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Search continues for 22 from vessel that sank off Odisha

PCS

Satvasundar Barik
M. Kalyanaraman
BHUBANESWAR/CHENNAI

The fate of 22 crew members aboard a Panama-flagged bulk carrier that sank in the Bay of Bengal off Odisha remained unknown on Sunday even after 24 hours of intensive search and rescue operations by the Indian Navy and the Indian Coast Guard (ICG).

According to the latest reports from the Navy and the ICG, two Chinese crew members of the ill-fated *M.V. Ocean Winner*, which was carrying iron ore from Odisha, were rescued, even as Navy ships and aircraft continued the search for the remaining crew.

The ship, with 24 crew aboard — 20 from China, three from Myanmar, and one from Bangladesh — had left Paradip Port late on August 20. The ICG said that 36 hours after its departure, the Maritime Rescue Coordination Centre received information that communication with the vessel had been lost. It also received a request for a search and rescue operation.

The Eastern Naval Command said on X that it responded to the distress alert by deploying the P8I surveillance aircraft in

Stormy voyage

The *MV Ocean Winner* with a 24-member crew had left the Paradip Port in Odisha on August 20

■ The Panama-flagged ship's crew included 20 from China, three from Myanmar, and one from Bangladesh

■ The ship, built in 1998, has changed hands many times and its current owners are located in Fujian, China

■ During the last inspection of the ship in June, Bangladesh authorities reported three deficiencies, including in its magnetic compass



Last leg: The 28-year-old bulk carrier can haul a cargo of around 73,000 tonnes and was in its end-of-life period. FILE PHOTO

coordination with MRCC, Sri Vijaya Puram. "The Indian Navy aircraft located a geographically dispersed liferaft in the area and soon coordinated with *MT Aisopos*, which was transiting nearby, with a request for the merchant vessel to render assistance. By late evening on August 22, *MT Aisopos* had rescued two of the 24 crew members from the liferafts," the Navy said.

The Navy said it continues to coordinate with the ICG in the operation to find the remaining crew.

"Sustained monitoring and focused aerial search by Indian Navy P8I MR aircraft led to the successful detection of two floating liferafts and oil slick near the reported position," the Navy posted on X.

According to Equasis, a

global merchant shipping database, *Ocean Winner* (IMO 9145530) was a 28-year-old vessel that could carry around 73,000 tonnes of cargo. Built in 1998, it was 225 metres long and 32.26 metres wide, and was in its end-of-life period. Periodic inspections by national authorities uncovered several deficiencies. The last one this June by Bangladesh authorities in Chittagong reported three deficiencies, including in the ship's magnetic compass.

Ocean Winner was covered by Protection and Indemnity insurance that would compensate for the loss of life. The insurance is up-to-date, starting from August 1, 2026. (With inputs from Saurabh Trivedi in New Delhi)

24A8. Search continues for 22 from vessel that sank off Odisha
ओडिशा के तट से डूबे पोत के 22 सदस्यों की तलाश जारी

• The fate of 22 crew members aboard a **Panama-flagged bulk carrier** that sank in the Bay of Bengal off Odisha remained unknown on Sunday even after 24 hours of intensive search and rescue operations by the Indian Navy and the Indian Coast Guard (ICG).

पनामा-ध्वज वाले एक बल्क कैरियर पर सवार 22 चालक दल के सदस्यों का रविवार तक कोई पता नहीं चल सका, जबकि भारतीय नौसेना और भारतीय तटरक्षक बल (ICG) द्वारा 24 घंटे तक गहन खोज एवं बचाव अभियान चलाया गया।

• According to the latest reports from the Navy and the ICG, two Chinese crew members of the ill-fated **M.V. Ocean Winner, which was carrying iron ore from Odisha**, were rescued, even as Navy ships and aircraft continued the search for the remaining crew.

नौसेना और ICG की नवीनतम रिपोर्टों के अनुसार, दुर्भाग्यपूर्ण **M.V. Ocean Winner** के चालक दल के दो चीनी सदस्यों को बचा लिया गया, जबकि नौसेना के जहाज और विमान शेष चालक दल की

तलाश
जारी रखे
हुए थे; यह
पोत



PCS

Assam in final stage of partner selection to build satellite: CM

The Assam government is in an advanced stage of evaluation to select a partner from the private sector to launch its own satellite, Chief Minister Himanta Biswa Sarma said on Sunday. Claiming that Assam will be the first State in India to have its own earth observation system, he said that the government will have the satellite under the "DBLOTT model", which is design, build, launch, operate, train and transfer. "Following strong interest from India's private space sector companies, we are now in the final and critical stage of partner selection, with dedicated committees evaluating the proposals," Mr. Sarma said in a social media post. PTI

ओडिशा से लौह अयस्क ले जा रहा था।

- The ship, with 24 crew aboard — 20 from China, three from Myanmar, and one from Bangladesh — had left **Paradip Port** late on August 20.

24 चालक दल के सदस्यों वाले इस जहाज — जिनमें 20 चीन से, तीन म्यांमार से और एक बांग्लादेश से थे — ने 20 अगस्त की देर रात पारादीप बंदरगाह से प्रस्थान किया था।

24A8. Assam in final stage of partner selection to build satellite: CM

उपग्रह निर्माण के लिए साझेदार के चयन के अंतिम चरण में असम: मुख्यमंत्री

- The **Assam government** is in an advanced stage of evaluation to select a partner from the **private sector to launch its own satellite**, Chief Minister **Himanta Biswa Sarma** said on Sunday.

- मुख्यमंत्री हिमंत बिस्वा सरमा ने रविवार को कहा कि असम सरकार अपना उपग्रह प्रक्षेपित करने के लिए निजी क्षेत्र से एक साझेदार का चयन करने हेतु मूल्यांकन के उन्नत चरण में है।
- Claiming that **Assam will be the first State in India to have its own earth observation system**, he said that the government will have the satellite under the **"DBLOTT model"**, which is design, build, launch, operate, train and transfer.
- यह दावा करते हुए कि असम अपना स्वयं का पृथ्वी अवलोकन तंत्र रखने वाला भारत का पहला राज्य होगा, उन्होंने कहा कि सरकार इस उपग्रह को **"DBLOTT मॉडल"** के अंतर्गत प्राप्त करेगी, जिसका अर्थ है—डिजाइन करना, निर्माण करना, प्रक्षेपित करना, संचालन करना, प्रशिक्षण देना और हस्तांतरित करना।

U.P. Speaker leaves dais during National Anthem, draws flak

PCS
Press Trust of India
UNNAO(U.P.)

Uttar Pradesh Assembly Speaker Satish Mahana has found himself at the centre of a controversy after he was seen walking away while the National Anthem was being played at an event here, drawing flak from the Opposition.



Satish Mahana

Mahana's claim
Mr. Mahana, however, claimed that the National Anthem was not played where he was given the guard of honour.

A purported video of the incident shows the Speaker staying still for a few seconds, then turning around and stepping down from the saluting dais while the National Anthem was being played at the principals' council event held on Saturday.

Some supporters standing nearby then approached him and were seen touching his feet. The National Anthem continued to play as Mr. Mahana proceeded towards his vehicle and left the venue.

Unnao Congress Committee leader Dinesh Shukla asked if the Speaker ac-

cepting the guard of honour as per protocol, but leaving the spot while the National Anthem was being played, amounted to an insult to the anthem.

'Not paying attention'
"Now what will the BJP, which gives a certificate to everyone, say about him?" said Samajwadi Party spokesperson Anurag Bhaduria. Another party spokesperson, Manoj Yadav, said Mr. Mahana took the salute, turned around, and walked away in a "left-right (marching)" manner.

It appeared that Mr. Mahana was neither paying attention to the National Anthem nor to the situation around him, Mr. Yadav said, accusing the BJP of adopting "double standards" on nationalism.

24A8. U.P. Speaker leaves dais during National Anthem, draws flak

राष्ट्रगान के दौरान उत्तर प्रदेश विधानसभा अध्यक्ष मंच से उतरे, आलोचनाओं का सामना

- Uttar Pradesh Assembly Speaker Satish Mahana** has found himself at the centre of a controversy after he was seen walking away while the National Anthem was being played at an event here, drawing flak from the Opposition.

उत्तर प्रदेश विधानसभा अध्यक्ष सतीश महाना उस समय विवाद के केंद्र में आ गए, जब यहाँ एक कार्यक्रम में राष्ट्रगान बजाए जाने के दौरान उन्हें वहाँ से जाते हुए देखा गया, जिसके बाद विपक्ष ने उनकी आलोचना की।

24A8. Chinese humanoid robot breaks Usain Bolt's 100m world record

चीनी ह्यूमनॉइड रोबोट ने उसेन बोल्ट का 100 मीटर विश्व रिकॉर्ड तोड़ा

- Chinese robots on Saturday broke records set by humans at the **World Humanoid Robot Games in Beijing**.

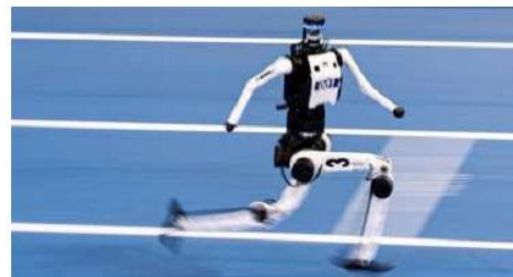
शनिवार को बीजिंग में आयोजित World Humanoid Robot Games में चीनी रोबोटों ने मनुष्यों द्वारा बनाए

गए रिकॉर्ड तोड़ दिए।

- A robot ran 100 metres in 9.39 seconds surpassing Jamaican great Usain Bolt's 9.58 seconds. एक रोबोट ने 100 मीटर की दौड़ 9.39 सेकंड में पूरी की, जो जमैका के महान धावक उसेन बोल्ट के 9.58 सेकंड के रिकॉर्ड से बेहतर है।

24A8. Kuwait approves decree stripping naturalised citizens of their vote

Chinese humanoid robot breaks Usain Bolt's 100m world record



REUTERS

PCS
Chinese robots on Saturday broke records set by humans at the World Humanoid Robot Games in Beijing. A robot ran 100 metres in 9.39 seconds surpassing Jamaican great Usain Bolt's 9.58 seconds. While another robot reached 2.88 metres in standing high jump, beating the record of 2.45 metres set by Cuba's Javier Sotomayor. AFP

Kuwait approves decree stripping naturalised citizens of their vote



AFP

PCS
Kuwait's Emir has approved a decree banning naturalised citizens from voting, two years after dissolving Parliament and embarking on a mass nationality stripping campaign. Previously, naturalised Kuwaitis were able to vote 30 years after acquiring the nationality, but were banned from running for office or being appointed. AFP

कुवैत ने प्राकृतिक रूप से नागरिकता प्राप्त नागरिकों से मतदान का अधिकार छीनने वाले डिक््री को मंजूरी दी

- **Kuwait's Emir has approved a decree banning naturalised citizens from voting**, two years after dissolving Parliament and embarking on a mass nationality stripping campaign.
कुवैत के अमीर ने प्राकृतिक रूप से नागरिकता प्राप्त नागरिकों को मतदान करने से प्रतिबंधित करने वाले एक डिक््री को मंजूरी दी है, यह संसद भंग करने और बड़े पैमाने पर नागरिकता समाप्त करने के अभियान की शुरुआत करने के दो वर्ष बाद हुआ है।
- **Previously, naturalised Kuwaitis were able to vote 30 years after acquiring the nationality, but were banned from running for office or being appointed.**
पहले, प्राकृतिक रूप से नागरिकता प्राप्त कुवैती नागरिक नागरिकता प्राप्त करने के 30 वर्ष बाद मतदान कर सकते थे, लेकिन उन्हें निर्वाचन में पद के लिए उम्मीदवार बनने या किसी पद पर नियुक्त होने से प्रतिबंधित किया गया था।

Treesa-Gayatri combine cherishes medal moment

PCS
Devanshi Bhatt
NEW DELHI

The Indian flag rose at the Indira Gandhi Indoor Stadium on Sunday as Treesa Jolly and Gayatri Gopichand received their World Championships bronze, bringing a ceremonial close to a week in which they gave India's first women's doubles medal since 2011.

