: Internal Security	09 July 2026
TOPICS COVERED	
09J7	DRDO conducts successful flight test of Pinaka rocket DRDO ने पिनाका रॉकेट का सफल उड़ान परीक्षण किया



GS III: Internal Security

DRDO conducts successful flight test of Pinaka rocket

The Defence Research and Development Organisation (DRDO) on Wednesday successfully conducted a flight test of the Pinaka long range guided rocket from the Integrated Test Range at Chandipur, validating its user-defined minimum strike range of 60 km. The rocket executed all planned in-flight manoeuvres and hit the designated target with high precision, following the predicted trajectory, the Defence Ministry said. Range instrumentation deployed during the trial tracked the rocket throughout its flight. The rocket was launched from an in-service Pinaka launcher, demonstrating the system's ability to fire different variants of the Pinaka rocket family with varying ranges from the same launcher, enhancing operational flexibility.

उच्च सटीकता के साथ निर्धारित लक्ष्य को भेदा।

09J7. DRDO conducts successful flight test of Pinaka rocket

DRDO ने पिनाका रॉकेट का सफल उड़ान परीक्षण किया

- The **Defence Research and Development Organisation (DRDO)** on Wednesday successfully conducted a flight test of the **Pinaka long range guided rocket** from the **Integrated Test Range at Chandipur**, validating its user-defined minimum strike range of **60 km**.

रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने बुधवार को चांदीपुर स्थित एकीकृत परीक्षण रेंज से पिनाका लंबी दूरी के निर्देशित रॉकेट का सफल उड़ान परीक्षण किया, जिससे इसकी उपयोगकर्ता-निर्धारित न्यूनतम मारक क्षमता 60 किलोमीटर प्रमाणित हुई।

- The **rocket executed all planned in-flight manoeuvres and hit the designated target with high precision**, following the predicted trajectory, the Defence Ministry said.

रक्षा मंत्रालय ने कहा कि रॉकेट ने सभी नियोजित उड़ान के दौरान किए जाने वाले युद्धाभ्यास सफलतापूर्वक पूरे किए और निर्धारित मार्ग का अनुसरण करते हुए

Pinaka

- Pinaka is an indigenously developed, all-weather, long-range Multi-Barrel Rocket Launcher (MBRL) system** designed to deliver rapid and concentrated firepower against enemy targets.
- It has been **developed by the Defence Research and Development Organisation (DRDO)** and is manufactured by Indian defence industries under the 'Make in India' initiative.
- The system is named after '**Pinaka**', the divine bow of **Lord Shiva** in Hindu mythology.

Development

- The **Pinaka Weapon System** was developed by **DRDO's Armament Research and Development Establishment (ARDE), Pune**, along with other DRDO laboratories.
- It was developed to replace the imported **Russian BM-21 Grad** rocket launcher in the **Indian Army**.
- The system has been inducted into the **Indian Army** in multiple regiments and continues to undergo capability upgrades.



Major Components

- The Pinaka Weapon System consists of:
 - **Launcher Vehicle** carrying **12 rockets**.
 - **Loader-cum-Replenishment Vehicle**.
 - **Command Post Vehicle**.
 - **Fire Control System (FCS)** with automated targeting.
 - **Battery Command Post** linked through secure communication networks.

Working Mechanism

- Each launcher carries **12 rockets**, which can be fired **individually or in salvo mode**.
- A complete salvo of **12 rockets** can be launched within approximately **44 seconds**, saturating an area of about **1 square kilometre**.
- After firing, the launcher can quickly relocate to avoid enemy counter-battery fire, enhancing battlefield survivability.

Variants

Pinaka Mk-I

- **Range:** Approximately **38 km**.
- Equipped with **high-explosive, pre-fragmented, anti-personnel, anti-tank, incendiary, and practice warheads**.

Pinaka Enhanced Range (ER)

- **Range:** Approximately **45–75 km**, depending on the rocket variant.
- Features improved propulsion, enhanced accuracy, and greater operational flexibility.

Guided Pinaka

- **Range:** Up to **75 km**.
- Equipped with **Navigation, Guidance, and Control (NGC) systems** using **INS/GNSS** technology for significantly improved accuracy.

Pinaka Area Denial Munition (ADM) Rocket

- Developed to **deny enemy movement** by dispersing specialised anti-tank mines over a target area.
- Enhances the Army's capability to restrict enemy mobility during offensive and defensive operations.

Key Features

- Fully **indigenous weapon system**.
- **All-weather** operational capability.



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>
YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>
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- High mobility and quick deployment.
- Automated fire control and navigation.
- Capable of firing multiple types of rockets.
- Suitable for **mountain, desert, and plains warfare**.
- Rapid shoot-and-scoot capability reduces vulnerability.

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