"We'll cherish this medal forever," Gayatri said. The unseeded pair lost to China's Liu-Tan in the semi-final after beating reigning Olympic champion Jia Yi-fan and her partner Zhang Shuxian in the quarterfinals.

"We were just so happy after the quarterfinal match. And even in the semi-finals match, we gave 100%. It just wasn't our day," Gayatri said.

For coach Pullela Gopi Chand, the medal reflected six weeks of work paying off. "It's good to see when the practice you do actually gives you dividends on court," he said on Saturday.

After an injury-hit period that raised questions about their ability to perform at this level, Treesa said their results provided



Surreal: Gayatri and Treesa gave India its first women's doubles medal since 2011. SHIV KUMAR PUSHKAR



We wanted to do something big. We did that
TREESA

the answer: "We both were here to do something big. What we can show is our result. I think we did that."

They now turn towards the Asian Games, with the Chinese pair still on their minds.

"It's obviously a matter of time. Just believe in yourself that you can beat them," Treesa said.

Gopi Chand was best placed to understand the significance of this week,

watching his daughter win a World Championships medal after receiving the Arjuna Award earlier in the week.

"I think whenever my players have played, I've always had the same feeling," he said. "And there's nothing extra for Gayatri, nothing more than I've had for any of my other players."

Proud coach

There was pride, nevertheless. "I'm very proud of her performance and her results. And the way she's conducted herself," he said. "With God's grace, in a family, there are two Arjuna awardees. It's rare," he added.

24A8. Treesa-Gayatri combine cherishes medal moment

ट्रीसा-गायत्री की जोड़ी ने पदक के गौरवपूर्ण पल को संजोया

- The Indian flag rose at the Indira Gandhi Indoor Stadium on Sunday as Treesa Jolly and Gayatri Gopichand received their **World Championships bronze**, bringing a ceremonial close to a week in which they gave India's first women's doubles medal since 2011.

रविवार को इंदिरा गांधी इंडोर स्टेडियम में भारतीय ध्वज उस समय फहराया गया, जब ट्रीसा जॉली और गायत्री गोपीचंद ने अपना विश्व चैंपियनशिप कांस्य पदक प्राप्त किया, जिससे उस सप्ताह का औपचारिक समापन हुआ, जिसमें उन्होंने भारत को 2011 के बाद महिला युगल में पहला पदक दिलाया।

- They now turn towards the Asian Games, with the Chinese pair still on their minds.

अब उनका ध्यान एशियाई खेलों पर है, जबकि चीनी जोड़ी अभी भी उनके जेहन में है।

- "It's obviously a matter of time. Just believe in yourself that you can beat them," Treesa said.

ट्रीसा ने कहा, "यह निश्चित रूप से समय की बात है। बस अपने आप पर विश्वास रखें कि आप उन्हें हरा सकते हैं।"

- Gopichand was best placed to understand the significance of this week, watching his daughter win a World Championships medal after receiving the Arjuna Award earlier in the week.

गोपीचंद इस सप्ताह के महत्व को सबसे अच्छी तरह समझ सकते थे, क्योंकि उन्होंने अपनी बेटी को इस सप्ताह की शुरुआत में **अर्जुन पुरस्कार** प्राप्त करने के बाद विश्व चैंपियनशिप पदक जीतते हुए देखा।

- "I think whenever my players have played, I've always had the same feeling," he said. उन्होंने कहा, "मुझे लगता है कि जब भी मेरे खिलाड़ियों ने खेला है, मैंने हमेशा यही भावना महसूस की है।"

- “With God’s grace, in a family, there are two Arjuna awardees. It’s rare,” he added. उन्होंने आगे कहा, “ईश्वर की कृपा से, एक ही परिवार में दो अर्जुन पुरस्कार विजेता हैं। यह दुर्लभ है।”



Winning gold in red: East Bengal ended a two-decade-long wait.

AIFF **PCS**

Lalrindika’s hat-trick fires East Bengal to Durand Cup glory

KOLKATA: East Bengal FC swept past arch-rival Mohun Bagan Super Giant 4-1 in the 135th Durand Cup final to reclaim the trophy after a 22-year wait. Edmund Lalrindika was the star of the show, scoring a memorable hat-trick and turning the Kolkata derby into a one-sided affair.

The result: Final: East Bengal FC 4 (Bipin Singh 10, Edmund Lalrindika 11, 22, 44) bt Mohun Bagan SG 1 (Manvir Singh 33).

— Amitabha Das Sharma

Mayank takes the sole lead

MUMBAI: Top seed Mayank Chakraborty, with 5.5 points, moved into the sole lead after the sixth round of the Asian junior chess championship on Sunday.

In the girls’ section, top seed Pratitee Bordoloi, G. Shivambika, Aadya Gowda and Leyla Shohradova shared the lead with five points each.

Important results (sixth round):

Open: Viresh Sharnarhi 4.5 lost to Mayank Chakraborty 5.5; Madhvendra Sharma 4.5 drew

24A8. Lalrindika’s hat-trick fires East Bengal to Durand Cup glory

लालरिंदिका की हैट्रिक से ईस्ट बंगाल ने डूरंड कप का खिताब जीता

- KOLKATA: **East Bengal FC swept past arch-rival Mohun Bagan Super Giant 4-1 in the 135th Durand Cup final** to reclaim the trophy after a 22-year wait.

कोलकाता: ईस्ट बंगाल FC ने 135वें डूरंड कप फाइनल में अपने चिर-प्रतिद्वंद्वी मोहन बागान सुपर जायंट को 4-1 से हराकर 22 वर्षों के इंतजार के बाद ट्रॉफी फिर से अपने नाम कर ली।

GS Paper 1: History

TOPICS COVERED

24 August 2026



Festive icon: Pyramid-shaped Onathappan on sale in Thripunithura, Kerala, on Sunday. Made of clay or mud, the structures represent Vamana, a reincarnation of Lord Vishnu, and Mahabali, the asura king, and are a key part of rituals for Onam.

Festive icon: **Pyramid-shaped Onathappan** on sale in Thripunithura, Kerala, on Sunday. Made of clay or mud, the structures represent **Vamana**, a reincarnation of Lord Vishnu, and Mahabali, the asura king, and are a key part of rituals for Onam.

GS Paper 1: Geography		24 August 2026
TOPICS COVERED		
24A8	DR Congo and M23 fighters agree to road map for peace talks डीआर कांगो और M23 लड़ाकों ने शांति वार्ता के लिए रोड मैप पर सहमति जताई	

DR Congo and M23 fighters agree to road map for peace talks

GS I: Geography
Agence France-Presse
GENEVA

The Democratic Republic of Congo and the Rwanda-backed M23 armed group have agreed on a road map for peace talks, according to a joint statement published on Sunday by Switzerland.

The eastern DRC has been riven by decades of conflict, with multiple armed groups fighting over its mineral-rich territory, including the M23.

The two sides signed a U.S.-brokered peace agree-

ment late last year in the Qatari capital Doha, but fighting has continued. Following a new round of talks held in Switzerland last week, the two sides said they had staked out a path forward.

"The Parties developed a road map setting out sequenced steps and time-lines for negotiations under the Doha Framework Agreement, the statement said. "They reaffirmed their commitment to pursue negotiations towards comprehensive peace," it added.

agreement late last year in the **Qatari capital Doha**, but fighting has continued. दोनों पक्षों ने पिछले वर्ष के अंत में कतर की राजधानी दोहा में अमेरिका की मध्यस्थता से एक शांति समझौते पर हस्ताक्षर किए थे, लेकिन संघर्ष जारी रहा।

24A8. DR Congo and M23 fighters agree to road map for peace talks

डीआर कांगो और M23 लड़ाकों ने शांति वार्ता के लिए रोड मैप पर सहमति जताई

- The Democratic Republic of Congo and the Rwanda-backed M23 armed group have agreed on a road map for peace talks, according to a joint statement published on Sunday by Switzerland.

डेमोक्रेटिक रिपब्लिक ऑफ कांगो (DRC) और रवांडा समर्थित M23 सशस्त्र समूह ने शांति वार्ता के लिए एक रोड मैप पर सहमति जताई है, स्विट्जरलैंड द्वारा रविवार को प्रकाशित एक संयुक्त बयान के अनुसार।

- The eastern **DRC has been riven by decades of conflict**, with multiple armed groups fighting over its mineral-rich territory, including the **M23**.

पूर्वी DRC दशकों से चले आ रहे संघर्ष से विभाजित रहा है, जहाँ M23 सहित कई सशस्त्र समूह उसके **खनिज-संपदा से समृद्ध क्षेत्र** पर नियंत्रण के लिए लड़ रहे हैं।

- The two sides signed a U.S.-brokered peace

GS Paper II: Polity		24 August 2026
TOPICS COVERED		
24A8	Congress flags an 'abnormal' 10-day delay in LS prorogation कांग्रेस ने लोकसभा के सत्रावसान में 'असामान्य' 10 दिनों की देरी पर सवाल उठाया	
24A8	Vande Mataram and the right to dissent वंदे मातरम् और असहमति का अधिकार	



Congress flags an 'abnormal' 10-day delay in LS prorogation

GS II: Polity

The Hindu Bureau
NEW DELHI

Flagging a 10-day delay in proroguing the Lok Sabha after it was adjourned *sine die* on August 13, in accordance with the schedule of the Monsoon Session of Parliament, Congress general secretary (communications) Jairam Ramesh on Sunday asked whether the "abnormal" time gap was an indication of the Centre's efforts to cobble together the necessary numbers to clear the Bill on delimitation.

Under normal parliamentary practice, "the time gap between the adjournment of the Lok Sabha *sine die* and its prorogation is generally two to four days", Mr. Ramesh said in a social media post.

Party asks if the Union Home Minister is searching for 2/3rd majority to pass Bill on delimitation

He also posted a photograph of a page from *Practice and Procedure of Parliament* by M.N. Kaul and S.L. Shakdher, which underscored that prorogation, not adjournment, formally closes a session and clears the way for the next one to be convened. The gap has occasionally run longer, including 28 days during the Monsoon Session of 2015, and 20 days in 2021, however, "there were no diabolical moves afoot then," he said. "What explains the abnormal delay now? Is the Union Home

Minister still in search of his *bahukalakit* (tarnished) 2/3rd majority to get the Constitutional Amendment Bill on Delimitation passed in a Special Session?" Mr. Ramesh asked.

The page also stated the President terminates a session of the House under Article 85(2) acting on the advice of the Prime Minister, and the Cabinet may be consulted before the advice is submitted.

The text also notes that prorogation "may take place any time, even while the House is sitting", but "usually... follows the adjournment of the sitting of the House *sine die*". Mr. Ramesh also said there have been instances when "adjournment and prorogation have taken place on the very same day".

24A8. Congress flags an 'abnormal' 10-day delay in LS prorogation कांग्रेस ने लोकसभा के

सत्रावसान में 'असामान्य' 10 दिनों की देरी पर सवाल उठाया

• Flagging a 10-day delay in proroguing the Lok Sabha after it was adjourned *sine die* on August 13, in accordance with the schedule of the Monsoon Session of Parliament, Congress general secretary (communications) **Jairam Ramesh** on Sunday asked whether the "abnormal" time gap was an indication of the Centre's efforts to cobble together the necessary numbers to clear the **Bill on delimitation**.

संसद के मानसून सत्र की निर्धारित समय-सारणी के अनुसार 13 अगस्त को लोकसभा के अनिश्चितकाल के

लिए स्थगित (*sine die*) किए जाने के बाद उसके सत्रावसान (*prorogation*) में 10 दिनों की देरी की ओर संकेत करते हुए कांग्रेस के महासचिव (संचार) **जयराम रमेश** ने रविवार को सवाल किया कि क्या यह "असामान्य" समय-अंतराल केंद्र सरकार द्वारा **परिसीमन विधेयक** को पारित कराने के लिए आवश्यक संख्या जुटाने के प्रयासों का संकेत है।

- Under normal parliamentary practice, "the time gap between the adjournment of the Lok Sabha *sine die* and its prorogation is generally **two to four days**", Mr. Ramesh said in a social media post. सामान्य संसदीय प्रक्रिया के तहत, "लोकसभा के अनिश्चितकाल के लिए स्थगन और उसके सत्रावसान के बीच का समय-अंतराल सामान्यतः दो से चार दिनों का होता है," श्री रमेश ने सोशल मीडिया पर एक पोस्ट में कहा।
- He also posted a photograph of a page from **Practice and Procedure of Parliament** by M.N. Kaul and S.L. Shakdher, which underscored that **prorogation, not adjournment, formally closes a session** and clears the way for the next one to be convened. उन्होंने एम.एन. कौल और एस.एल. शकधर की पुस्तक **Practice and Procedure of Parliament** के एक पृष्ठ की तस्वीर भी पोस्ट की, जिसमें यह रेखांकित किया गया था कि सत्रावसान, न कि स्थगन, औपचारिक रूप से किसी सत्र को समाप्त करता है और अगले सत्र को बुलाए जाने का मार्ग प्रशस्त करता है।
- "What explains the abnormal delay now? Is the **Union Home Minister** still in search of his *bahukalakit* (tarnished) 2/3rd majority to get the **Constitutional Amendment Bill on Delimitation** passed in a Special Session?" Mr. Ramesh asked. श्री रमेश ने पूछा, "अब इस असामान्य देरी की क्या वजह है? क्या केंद्रीय गृह मंत्री अभी भी अपनी बहुकलंकित (*bahukalakit*) दो-तिहाई बहुमत की तलाश में हैं, ताकि परिसीमन पर संवैधानिक संशोधन विधेयक को विशेष सत्र में पारित कराया जा सके?"
- The page also stated the **President terminates a session of the House under Article 85(2) acting on the advice of the Prime Minister, and the Cabinet may be consulted before the**

advice is submitted.

उस पृष्ठ पर यह भी कहा गया था कि अनुच्छेद 85(2) के तहत राष्ट्रपति प्रधानमंत्री की सलाह पर सदन के सत्र का समापन करते हैं, और सलाह प्रस्तुत किए जाने से पहले मंत्रिमंडल से परामर्श किया जा सकता है।

- The text also notes that **prorogation** “may take place any time, even while the House is **sitting**”, but “usually... follows the adjournment of the sitting of the House sine die”.

पाठ में यह भी उल्लेख है कि सत्रावसान “किसी भी समय हो सकता है, यहाँ तक कि जब सदन की बैठक चल रही हो”, लेकिन “आमतौर पर... सदन की बैठक को अनिश्चितकाल के लिए स्थगित किए जाने के बाद होता है।”

- Mr. Ramesh also said there have been instances when “**adjournment and prorogation have taken place on the very same day**”.

श्री रमेश ने यह भी कहा कि ऐसे उदाहरण रहे हैं जब “स्थगन और सत्रावसान उसी दिन हुआ है।”

***Vande Mataram* and the right to dissent**

The 2026 amendment protects *Vande Mataram* from being stopped or disrupted, but does not make singing it compulsory or prescribe all six stanzas; the Supreme Court's *Bijoe Emmanuel* judgment protects an individual's right to remain silent when participation conflicts with freedom of conscience

GS II: Polity

LETTER & SPIRIT

Haris Beeran

Parliament has given *Vandemataaram* the same criminal-law protection long enjoyed by the national anthem. But a closer look at the Constituent Assembly's own reasoning, the actual text of the new law, and the Supreme Court's judgment in *Bijoe Emmanuel v. State of Kerala* (1986) suggests that the position is far less settled and far more protective of individual conscience than the political rhetoric around the amendment implies.

Why it was not the anthem

The question of India's national anthem was left open for nearly the entire life of the Constituent Assembly. It was finally settled not by a vote, but by a presidential statement on January 24, 1950, at the Assembly's last session. The President, Rajendra Prasad declared that *jana gana mana* would be the National Anthem of India, and that *Vande Mataram*, "which has played a historic part in the struggle for Indian freedom, shall be honoured equally with *jana gana mana* and shall have equal status with it."

That formula is worth reading carefully, because what it conspicuously does not do is make *Vande Mataram* the national anthem of India. The Indian Constitution, when it came into force two days later, contains no reference whatsoever to a "national song." The status of *Vande Mataram* rests entirely on Dr. Prasad's 1950 statement and on subsequent convention, and nothing more.

The reason for this restraint lies earlier, in the Indian National Congress's own reckoning with the song in the 1930s. *Vande Mataram's* later stanzas, rarely sung today, invoke the motherland in explicitly devotional, goddess-centred terms. In the context of the 1882 novel *Anandamath*, from which the song is drawn, some of its verses were also read as casting Muslims as adversaries. Objections from the Muslim League and others led the Congress Working Committee to advise, in November 1937, to 'solve that only the first two stanzas – pastoral, secular in imagery and free of any reference to a deity – would be sung at official gatherings.'

That 1937 compromise is what Dr. Prasad's Constituent Assembly statement inherited and preserved in 1950: full-throated reverence for the song's role in the freedom struggle, but a deliberate decision to keep its more contentious, devotional verses out of India's civic and constitutional life. It was not an oversight.

What the amendment says

What the amendment says
The Prevention of Insults to National Honour (Amendment) Bill, 2026, was introduced in the Rajya Sabha on July 24, 2026, and cleared both Houses within a week. The Rajya Sabha cleared it on July 29 and the Lok Sabha on July 30, each after only a brief discussion, with the Opposition, including the DMK and Congress, raising strong objections about the Bill being used to advance a particular cultural agenda and about the timing amid unrelated protests in the House. It received Presidential assent shortly after.

Given the speed and thinness of the debate, the Amendment – one of 12 Bills passed in a Monsoon Session in which, by Parliament's own record, most legislation went through with barely any discussion – has had remarkably little parliamentary scrutiny for a law that touches on religious sentiment, free expression and



The law penalises disrespect and disruption of a performance; it does not, on its text, mandate participation in one, nor does it fix which version of the song is entitled to protection. ANI

criminal liability all at once.

What the Amendment actually does is narrower than the headlines suggest. It substitutes Section 3 of the 1971 Act with a provision that punishes two things, and only two things, in relation to both the national anthem and the national song: intentionally preventing their singing and causing disturbance to an assembly engaged in singing them. The punishment – up to three years' imprisonment, a fine, or both, with a mandatory minimum of one year for repeat offenders – is now common to both compositions.

Here is the question mark worth putting squarely to the government: nowhere does the amended Act say which stanzas of *Vande Mataram* must be sung, or that all six stanzas must be sung, for the law's protection to apply. The statute does not prescribe a mandatory version of the song at all. It does not compel singing in the first place by anyone, of any stanza.

All the amended Section 3 requires is that if the national song is being sung, at whatever length and in whatever form, that rendition must not be intentionally provoked or disturbed. That is, it is a materially narrower obligation than the political framing around the Bill – including the government's own push, since late 2025, to popularise and even mandate all six stanzas at official functions – might lead the public to believe. The law penalises disrespect and disruption of a performance; it does not, on its text, mandate participation in one, nor does it fix which version of the song is entitled to protection.

The later stanzas

The commonly sung opening stanzas of *Vande Mataram* describe the motherland in pastoral terms, her waters, her fruit, her cooling breezes, her fields. It is the later stanzas, historically dropped from public renditions by the Congress in 1937 but increasingly promoted for full recitation since the government's commemoration of the song's 150th anniversary in late 2025, that shift register entirely.

In substance, and in every available English rendering, they describe the motherland as embodied in the Hindu goddesses Durga, Lakshmi and Saraswati, respectively, goddesses of power, wealth and learning, and speak of her as an object of worship enshrined in temples, with "crores" of arms raised in her

Mana during morning assembly. They did not sing themselves because their faith forbade what they understood as an act of worship of anyone or anything other than god. For this, they were expelled.

The Kerala High Court upheld the expulsion, holding that Article 51A's fundamental duty to respect the national anthem overrode any claim under Articles 25 and 26, and that Jehovah's Witnesses could not even invoke those protections.

The Supreme Court, in a judgment authored by Justice O. Chinnappa Reddy, reversed the High Court in emphatic terms. The Bench held that compelling a person to join in singing despite a genuine, conscientiously held religious objection contravenes both Article 19(1)(a) – freedom of expression, which the court held extends to the freedom to remain silent – and Article 25(1), the guarantee of freedom of conscience.

Crucially, the court held that the fundamental duties enshrined under Article 51A cannot be used to cut down or override the fundamental rights guaranteed under Part III of the Constitution; a duty to respect national symbols cannot, in law, be turned into a licence to punish sincere religious dissent. The court also read the 1971 Act itself as requiring nothing more than respectful conduct, not active participation from anyone present. It closed with the observation that the country's tradition, philosophy and Constitution alike "practise tolerance," urging that this not be diluted.

That ruling has never been overturned, and its logic transfers with full force to *Vande Mataram*, arguably with greater force, given that the song's later verses are, unlike the anthem, addressed to specific deities. If the Supreme Court held that a Jehovah's Witness could not be compelled to sing a secular anthem against conscience, the same protection must extend, a fortiori, to a citizen who objects to reciting verses that are, on their face, prayers to Hindu goddesses.

Legal position

Put together, the three strands here point to a single, clear conclusion.

First, the Constituent Assembly and the country's founding leadership deliberately confined official recognition to the first two, secular stanzas of *Vande Mataram*. That is precisely why the fuller, devotional version was never made compulsory, then or since.

Second, the 2026 Amendment, whatever its political framing, imposes no textual obligation on any citizen to sing any particular version of the song, let alone all six stanzas. It penalises only the prevention or disturbance of a singing that is already taking place.

Third, and most importantly, even where the song, including its later stanzas, is sung, a citizen who chooses not to join in because doing so would offend their freedom of conscience under Article 25 is under no legal obligation to participate.

The law as laid down by the Supreme Court in *Bijoe Emmanuel* gives that citizen complete protection: standing respectfully, in silence, without disrupting others, is not an offence under this Act, was not an offence under the original 1971 Act, and cannot be made one merely by extending the statute to a new composition.

Citizens uneasy about the fuller version of *Vande Mataram* do not need to wait for a court to vindicate them after the fact. The law, correctly read, already protects them.

(Haris Beeran is a Rajya Sabha MP and a lawyer)

THE GIST

Vande Mataram was given equal status with *Jana Gana Mana* in 1950 for its historic role in the freedom struggle, but was never made the national anthem or a co-anthem.

The 1937 Congress compromise limited official renditions to the first two stanzas, keeping the later devotional verses invoking Hindu goddesses out of civic and official life.

The 2026 amendment has renewed debate over the song's later stanzas and the constitutional questions surrounding religious freedom, freedom of conscience and the State's role in patriotic expression.



24A8. Vande Mataram and the right to dissent

वंदे मातरम् और असहमति का अधिकार

- But a closer look at the Constituent Assembly's own reasoning, the actual text of the new law, and the Supreme Court's judgment in **Bijoe Emmanuel v. State of Kerala (1986)** suggests that the position is far less settled and far more protective of individual conscience than the political rhetoric around the amendment implies.

लेकिन संविधान सभा के अपने तर्क, नए कानून के वास्तविक पाठ और सर्वोच्च न्यायालय के **Bijoe Emmanuel v. State of Kerala (1986)** के निर्णय को करीब से देखने पर पता चलता है कि स्थिति

राजनीतिक बयानबाजी से जितनी स्पष्ट प्रतीत होती है, वास्तव में उससे कहीं अधिक अनिश्चित और व्यक्ति की अंतरात्मा की स्वतंत्रता के प्रति अधिक संरक्षणात्मक है।

Why it was not the anthem

यह राष्ट्रगान क्यों नहीं बना

- It was finally settled not by a vote, but by a **presidential statement on January 24, 1950**, at the Assembly's last sitting, when **Dr. Rajendra Prasad** declared that **Jana Gana Mana would be the National Anthem of India, and that Vande Mataram, "which has played a historic part in the struggle for Indian freedom, shall be honoured equally with Jana Gana Mana and shall have equal status with it."**

अंततः इसका निर्णय किसी मतदान द्वारा नहीं, बल्कि **24 जनवरी 1950** को संविधान सभा की अंतिम बैठक में दिए गए एक राष्ट्रपति के वक्तव्य द्वारा हुआ, जब डॉ. राजेंद्र प्रसाद ने घोषणा की कि **जन गण मन** भारत का राष्ट्रगान होगा और **वंदे मातरम्**, "जिसने भारत की स्वतंत्रता के संघर्ष में ऐतिहासिक भूमिका निभाई है, जन गण मन के समान ही सम्मानित होगा और उसे इसके समान दर्जा प्राप्त होगा।"

- The status of Vande Mataram rests entirely on Dr. Prasad's 1950 statement and on subsequent convention, and nothing more.

वंदे मातरम् की स्थिति पूरी तरह डॉ. प्रसाद के 1950 के वक्तव्य और उसके बाद विकसित हुई परंपरा (convention) पर आधारित है, इसके अतिरिक्त किसी अन्य आधार पर नहीं।

- Vande Mataram's later stanzas, rarely sung today, invoke the motherland in explicitly devotional, goddess-centred terms.

वंदे मातरम् के बाद के अंतरे, जो आज शायद ही कभी गाए जाते हैं, मातृभूमि का उल्लेख स्पष्ट रूप से भक्तिपूर्ण और देवी-केंद्रित शब्दों में करते हैं।

- In the context of the **1882 novel Anandamath, from which the song is drawn**, some of its verses were also read as casting Muslims as adversaries.

जिस **1882 के उपन्यास आनंदमठ (Anandamath)** से यह गीत लिया गया है, उसके संदर्भ में इसकी कुछ पंक्तियों को मुसलमानों को विरोधी के रूप में चित्रित करने वाली भी माना गया था।

- Objections from the Muslim League and others led the **Congress Working Committee, in October 1937, to resolve that only the first two stanzas — pastoral, secular in imagery and free of any reference to a deity — would be sung at official gatherings.**

मुस्लिम लीग और अन्य पक्षों की आपत्तियों के कारण कांग्रेस कार्यसमिति ने **अक्टूबर 1937** में यह निर्णय लिया कि केवल पहले दो अंतरे — जिनमें ग्रामीण एवं प्रकृति-केंद्रित तथा धर्मनिरपेक्ष चित्रण था और जिनमें किसी देवी-देवता का उल्लेख नहीं था — आधिकारिक सभाओं में गाए जाएंगे।

What the amendment says

संशोधन क्या कहता है

- The **Prevention of Insults to National Honour (Amendment) Bill, 2026**, was introduced in the **Rajya Sabha** on July 24, 2026, and cleared both Houses within a week.



Prevention of Insults to National Honour (Amendment) Bill, 2026 को 24 जुलाई 2026 को राज्यसभा में पेश किया गया और एक सप्ताह के भीतर दोनों सदनों से पारित कर दिया गया।

- The Rajya Sabha cleared it on July 29 and the Lok Sabha on July 30, each after only a brief discussion, with the Opposition, including the DMK and Congress, raising strong objections about the Bill being used to advance a particular cultural agenda and about the timing amid unrelated protests in the House.
राज्यसभा ने इसे 29 जुलाई और लोकसभा ने 30 जुलाई को केवल संक्षिप्त चर्चा के बाद पारित किया; इस दौरान DMK और कांग्रेस सहित विपक्ष ने इस विधेयक का उपयोग एक विशेष सांस्कृतिक एजेंडे को आगे बढ़ाने और सदन में चल रहे असंबंधित विरोध प्रदर्शनों के बीच इसके समय को लेकर कड़ी आपत्तियाँ उठाई।
- It received Presidential assent shortly after.
इसके कुछ ही समय बाद इसे राष्ट्रपति की स्वीकृति प्राप्त हो गई।
- Given the speed and thinness of the debate, the Amendment — one of 12 Bills passed in a Monsoon Session in which, by Parliament's own record, most legislation went through with barely any discussion — has had remarkably little parliamentary scrutiny for a law that touches on religious sentiment, free expression and criminal liability all at once.
चर्चा की गति और सीमितता को देखते हुए, यह संशोधन — मानसून सत्र में पारित 12 विधेयकों में से एक, जिसमें संसद के अपने रिकॉर्ड के अनुसार अधिकांश कानून बहुत कम चर्चा के साथ पारित हुए — ऐसे कानून के लिए उल्लेखनीय रूप से कम संसदीय जांच-पड़ताल से गुजरा है, जो एक साथ धार्मिक भावनाओं, अभिव्यक्ति की स्वतंत्रता और आपराधिक दायित्व को प्रभावित करता है।
- It substitutes Section 3 of the 1971 Act with a provision that punishes two things, and only two things, in relation to both the national anthem and the national song: intentionally preventing their singing and causing disturbance to an assembly engaged in singing them.
यह 1971 के अधिनियम की धारा 3 को एक ऐसे प्रावधान से प्रतिस्थापित करता है, जो राष्ट्रगान और राष्ट्रीय गीत दोनों के संबंध में केवल दो कृत्यों को दंडनीय बनाता है: उनके गायन को जानबूझकर रोकना और उन्हें गाने वाली सभा में व्यवधान उत्पन्न करना।
- The punishment — up to three years' imprisonment, a fine, or both, with a mandatory minimum of one year for repeat offenders — is now common to both compositions.
दंड — तीन वर्ष तक का कारावास, जुर्माना या दोनों, तथा पुनरावृत्ति करने वाले अपराधियों के लिए कम से कम एक वर्ष का अनिवार्य कारावास — अब दोनों रचनाओं के लिए समान है।
- Here is the question mark worth putting squarely to the government: nowhere does the amended Act say which stanzas of Vande Mataram must be sung, or that all six stanzas must be sung, for the law's protection to apply.
यहाँ सरकार के समक्ष स्पष्ट रूप से एक प्रश्नचिह्न रखा जाना चाहिए: संशोधित अधिनियम में कहीं भी यह नहीं कहा गया है कि वंदे मातरम् के कौन से अंतरे गाए जाने चाहिए, या कानून का संरक्षण लागू होने के लिए सभी छह अंतरे गाए जाने आवश्यक हैं।
- The statute does not prescribe a mandatory version of the song at all.
कानून गीत के किसी अनिवार्य संस्करण को निर्धारित ही नहीं करता है।
- It does not compel singing in the first place by anyone, of any stanza.
यह किसी भी व्यक्ति को किसी भी अंतरे को गाने के लिए बाध्य भी नहीं करता है।
- The law penalises disrespect and disruption of a performance; it does not, on its text, mandate participation in one, nor does it fix which version of the song is entitled to protection.
कानून किसी प्रस्तुति के अनादर और व्यवधान को दंडित करता है; अपने पाठ के अनुसार यह किसी व्यक्ति को उसमें भाग लेने के लिए बाध्य नहीं करता और न ही यह निर्धारित करता है कि गीत के किस संस्करण को कानूनी संरक्षण प्राप्त होगा।

The later stanzas
बाद के अंतरे

- The commonly sung opening stanzas of Vande Mataram describe the motherland in pastoral terms, her waters, her fruit, her cooling breezes, her fields.
वंदे मातरम् के सामान्यतः गाए जाने वाले प्रारंभिक अंतरे मातृभूमि का ग्रामीण और प्राकृतिक स्वरूप में वर्णन करते हैं — उसके जल, उसके फलों, उसकी शीतल हवाओं और उसके खेतों का।
- It is the later stanzas, historically dropped from public renditions by the Congress in 1937 but increasingly promoted for full recitation since the government's commemoration of the song's 150th anniversary in late 2025, that shift register entirely.
यह बाद के अंतरे हैं, जिन्हें ऐतिहासिक रूप से कांग्रेस ने 1937 में सार्वजनिक प्रस्तुतियों से हटा दिया था, लेकिन 2025 के अंत में सरकार द्वारा गीत की 150वीं वर्षगांठ मनाए जाने के बाद पूर्ण पाठ के लिए तेजी से प्रोत्साहित किया जा रहा है; इन अंतरो में स्वरूप पूरी तरह बदल जाता है।
- In substance, and in every available English rendering, they describe the motherland as embodied in the Hindu goddesses Durga, Lakshmi and Saraswati, respectively, goddesses of power, wealth and learning, and speak of her as an object of worship enshrined in temples, with "crores" of arms raised in her defence.
वस्तुतः और उपलब्ध प्रत्येक अंग्रेजी अनुवाद में, इन अंतरो में मातृभूमि को क्रमशः हिंदू देवियों दुर्गा, लक्ष्मी और सरस्वती के रूप में साकार बताया गया है — जो क्रमशः शक्ति, समृद्धि और विद्या की देवियाँ हैं — तथा उसे मंदिरों में प्रतिष्ठित पूजा की वस्तु के रूप में प्रस्तुत किया गया है, जिसकी रक्षा के लिए "करोड़ों" भुजाएँ उठी हुई हैं।

Freedom of conscience अंतरात्मा की स्वतंत्रता

- India is constitutionally committed to a plurality of faiths: Hindu, Muslim, Christian, Sikh, Buddhist, Jain, Parsi and others, each entitled under Article 25 to freedom of conscience and the free profession, practice and propagation of religion, and under Article 26 to manage its own religious affairs without State interference.
भारत संवैधानिक रूप से विभिन्न धार्मिक आस्थाओं की बहुलता के प्रति प्रतिबद्ध है: हिंदू, मुस्लिम, ईसाई, सिख, बौद्ध, जैन, पारसी और अन्य, जिनमें से प्रत्येक को अनुच्छेद 25 के तहत अंतरात्मा की स्वतंत्रता तथा धर्म को स्वतंत्र रूप से मानने, आचरण करने और प्रचार करने का अधिकार है, और अनुच्छेद 26 के तहत राज्य के हस्तक्षेप के बिना अपने धार्मिक मामलों का प्रबंधन करने का अधिकार है।
- किसी नागरिक का ऐसी गतिविधि में भाग लेने को लेकर असहज होना, जो अपने पाठ के अनुसार उसकी अपनी आस्था से बाहर के देवताओं की उपासना का कृत्य है, कोई असामान्य बात नहीं है; यह ठीक उसी प्रकार की अंतरात्मा-आधारित आपत्ति है, जिसकी रक्षा के लिए अनुच्छेद 25 और 26 अस्तित्व में हैं।
- Articles 25 and 26 are fundamental rights.
अनुच्छेद 25 और 26 मौलिक अधिकार हैं।
- A law that has the effect of pressuring citizens, on pain of criminal liability for anyone thought to be "disturbing" its recitation, to acquiesce in a devotional performance contrary to their faith would not survive that Part III scrutiny.
ऐसा कानून, जिसका प्रभाव नागरिकों पर यह दबाव डालना हो कि वे अपनी आस्था के विपरीत किसी धार्मिक प्रस्तुति को स्वीकार करें और ऐसा न करने पर उसके पाठ में "व्यवधान डालने" वाला समझे जाने के कारण आपराधिक दायित्व का सामना करें, भाग III की संवैधानिक कसौटी पर टिक नहीं पाएगा।

The Bijoe Emmanuel ruling बिजो एमैन्युएल निर्णय

- It was addressed directly and decisively in **Bijoe Emmanuel & Ors. v. State of Kerala (1986)**, a case that remains the single most important precedent on the collision between compelled patriotic ritual and freedom of conscience.
इसका प्रत्यक्ष और निर्णायक समाधान **Bijoe Emmanuel & Ors. v. State of Kerala (1986)** मामले में

किया गया था, जो बाध्य किए गए देशभक्तिपूर्ण अनुष्ठान और अंतरात्मा की स्वतंत्रता के बीच टकराव पर अब भी सबसे महत्वपूर्ण न्यायिक मिसाल है।

- Three siblings, **Bijoe, Binu Mol and Bindu Emmanuel**, practising Jehovah's Witnesses, stood respectfully and silently while their schoolmates sang **Jana Gana Mana** during morning assembly.

तीन भाई-बहन, **बिजो, बीनू मोल और बिंदु एमैनुएल**, जो **Jehovah's Witnesses** संप्रदाय का पालन करते थे, प्रार्थना सभा के दौरान अपने सहपाठियों द्वारा **जन गण मन** गाए जाने के समय सम्मानपूर्वक और शांत खड़े रहे।

- They did not sing themselves because their faith forbade what they understood as an act of worship of anyone or anything other than God.

उन्होंने स्वयं गीत नहीं गाया क्योंकि उनकी आस्था उन्हें **ईश्वर के अलावा किसी अन्य व्यक्ति या वस्तु की उपासना** के रूप में समझे जाने वाले कृत्य से रोकती थी।

- For this, they were expelled.

इसके लिए उन्हें **विद्यालय से निष्कासित** कर दिया गया।

- The Kerala High Court upheld the expulsion, holding that **Article 51A's fundamental duty to respect the national anthem overrode any claim under Articles 25 and 26**, and that Jehovah's Witnesses could not even invoke those protections.

केरल उच्च न्यायालय ने निष्कासन को बरकरार रखते हुए कहा कि राष्ट्रगान का सम्मान करने संबंधी **अनुच्छेद 51A में निहित मौलिक कर्तव्य** अनुच्छेद 25 और 26 के तहत किसी भी दावे पर प्रभावी था और **Jehovah's Witnesses** भी इन संरक्षणों का सहारा नहीं ले सकते थे।

- The Bench held that **compelling a person to join in singing despite a genuine, conscientiously held religious objection contravenes both Article 19(1)(a) — freedom of expression, which the court held extends to the freedom to remain silent — and Article 25(1), the guarantee of freedom of conscience.**

पीठ ने माना कि किसी व्यक्ति की वास्तविक और अंतरात्मा से जुड़ी धार्मिक आपत्ति के बावजूद उसे गायन में शामिल होने के लिए बाध्य करना **अनुच्छेद 19(1)(a)**—अभिव्यक्ति की स्वतंत्रता, जिसमें न्यायालय के अनुसार **मौन रहने की स्वतंत्रता** भी शामिल है—और **अनुच्छेद 25(1)**, जो अंतरात्मा की स्वतंत्रता की गारंटी देता है, दोनों का उल्लंघन है।

- Crucially, the court held that the **fundamental duties** enumerated under Article 51A cannot be used to cut down or override the fundamental rights guaranteed under Part III of the Constitution; a duty to respect national symbols cannot, in law, be turned into a licence to punish sincere religious dissent.

महत्वपूर्ण रूप से, न्यायालय ने कहा कि **अनुच्छेद 51A के अंतर्गत उल्लिखित मौलिक कर्तव्यों** का उपयोग संविधान के भाग III द्वारा प्रदत्त मौलिक अधिकारों को सीमित या निष्प्रभावी करने के लिए नहीं किया जा सकता; राष्ट्रीय प्रतीकों का सम्मान करने के कर्तव्य को कानून के माध्यम से **ईमानदार धार्मिक असहमति को दंडित करने के अधिकार** में परिवर्तित नहीं किया जा सकता।

- The court also read the 1971 Act itself as requiring nothing more than respectful conduct, not active participation from anyone present.

न्यायालय ने 1971 के अधिनियम की भी इस प्रकार व्याख्या की कि उसमें उपस्थित किसी व्यक्ति से **सम्मानजनक आचरण** के अतिरिक्त सक्रिय भागीदारी की अपेक्षा नहीं की गई है।

- It closed with the observation that the **country's tradition, philosophy and Constitution alike "practise tolerance,"** urging that this not be diluted.

न्यायालय ने यह कहते हुए अपने निर्णय का समापन किया कि **देश की परंपरा, दर्शन और संविधान समान रूप से "सहिष्णुता का पालन करते हैं"**, और आग्रह किया कि इसे कमजोर न किया जाए।

- That ruling has never been overturned, and its logic transfers with full force to **Vande Mataram**, arguably with greater force, given that the song's later verses are, unlike the anthem, addressed to specific deities.

उस निर्णय को कभी पलटा नहीं गया है और उसका तर्क **वंदे मातरम्** पर भी पूरी तरह लागू होता है, बल्कि

संभवतः और अधिक प्रभाव के साथ, क्योंकि गीत के बाद के अंतरे राष्ट्रगान के विपरीत विशिष्ट देवताओं को संबोधित हैं।

- If the Supreme Court held that a Jehovah's Witness could not be compelled to sing a secular anthem against conscience, the same protection must extend, a fortiori, to a citizen who objects to reciting verses that are, on their face, prayers to Hindu goddesses.

यदि सर्वोच्च न्यायालय ने माना कि किसी **Jehovah's Witness** को उसकी अंतरात्मा के विरुद्ध एक धर्मनिरपेक्ष राष्ट्रगान गाने के लिए बाध्य नहीं किया जा सकता, तो वही संरक्षण, और भी अधिक मजबूती से, उस नागरिक तक विस्तारित होना चाहिए जो ऐसे अंतरों के पाठ पर आपत्ति करता है जो अपने स्पष्ट स्वरूप में हिंदू देवियों के लिए प्रार्थनाएँ हैं।

Legal position

कानूनी स्थिति

- First, the **Constituent Assembly** and the country's founding leadership deliberately confined official recognition to the first two, secular stanzas of Vande Mataram.
पहला, संविधान सभा और देश के संस्थापक नेतृत्व ने जानबूझकर वंदे मातरम् की पहली दो धर्मनिरपेक्ष पंक्तियों तक ही आधिकारिक मान्यता सीमित रखी।
- Second, the **2026 Amendment**, whatever its political framing, imposes no textual obligation on any citizen to sing any particular version of the song, let alone all six stanzas.
दूसरा, **2026 का संशोधन**, उसकी राजनीतिक प्रस्तुति चाहे जैसी भी हो, अपने पाठ में किसी भी नागरिक पर गीत के किसी विशेष संस्करण, और विशेष रूप से सभी छह अंतरों को गाने का कोई दायित्व नहीं डालता।
- Third, and most importantly, even where the song, including its later stanzas, is sung, a citizen who chooses not to join in because doing so would offend their freedom of conscience under Article 25 is under no legal obligation to participate.
तीसरा और सबसे महत्वपूर्ण, जहाँ गीत, जिसमें उसके बाद के अंतरे भी शामिल हैं, गाया जा रहा हो, वहाँ कोई नागरिक यदि अनुच्छेद 25 के तहत अपनी अंतरात्मा की स्वतंत्रता के विरुद्ध जाने के कारण उसमें शामिल न होने का विकल्प चुनता है, तो उस पर भाग लेने का कोई कानूनी दायित्व नहीं है।
- The law as laid down by the **Supreme Court in Bijoe Emmanuel** gives that citizen complete protection: standing respectfully, in silence, without disrupting others, is not an offence under this Act, was not an offence under the original 1971 Act, and cannot be made one merely by extending the statute to a new composition.

Bijoe Emmanuel मामले में सर्वोच्च न्यायालय द्वारा स्थापित कानून उस नागरिक को पूर्ण संरक्षण प्रदान करता है: दूसरों को बाधित किए बिना सम्मानपूर्वक और मौन खड़े रहना इस अधिनियम के तहत अपराध नहीं है, मूल 1971 अधिनियम के तहत भी अपराध नहीं था और केवल कानून को किसी नई रचना तक विस्तारित कर देने मात्र से इसे अपराध नहीं बनाया जा सकता।

GS Paper III: Economy		24 August 2026
TOPICS COVERED		
24A8	Digging for gold सोने की तलाश में खुदाई	
24A8	Triple test, adrift ट्रिपल टेस्ट, दिशाहीन'	

SPOTLIGHT

Satyasundar Barik

In the second week of August, former Chief Minister Naveen Patnaik wrote to Chief Minister Mohan Charan Majhi urging him to convene a special session of the Odisha Legislative Assembly.

The immediate trigger was the Mines and Minerals (Development and Regulation) (MMDR) Amendment Bill, 2026, which was passed by both Houses of Parliament on August 13. It became an Act after it got the assent of President Droupadi Murmu.

According to the Ministry of Mines' 2024-25 annual report, mineral production (excluding Atomic, Fuel and Minor Minerals) was estimated in 20 States, of which about 97.70% of the total value was confined to eight States.

Odisha accounted for the largest share, at 43.49%, followed by Rajasthan (16.26%), Chhattisgarh (13.69%), Karnataka (12.42%), Maharashtra (4.76%), Jharkhand (3.26%), Madhya Pradesh (2.78%) and Andhra Pradesh (1.04%). Remaining States contributed 2.30%.

The MMDR Act states its objective: "extraction and management have to be guided by long-term national goals". It also cites heavy and non-uniform taxes as adversely affecting mineral production. Under the MMDR Act, "the Union

will take under its control the regulation of mineral-bearing lands". It also provides that "no tax, cess or such other levy (by whatever name called) shall be imposed by the State government on mineral rights or mineral-bearing lands".

In its press release, the Central government said, "The amendment... will not take away any of the rights of the States on land and minerals or any tax on minerals collected by the States." It also says the amendment will not impact minor minerals.

Several stakeholders in Odisha, however, feel that they could significantly erode the State's authority over its mineral resources and adversely affect its fiscal interests. This is not just about mining policy or government revenue, but also about the people, mostly tribals, who have been living with the environmental and social costs of mining for generations.

People impacted

In Ransol village, in Odisha's Jajpur district, Ishwar Chandra Mohanta is battling cancer. He does not know how he developed the disease. However, Mohanta claims seven other people from his village have already died of cancer. His home lies in the Sukinda Valley, which contains 98% of India's chromite resources.

The first chromite mine near his village was suspended in 2000, but for people like Mohanta, the

consequences of decades of mining have not disappeared with the closure of a mine. Chromite mines are a source of dangerous hexavalent chromium pollution that has carcinogenic effects. While the State's vast reserves of iron ore, coal, chromite, and other minerals have attracted industries and generated enormous revenues, communities living around mining belts have often borne the environmental and health burdens.

Their grievances have traditionally been directed at the State government, which remains accountable to them for regulation,

rehabilitation, environmental protection, and local development. The concern now is that the MMDR amendment could create a situation in which that accountability is blurred.

Patnaik says, "If the Central government takes away the State's authority over mineral-bearing lands and its right to levy cesses, only pollution, displacement, and the burden of mining will remain with Odisha."

What the tweak means

The MMDR Amendment Act, 2026, is an amendment to the 1957 Act. Section 2 now provides that

the phrase "regulation of mines" will be followed by "and mineral-bearing land".

"By insertion of 'mineral-bearing land', the Union government has expanded its control over larger areas. It is tampering with the State's power. Land is a subject which is on the State list," says Umesh Jena, former Additional Director of Mines, who has over 30 years of experience in dealing with regulation pertaining to mining.

Umesh says the insertion of Section 9D has two implications: it prohibits States from earning from

new taxes, and also stops States from collecting taxes due through court orders.

The immediate repercussion for Odisha is the loss of thousands of crores in penalties. In 2021-22, Odisha had imposed a ₹22,000 crore penalty on different miners for excess mining in violation of environmental clearance. "The State had collected ₹16,000 crore from defaulting lessees before my retirement. Still, a large chunk is left to be collected. This will not come to the State's exchequer, because of the amendment," says Umesh.

In a statement accompanying the Act, justifying the amendment, G. Kishan Reddy, Union Minister of Coal and Mines, says, "Unbalanced imposition of steep taxes and levies will prompt the industry to completely bypass local supply lines, leading to sub-optimal development of markets, increased transportation costs and the resultant pollution load."

In 2004, the Odisha government had enacted the Odisha Rural Infrastructure and Socio Economic Development (ORISED) Act. This was challenged by miners in the Orissa High Court. The HC subsequently struck down the law. The State government took the fight to the Supreme Court. Now, the Odisha government's two-decade-long efforts to tax miners have come to an end. The taxes raised under ORISED were meant to

benefit mining-affected areas and communities through spending on infrastructure, education and employment.

Srikant, the former Union Minister, asserts that following the SC judgment, Odisha stood to reclaim over ₹1 lakh crore in retrospective dues since 2005, which it could have collected from April 1, 2026. Besides, Odisha would have earned ₹50,000 crore annually through the cess on future mining operations, he points out. The State has, however, not officially estimated the extent of potential loss.

A mineral powerhouse

The scale of Odisha's mineral resources explains why the amendment has triggered such strong apprehension in the State. According to the Ministry of Mines' 2024-25 report, Odisha produced minerals valued at ₹67,955.89 crore, the highest among Indian States.

Mining accounted for 37.59% of Odisha's total projected State revenue in 2026-27.

"In the aftermath of the MMDR Act, the possibility of losing such a substantial amount of potential revenue is a matter of serious concern for Odisha's economic interests," says Suresh Panigrahi, State secretary of the CPI(M).

The economic debate also has a human dimension. Environmentalist Prafulla Samantara points out that much of Odisha's mineral-

bearing land is inhabited by tribal communities, many of whom continue to remain poor despite living amid some of the country's richest mineral deposits.

"In one stroke, the Centre has taken away the State's ability to design welfare programmes for these tribal communities," alleges Samantara, a recipient of the Goldman Environmental Prize, an international award honouring those working at the grassroots.

Political tensions rise

Opposition parties alleged that the Bharatiya Janata Party's MPs did not raise their voices against the amendment in Parliament.

"It is clear that the main objective of this amendment is to centralise powers," Odisha Pradesh Congress Committee president Bhakta Charan Das alleges.

Social media platforms, meanwhile, have been flooded with reactions from political parties and civil society groups, with voices across the spectrum demanding that the Majhi government clarify its position and explain how it proposes to protect Odisha's fiscal and constitutional interests.

Despite repeated attempts to contact Odisha Steel and Mines Minister Bibhuti Bhushan Jena and Steel and Mines Secretary Deorajan Kumar Singh for comment, they were unavailable.

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Digging for gold

Parliament passed the Mines and Minerals (Development and Regulation) Amendment Bill, 2026, which put the extraction and management of minerals in the hands of the Central government. Many in Odisha fear that the new law will impact the State's fiscal health



In Jajpur's Sukinda valley, residents say monsoon run-off from mines turns the area red. BISWARANJAN ROUT

24A8. Digging for gold सोने की तलाश में खुदाई

- Parliament passed the **Mines and Minerals (Development and Regulation) Amendment Bill, 2026**, which put the **extraction and management of minerals** in the hands of the **Central government**.
- संसद ने **खान और खनिज (विकास और विनियमन) संशोधन विधेयक, 2026** पारित किया, जिसने खनिजों के निष्कर्षण और प्रबंधन को **केंद्र सरकार** के हाथों में सौंप दिया।
- According to the **Ministry of Mines' 2024-25 annual report**, mineral production (excluding Atomic, Fuel and Minor Minerals) was estimated in 20 States, of which about **97.70%** of the total value was confined to eight States.
- **खान मंत्रालय की 2024-25 की वार्षिक रिपोर्ट** के अनुसार, 20 राज्यों में खनिज उत्पादन (परमाणु, ईंधन और गौण खनिजों को छोड़कर) का आकलन किया गया था, जिसमें कुल मूल्य का लगभग **97.70%** केवल आठ राज्यों तक सीमित था।
- **Odisha** accounted for the largest share, at **43.49%**, followed by Rajasthan (16.26%), Chhattisgarh (13.69%), Karnataka (12.42%), Maharashtra (4.76%), Jharkhand (3.26%), Madhya Pradesh (2.78%) and Andhra Pradesh (1.04%).
- **ओडिशा** की हिस्सेदारी सर्वाधिक **43.49%** थी, जिसके बाद राजस्थान (16.26%), छत्तीसगढ़ (13.69%), कर्नाटक (12.42%), महाराष्ट्र (4.76%), झारखंड (3.26%), मध्य प्रदेश (2.78%) और आंध्र प्रदेश (1.04%) का स्थान था।
- The MMDR Act states its objective: "extraction and management have to be guided by **long-term national goals**".
- MMDR अधिनियम अपना उद्देश्य बताता है: "निष्कर्षण और प्रबंधन को **दीर्घकालिक राष्ट्रीय लक्ष्यों** द्वारा निर्देशित किया जाना चाहिए।"
- It also cites heavy and non-uniform taxes as adversely affecting mineral production.

- यह भारी और असमान करों को भी खनिज उत्पादन पर प्रतिकूल प्रभाव डालने वाला बताता है।
- Under the MMDR Act, “the Union will take under its control the regulation of **mineral-bearing lands**”.
- MMDR अधिनियम के अंतर्गत, “संघ **खनिज-युक्त भूमि** के विनियमन को अपने नियंत्रण में लेगा।”
- It also provides that “**no tax, cess or such other levy (by whatever name called) shall be imposed by the State government on mineral rights or mineral-bearing lands**”.
- इसमें यह भी प्रावधान है कि “राज्य सरकार द्वारा **खनिज अधिकारों अथवा खनिज-युक्त भूमि** पर कोई कर, उपकर या ऐसा कोई अन्य शुल्क—चाहे उसे किसी भी नाम से पुकारा जाए—नहीं लगाया जाएगा।”
- It also says the amendment will **not impact minor minerals**.
- इसमें यह भी कहा गया है कि संशोधन **गौण खनिजों** को प्रभावित नहीं करेगा।
- This is not just about mining policy or government revenue, but **also about the people, mostly tribals, who have been living with the environmental and social costs of mining for generations**.
- यह केवल खनन नीति अथवा सरकारी राजस्व का विषय नहीं है, बल्कि उन लोगों का भी विषय है—जिनमें अधिकांश **आदिवासी** हैं—जो पीढ़ियों से खनन की पर्यावरणीय और सामाजिक कीमत चुकाते आ रहे हैं।

People impacted

प्रभावित लोग

- His home lies in the **Sukinda Valley**, which contains **98% of India's chromite resources**.
- उनका घर **सुकिंदा घाटी** में स्थित है, जहाँ **भारत के 98% क्रोमाइट संसाधन** पाए जाते हैं।
- **Chromite mines are a source of dangerous hexavalent chromium pollution that has carcinogenic effects**.
- क्रोमाइट खदानें खतरनाक **हेक्सावैलेंट क्रोमियम प्रदूषण** का स्रोत हैं, जिसका प्रभाव कैंसरकारी होता है।

What the tweak means

इस बदलाव का क्या अर्थ है

- The **MMDR Amendment Act, 2026**, is an amendment to the **1957 Act**.
- **MMDR संशोधन अधिनियम, 2026**, **1957 के अधिनियम** में किया गया एक संशोधन है।
- **Section 2 now provides that the phrase “regulation of mines” will be followed by “and mineral-bearing land”.**
- अब **धारा 2** में प्रावधान किया गया है कि “खानों का विनियमन” वाक्यांश के बाद “और खनिज-युक्त भूमि” जोड़ा जाएगा।
- **Land is a subject which is on the State list,”** says **Umesh Jena**, former Additional Director of Mines, who has over 30 years of experience in dealing with regulation pertaining to mining.
- खनन संबंधी विनियमन से निपटने का 30 वर्षों से अधिक का अनुभव रखने वाले पूर्व अतिरिक्त खान निदेशक **उमेश जेना** कहते हैं, “भूमि एक ऐसा विषय है, जो **राज्य सूची** में शामिल है।”
- Umesh says **the insertion of Section 9D has two implications: it prohibits States from earning from new taxes, and also stops States from collecting taxes due through court orders**.
- उमेश कहते हैं कि **धारा 9D** को सम्मिलित किए जाने के दो निहितार्थ हैं: यह राज्यों को नए करों से राजस्व अर्जित करने से रोकती है और न्यायालय के आदेशों के माध्यम से देय करों की वसूली करने से भी रोकती है।
- The immediate repercussion for Odisha is the **loss of thousands of crores in penalties**.
- ओडिशा के लिए इसका तात्कालिक परिणाम **हजारों करोड़ रुपये की जुर्माना राशि का नुकसान** है।
- **In 2021-22, Odisha had imposed a ₹22,000 crore penalty on different miners for excess mining in violation of environmental clearance**.
- **2021-22 में ओडिशा ने पर्यावरणीय मंजूरी का उल्लंघन करते हुए अत्यधिक खनन करने के कारण विभिन्न खननकर्ताओं पर ₹22,000 करोड़ का जुर्माना लगाया था।**
- “The State had collected **₹16,000 crore** from defaulting lessees before my retirement.
- “मेरी सेवानिवृत्ति से पहले राज्य ने चूक करने वाले पट्टाधारकों से **₹16,000 करोड़** की वसूली कर ली थी।
- Still, a large chunk is left to be collected.



- फिर भी, एक बड़ा हिस्सा अभी वसूला जाना शेष है।
- In 2004, the Odisha government had enacted the **Odisha Rural Infrastructure and Socio Economic Development (ORISED) Act**.
- 2004 में ओडिशा सरकार ने ओडिशा ग्रामीण अवसंरचना एवं सामाजिक-आर्थिक विकास (ORISED)

अधिनियम बनाया था।

A mineral powerhouse

खनिजों का एक शक्तिशाली केंद्र

- According to the **Ministry of Mines' 2024-25 report**, Odisha produced minerals valued at **₹67,955.89 crore**, the highest among Indian States.
- **खान मंत्रालय की 2024-25 की रिपोर्ट** के अनुसार, ओडिशा ने ₹67,955.89 करोड़ मूल्य के खनिजों का उत्पादन किया, जो भारतीय राज्यों में सर्वाधिक था।
- **Mining accounted for 37.59% of Odisha's total projected State revenue in 2026-27.**
- खनन का योगदान 2026-27 में ओडिशा के कुल अनुमानित राज्य राजस्व का 37.59% था।
- "In one stroke, the Centre has taken away the State's ability to design **welfare programmes for these tribal communities**," alleges Samantara, a recipient of the **Goldman Environmental Prize**, an international award honouring those working at the grassroots.
- जमीनी स्तर पर कार्य करने वालों को सम्मानित करने वाले अंतरराष्ट्रीय पुरस्कार **गोल्डमैन पर्यावरण पुरस्कार**

के प्राप्तकर्ता सामंतारा आरोप लगाते हैं, "एक ही झटके में केंद्र ने इन जनजातीय समुदायों के लिए कल्याणकारी कार्यक्रम तैयार करने की राज्य की क्षमता छीन ली है।"

GS III: Economy

Triple test, adrift

The Supreme Court should not have discarded a workable test on 'industry'

In August 20, a nine-judge Bench of the Supreme Court of India delivered a judgment on the correctness of the ruling in *Bangalore Water Supply and Sewerage Board vs A. Rajappa (BWSSB) (1978)*. In that judgment, Justice V.R. Krishna Iyer had laid down what was called the "Triple Test" on what counts as an "industry" under Section 2(j) of the Industrial Disputes (ID) Act, 1947 (ID Act). Three conditions were to be met for an industry – a systematic activity, employer-employee cooperation, and production/distribution of goods and services to satisfy human wants other than those that are purely religious or spiritual. Profit motive was irrelevant; what mattered in this determination was the nature of the activity, and only "sovereign functions" stood outside it. A five-judge Bench in *State of U.P. vs Jai Bir Singh (2005)* raised a doubt about this definition and a seven-judge Bench sent it to the current nine-judge Bench. This Bench, led by Chief Justice of India Surya Kant, left the Triple Test standing for all pending disputes under the older ID Act, which was repealed on November 21, 2025 when the Industrial Relations Code, 2020 (IRC) came into force. However, a majority of the nine-judge Bench also ruled that BWSSB will not be a "sheet anchor" for interpreting Section 2(p) of the IRC. That is a mistake. In her dissenting opinion, Justice B.V. Nagarathna held that the reference itself was unnecessary and that the Triple Test requires no interference – a view shared by three other judges. Her reasoning is compelling. Since 1978, and particularly after the liberalisation and privatisation reforms of 1991, a far higher number of workers have moved to the private sector, out of the security of public employment. An expansive definition of industry, as entailed in the Triple Test, is therefore even more necessary now as a bulwark for the worker.

Yet, Section 2(p) of the IRC does not move away from Justice Krishna Iyer's Triple Test formula in BWSSB and reproduces much of its essence. It is therefore difficult to understand why BWSSB has to be set aside when Section 2(p) itself comes up for interpretation. The Triple Test was also not merely a pro-labour device. An expansive definition of industry brought with it not just the ID Act's protections but also its restrictions – for instance, a regulated route to retrenchment and closure for the employer, and a bar on workers striking at will. In essence, the Triple Test allowed for industrial peace rather than worker welfare alone. Severing that principle from the IRC, as the majority has done, cuts away the interpretive framework that allowed such disputes to be resolved. With the essence of the Triple Test carried into Section 2(p), it is now incumbent upon courts and tribunals to ensure that a change of statute is not read as a change of intent even if the majority judgment has removed the anchor to do so.

24A8. Triple test, adrift

ट्रिपल टेस्ट, दिशाहीन

- On August 20, a nine-judge Bench of the Supreme Court of India delivered a judgment on the correctness of the ruling in **Bangalore Water Supply and Sewerage Board vs A. Rajappa (BWSSB) (1978)**.

20 अगस्त को भारत के सर्वोच्च न्यायालय की नौ-न्यायाधीशों की पीठ ने Bangalore Water Supply and Sewerage Board vs A. Rajappa (BWSSB) (1978) के निर्णय की शुद्धता पर अपना फैसला सुनाया।

- In that judgment, Justice V.R. Krishna Iyer had laid down what was called the "Triple Test" on what counts as an "industry" under Section 2(j) of the Industrial Disputes (ID) Act, 1947 (ID Act).

उस निर्णय में न्यायमूर्ति वी.आर. कृष्ण अय्यर ने औद्योगिक विवाद (ID) अधिनियम, 1947 की धारा 2(j) के तहत किसी संस्था या गतिविधि को "उद्योग (industry)" माने जाने के लिए तथाकथित "ट्रिपल टेस्ट (Triple Test)" निर्धारित किया था।

- Three conditions were to be met for an industry — a systematic activity, employer-employee cooperation, and production/distribution of goods and services to satisfy human wants other than those that are purely religious or spiritual.

किसी गतिविधि को उद्योग माने जाने के लिए तीन शर्तों को पूरा करना आवश्यक था —

व्यवस्थित गतिविधि (systematic activity), नियोक्ता-कर्मचारी सहयोग (employer-employee cooperation) तथा विशुद्ध रूप से धार्मिक या आध्यात्मिक आवश्यकताओं के अतिरिक्त मानवीय आवश्यकताओं की पूर्ति के लिए वस्तुओं और सेवाओं का उत्पादन/वितरण।

- Profit motive was irrelevant; what mattered in this determination was the nature of the activity, and only "sovereign functions" stood outside it.

लाभ का उद्देश्य (profit motive) अप्रासंगिक था; इस निर्धारण में गतिविधि की प्रकृति



महत्वपूर्ण थी और केवल “संप्रभु कार्य (sovereign functions)” इसके दायरे से बाहर थे।

- A five-judge Bench in **State of U.P. vs Jai Bir Singh (2005)** raised a doubt about this definition and a seven-judge Bench sent it to the current nine-judge Bench.
State of U.P. vs Jai Bir Singh (2005) में पांच-न्यायाधीशों की पीठ ने इस परिभाषा को लेकर संदेह व्यक्त किया और सात-न्यायाधीशों की पीठ ने इस प्रश्न को वर्तमान नौ-न्यायाधीशों की पीठ के पास भेज दिया।
- This Bench, led by Chief Justice of India Surya Kant, left the Triple Test standing for all pending disputes under the older ID Act, which was repealed on November 21, 2025 when the **Industrial Relations Code, 2020 (IRC) came into force**.
भारत के मुख्य न्यायाधीश सूर्यकांत के नेतृत्व वाली इस पीठ ने पुराने ID अधिनियम के तहत लंबित सभी विवादों के लिए **ट्रिपल टेस्ट** को बरकरार रखा; इस अधिनियम को **21 नवंबर 2025** को **औद्योगिक संबंध संहिता, 2020 (Industrial Relations Code, 2020 — IRC)** के लागू होने के साथ निरस्त कर दिया गया था।
- Since 1978, and particularly after the liberalisation and privatisation reforms of 1991, a far higher number of workers have moved to the private sector, out of the security of public employment.
1978 के बाद से और विशेष रूप से **1991 के उदारीकरण एवं निजीकरण सुधारों** के पश्चात, कहीं अधिक संख्या में श्रमिक सार्वजनिक रोजगार की सुरक्षा से बाहर निकलकर **निजी क्षेत्र** में चले गए हैं।
- An expansive definition of industry, as entailed in the Triple Test, is therefore even more necessary now as a bulwark for the worker.
इसलिए, **ट्रिपल टेस्ट** में निहित उद्योग की व्यापक परिभाषा अब श्रमिकों के लिए **सुरक्षा-कवच (bulwark)** के रूप में और भी अधिक आवश्यक है।
- An expansive definition of industry brought with it not just the ID Act's protections but also its restrictions — for instance, a regulated route to retrenchment and closure for the employer, and a bar on workers striking at will.
उद्योग की व्यापक परिभाषा अपने साथ केवल ID अधिनियम के संरक्षण ही नहीं, बल्कि उसकी **पाबंदियाँ** भी लेकर आई — उदाहरण के लिए, नियोक्ता के लिए **छंटनी (retrenchment)** और **प्रतिष्ठान बंद करने (closure)** की विनियमित प्रक्रिया तथा श्रमिकों द्वारा अपनी इच्छा से हड़ताल करने पर रोक।
- In essence, the Triple Test allowed for industrial peace rather than worker welfare alone.
सार रूप में, **ट्रिपल टेस्ट** ने केवल श्रमिक कल्याण के बजाय **औद्योगिक शांति (industrial peace)** सुनिश्चित करने की व्यवस्था प्रदान की।

THE “TRIPLE TEST” AND MEANING OF AN INDUSTRY

- The issue is essentially about a simple but important question: **Which organisations should legally be treated as an “industry” for resolving employer-worker disputes?**
- The answer determines whether labour-law protections and restrictions apply to their workers and employers.

What was the 1978 BWSSB Judgment?

- In **Bangalore Water Supply and Sewerage Board v. A. Rajappa (1978)**, the Supreme Court, through Justice **V.R. Krishna Iyer**, formulated the famous **Triple Test**.
- An activity could broadly qualify as an **industry** when it involved:
 - A **systematic or organised activity**.
 - Cooperation between employer and employees**.
 - Production or distribution of goods or services to satisfy human wants**,



except purely spiritual or religious wants.

- Importantly, **making profit was not necessary**.
- For example, suppose a charitable hospital systematically provides medical services through doctors, nurses and other employees. Merely being charitable or non-profit would not automatically prevent it from being treated as an industry under this broad approach.

Why was the Triple Test Important?

- The definition brought many organised economic and service activities within industrial-relations law.
- It did not benefit workers alone. Once an establishment came within the industrial-disputes framework, **both sides became subject to rules**.
- Workers received legal safeguards concerning matters such as industrial disputes and retrenchment, while employers received an organised legal framework for **retrenchment, closure and dispute resolution**. Workers also could not simply strike without complying with applicable legal requirements.
- Thus, the underlying objective was **industrial peace and orderly employer-employee relations**.

What has now changed?

- The old **Industrial Disputes Act, 1947** has been replaced by the **Industrial Relations Code, 2020**.
- According to the article, the nine-judge Bench preserved the **BWSSB Triple Test for pending disputes governed by the old law**.
- However, the majority held that BWSSB should not automatically serve as the controlling “**sheet anchor**” while interpreting the new Code's definition of industry.

Why Does the Article Criticise This?

- The article argues that the new definition still contains much of the **substance of the Triple Test**.
- Therefore, abandoning BWSSB as an interpretative foundation could create uncertainty.
- This matters particularly because, after **economic liberalisation and privatisation**, a much larger workforce operates in the private sector.

In Simple Terms

- Think of the **Triple Test as a legal checklist**.
- Earlier, courts had a well-established checklist for deciding whether an organisation constituted an industry.
- The concern is that removing this established interpretative anchor, despite retaining much of its substance in the new law, may create uncertainty.
- Courts and tribunals must therefore interpret the new framework carefully so that a **change in statutory wording does not automatically become an unintended**



change in labour protection or industrial relations.

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TOPICS COVERED		
24A8	No new H1N1 strain in India, existing vaccines sufficient भारत में H1N1 का कोई नया स्ट्रेन नहीं, मौजूदा टीके पर्याप्त	
24A8	Global space norms and a firm footing in India's new re-entry rules वैश्विक अंतरिक्ष मानदंड और भारत के नए पुनःप्रवेश नियमों में एक सुदृढ़ आधार	
24A8	What changes when AI moves from reading viral genomes to designing them? जब AI वायरल जीनोम को पढ़ने से उन्हें डिजाइन करने की ओर बढ़ता है, तो क्या बदलता है?	

'No new H1N1 strain in India, existing vaccines sufficient'

Influenza strains circulating are well matched with the vaccine strains, and the seasonal flu is self-limiting, ICMR says, adding that people with underlying conditions are at risk of complication

GS III: S&T

Bindu Shajan Perappadan
NEW DELHI

The Indian Council of Medical Research (ICMR) on Sunday said that the Influenza A (H1N1) viruses currently circulating in the country belong to the A/Missouri/11/2025 (H1N1) pdm09-like virus strain. It clarified that no new strain of H1N1 has been identified and there is no cause for panic.

"These viruses belong to clade 6B.1A.5a2a, sub-clade D.3.1.1, and have been in circulation since 2025. The Influenza strains currently circulating are also well matched with the vaccine strains recommended for the Northern Hemisphere," the ICMR said.

"Seasonal influenza, including H1N1, is mostly self-limiting," it added.

Common symptoms of the illness include fever, cough, headache, and body ache, and most people recover with appropriate care and rest.

However, young children, elderly persons, and



Patients wait at the swine flu (H1N1) outpatient department in Ram Manohar Lohia Hospital in New Delhi in 2015. V. SUDERSHAN

individuals with underlying medical conditions may be at a greater risk of complications. If symptoms persist, worsen, or become severe, consultation with a doctor is advised, it said.

The Union Health Ministry has said that it is closely monitoring the situation through regular surveillance and is undertaking necessary public health measures.

India has registered a rise in seasonal Influenza A (H1N1) cases, commonly called swine flu, this mon-

soon, especially in major cities. Delhi has reported 1,777 confirmed H1N1 cases so far this year, including 114 new cases on August 20. Karnataka has registered over 4,000 cases, with more than half reported from Bengaluru. Rising influenza activity has also been reported in Mumbai, Chennai and parts of Kerala.

Past trends

The National Centre for Disease Control (NCDC) data show that H1N1 activity was relatively low in 2021

(778 cases, 12 deaths) after the pandemic period, but rebounded sharply in 2022 (13,202 cases, 410 deaths) and remained substantial in 2023 (8,125 cases, 129 deaths). By June 2024, India had already recorded 7,215 cases and 150 deaths, and year-end numbers were higher. The NCDC's 2025 reporting shows that H1N1 continued to circulate across multiple States.

The NCDC maintains a nationwide influenza surveillance network and publishes State-wise data and H1N1 treatment/prevention guidelines. It recommends seasonal influenza vaccination based on WHO strain recommendations. For the 2025-26 season, India's recommended trivalent vaccine included H1N1, H3N2 and B/Victoria components, with circulating Indian H1N1 strains aligning with vaccine strains.

"People at higher risk should consider annual vaccination and seek medical advice promptly if flu symptoms become severe," Anil Bansal of the Delhi Medical Association said.

24A8. No new H1N1 strain in India, existing vaccines sufficient
भारत में H1N1 का कोई नया स्ट्रेन नहीं, मौजूदा टीके पर्याप्त

- The Indian Council of Medical Research (ICMR) on Sunday said that the **Influenza A (H1N1) viruses** currently circulating in the country belong to the **A/Missouri/11/2025 (H1N1) pdm09-like virus strain**. भारतीय आयुर्विज्ञान अनुसंधान परिषद (ICMR) ने रविवार को कहा कि वर्तमान में देश में प्रसारित हो रहे **इन्फ्लुएंजा A (H1N1) वायरस** **A/Missouri/11/2025 (H1N1) pdm09-जैसे वायरस स्ट्रेन से संबंधित हैं।**

- It clarified that

no new strain of H1N1 has been identified and there is no cause for panic.

इसने स्पष्ट किया कि **H1N1 के किसी नए स्ट्रेन** की पहचान नहीं हुई है और घबराने का कोई कारण नहीं है।

- "These viruses belong to **clade 6B.1A.5a2a, sub-clade D.3.1.1**, and have been in circulation since 2025.

"ये वायरस **क्लेड 6B.1A.5a2a, सब-क्लेड D.3.1.1** से संबंधित हैं और 2025 से प्रसारित हो रहे हैं।

- Common symptoms of the illness include **fever, cough, headache, and body ache**, and most people recover with appropriate care and rest.
इस बीमारी के सामान्य लक्षणों में **बुखार, खाँसी, सिरदर्द और शरीर में दर्द** शामिल हैं तथा अधिकांश लोग उचित देखभाल और आराम से स्वस्थ हो जाते हैं।
- However, young children, elderly persons, and individuals with underlying medical conditions may be at a greater risk of complications.
हालाँकि, **छोटे बच्चे, बुजुर्ग व्यक्ति और पहले से किसी स्वास्थ्य समस्या से ग्रस्त लोग** जटिलताओं के अधिक जोखिम में हो सकते हैं।
- If symptoms persist, worsen, or become severe, consultation with a doctor is advised, it said.
इसने कहा कि यदि लक्षण बने रहते हैं, बिगड़ते हैं या गंभीर हो जाते हैं, तो **डॉक्टर से परामर्श** लेने की सलाह दी जाती है।
- India has registered a rise in **seasonal Influenza A (H1N1) cases**, commonly called **swine flu**, this monsoon, especially in major cities.
इस मानसून में भारत में मौसमी **इन्फ्लुएंजा A (H1N1)** के मामलों में वृद्धि दर्ज की गई है, जिसे सामान्यतः **स्वाइन फ्लू** कहा जाता है, विशेष रूप से बड़े शहरों में।
- The NCDC's 2025 reporting shows that **H1N1 continued to circulate across multiple States**.
NCDC की 2025 की रिपोर्टिंग से पता चलता है कि **H1N1 कई राज्यों में लगातार प्रसारित होता रहा**।
- The NCDC maintains a nationwide **influenza surveillance network** and publishes State-wise data and H1N1 treatment/prevention guidelines.
NCDC देशव्यापी **इन्फ्लुएंजा निगरानी नेटवर्क** संचालित करता है और राज्यवार आँकड़े तथा H1N1 के उपचार एवं रोकथाम संबंधी दिशानिर्देश प्रकाशित करता है।
- It recommends **seasonal influenza vaccination** based on WHO strain recommendations.
यह **WHO द्वारा अनुशंसित स्ट्रेन** के आधार पर **मौसमी इन्फ्लुएंजा टीकाकरण** की सिफारिश करता है।
- For the **2025–26 season**, India's recommended trivalent vaccine included **H1N1, H3N2 and B/Victoria components**, with circulating Indian H1N1 strains aligning with vaccine strains.
2025–26 के मौसम के लिए भारत में अनुशंसित **त्रिसंयोजक वैक्सीन (trivalent vaccine)** में **H1N1, H3N2 और B/Victoria** घटक शामिल थे और भारत में प्रसारित हो रहे H1N1 स्ट्रेन वैक्सीन स्ट्रेन के अनुरूप थे।



Global space norms find a firm footing in India's new re-entry rules

For many decades, there were few rocket launches and few new satellites in orbit every year, so there were also few re-entries, and most of them simply burned up in the atmosphere with little consequence; but today, low-earth orbit hosts several thousand satellites, with private companies planning for many, many more

SHRAWANI SHAGUN
Shrawani Shagun

In August 23, India marked its third National Space Day, three years since the Chandrayaan-3 mission's lunar lander 'Vikram' touched down on the moon's south pole region.

Between then and Hyderabad-based Skyroot Aerospace launching India's first privately built rocket to orbit, India has come a long way — even as it is also just beginning to regulate the responsibilities that follow from expanding its orbital footprint.

As part of this endeavour, and days after the success of Vikram-1, the Indian National Space Promotion and Authorisation Centre (IN-SPACe) released the country's first guidelines on planned re-entry.

A sustainability problem

For many decades, there were few rocket launches and few new satellites in orbit every year, so there were also few re-entries, and most of them simply burned up in the atmosphere with little consequence. But today, low-earth orbit hosts several thousand satellites, with private companies planning for many, many more. Satellite operators are also deliberately bringing satellites down at the end of their operational lives as part of post-mission disposal in great numbers.

A spacecraft returning to the earth has to negotiate many risks, including deviating from its planned path and breaking up into smaller pieces. It may also affect airspace and maritime zones and potentially crash in the territory or jurisdiction of another state.

Here, the idea of sustainability is important. The UN Guidelines for the Long-term Sustainability of Outer Space Activities define 'sustainability' as maintaining space activities while preserving the outer space environment for future generations. In this context, re-entry poses a question: how can an increasingly crowded orbital environment remain usable as more objects are launched, operated, and eventually brought back to the earth?

Therefore, re-entry is a physics problem as well as a governance problem. And the new IN-SPACe guidelines are intended to give Indian operators clarity on how the Indian government expects them to solve these problems.

'Conditions of permission'

The guidelines have three important elements.

(i) **Accountability** — Any Indian entity undertaking a planned re-entry, whether within or outside Indian territory, now requires the IN-SPACe's authorisation. Non-Indian entities seeking to undertake



GSLV Mk-III rocket carries the Crew Module Atmospheric Re-entry Experiment (CARE) on a suborbital flight after lifting off from Sriharikota in 2015. FILE PHOTO

planned re-entry over Indian territory must route the activity through an Indian-incorporated entity, such as a subsidiary, joint venture or partnership, which will be responsible for complying with Indian laws, regulations, and national security requirements.

This has been done because commercialisation creates an accountability gap: i.e. the spacecraft may belong to a private company but the consequences of its return can lie across maritime zones, and jurisdictions. And India has responded by attaching regulatory responsibility to a re-entering entity even before the risk materialises.

Objects designed to survive re-entry or intentionally controlled towards a particular landing or impact area also require separate authorisation. This is what makes a re-entry 'planned'. On the other hand, objects expected to burn up, melt or fragment sufficiently during natural orbital decay do not count as a planned re-entry.

(ii) **Risk must be acceptable** — The guidelines say the expected casualty risk must remain below 1 in 10,000, supported by survivability and ground-casualty assessments.

As a result, operators have to analyse failure scenarios, fragmentation patterns, ballistic coefficients, de-orbit plans, flight-path angles, and danger zones, and share the results. They must also identify components likely to survive re-entry and hazardous systems such as batteries and pressure vessels.

By requiring quantitative studies and attaching a number to the acceptable risk threshold, the guidelines make sustainability measurable and thus trackable.

(iii) **Permissions** — Per the guidelines, IN-SPACe will re-verify the latest re-entry parameters approximately three months before the proposed operation. If planned re-entry is decided upon after launch, the operator must apply at least six months in advance. Operators must also obtain an IN-SPACe advisory note to issue warnings to airborne and marine vessels in the re-entry area at least 45 days before the re-entry begins.

If a re-entry site falls within the territorial control of a non-Indian state, including in its exclusive economic zones, the applicant must also submit the relevant clearance or authorisation from that state.

These checkpoints ensure that the regulator has fixed windows and mechanisms to intervene when the re-entry parameters change after the mission has launched or the risk pattern has changed for some reason.

Soft law to domestic rule

For nearly two decades, the international community has developed principles for sustainable space activities. Notable among them are the Inter-Agency Space Debris Coordination Committee's 'Space Debris Mitigation Guidelines' and the 'Guidelines for the Long-term Sustainability of Outer Space Activities' of

the U.N. Committee for the Peaceful Uses of Outer Space. Article IX of the Outer Space Treaty 1967 also provides an important foundation for environmental responsibility.

However, most of the contemporary sustainability architecture works on guidelines and other similar forms of 'soft law', which operators are not obligated to follow.

The IN-SPACe guidelines solve this problem for India by tying an operator's fragmentation analysis and insurance policies to the national regulator.

The guidelines also address the financial risks that follow from the Space Liability Convention 1972, which places absolute liability on a launching state for damage caused by its space object on the surface of the earth or to aircraft in flight.

The IN-SPACe guidelines, on the other hand, require operators to undertake planned re-entries at their own risk and say they remain liable for third-party damage and claims. They also indemnify the Government of India and its agencies for liability incurred under India's international commitments while satisfying the applicable third-party insurance requirements.

Taken together, the IN-SPACe guidelines translate international principles into obligations that private operators in India must satisfy before the government gives them permission to act. (Shrawani Shagun is a researcher focusing on environmental sustainability and space governance. shrawani.shagun@gmail.com)

THE GIST

A spacecraft returning to the earth has to navigate several risks. It could affect airspace and maritime zones, or even crash within the territory or jurisdiction of another state. This makes sustainability an important consideration

Days after the success of Vikram-1, IN-SPACe released the country's first guidelines for planned re-entry

The current international principles for sustainable space activities are soft laws that need not be followed by the operator

The IN-SPACe guidelines solve this problem for India by tying an operator's fragmentation analysis and insurance policies to the national regulator

24A8. Global space norms and a firm footing in India's new re-entry rules वैश्विक अंतरिक्ष मानदंड और भारत के नए पुनःप्रवेश नियमों में एक सुदृढ़ आधार

- On August 23, India marked its third National Space Day, three years since the Chandrayaan-3 mission's lunar lander 'Vikram' touched down on the moon's south pole region.

23 अगस्त को भारत ने अपना तीसरा राष्ट्रीय अंतरिक्ष दिवस (National Space Day) मनाया, जो चंद्रयान-3 मिशन के चंद्र लैंडर 'विक्रम (Vikram)' के चंद्रमा के दक्षिणी ध्रुवीय क्षेत्र में उतरने के तीन वर्ष पूरे होने का अवसर था।

- Between then and Hyderabad-based Skyroot Aerospace launching India's first privately built rocket to orbit, India has come a long way — even as it is also just beginning to regulate the responsibilities that follow from expanding its orbital footprint.

उस समय से लेकर हैदराबाद स्थित स्काईरूट एयरोस्पेस (Skyroot Aerospace) द्वारा भारत के पहले निजी रूप से निर्मित रॉकेट को कक्षा में प्रक्षेपित किए जाने तक, भारत ने लंबी यात्रा तय की है — हालांकि, इसके साथ-साथ वह अपने विस्तारित कक्षीय क्षेत्र (orbital footprint) से उत्पन्न होने वाली जिम्मेदारियों को विनियमित करना भी अभी शुरू कर रहा है।

- As part of this endeavour, and days after the success of Vikram-1, the Indian National Space Promotion and Authorisation Centre (IN-SPACe) released the country's first guidelines on planned re-entry.

इस प्रयास के तहत और विक्रम-1 (Vikram-1) की सफलता के कुछ दिनों बाद, भारतीय राष्ट्रीय अंतरिक्ष संवर्धन एवं प्राधिकरण केंद्र (IN-SPACe) ने नियोजित पुनःप्रवेश पर देश के पहले दिशानिर्देश जारी किए।

A sustainability problem एक स्थिरता संबंधी समस्या

- But today, low-earth orbit hosts several thousand satellites, with private companies planning for many, many more.
लेकिन आज निम्न-पृथ्वी कक्षा (Low-Earth Orbit) में कई हजार उपग्रह मौजूद हैं और निजी कंपनियाँ भविष्य में इससे भी बहुत अधिक उपग्रह स्थापित करने की योजना बना रही हैं।
- Satellite operators are also deliberately bringing satellites down at the end of their operational lives as part of post-mission disposal in great numbers.
उपग्रह संचालक भी मिशन-पश्चात निपटान (post-mission disposal) के हिस्से के रूप में बड़ी संख्या में उपग्रहों को उनके परिचालन जीवन के अंत में जानबूझकर कक्षा से नीचे ला रहे हैं।
- A spacecraft returning to the earth has to negotiate many risks, including deviating from its planned path and breaking up into smaller pieces.
पृथ्वी पर लौटने वाले एक अंतरिक्षयान (spacecraft) को अनेक जोखिमों का सामना करना पड़ता है, जिनमें अपने नियोजित मार्ग से विचलित होना और छोटे-छोटे टुकड़ों में विखंडित होना शामिल है।
- It may also affect airspace and maritime zones and potentially crash in the territory or jurisdiction of another state.
यह वायुसंक्षेत्र (airspace) और समुद्री क्षेत्रों (maritime zones) को भी प्रभावित कर सकता है तथा संभावित रूप से किसी अन्य राज्य के क्षेत्र या अधिकार-क्षेत्र में दुर्घटनाग्रस्त हो सकता है।
- Here, the idea of sustainability is important.
यहाँ स्थिरता (sustainability) की अवधारणा महत्वपूर्ण है।
- The UN Guidelines for the Long-term Sustainability of Outer Space Activities define 'sustainability' as maintaining space activities while preserving the outer space environment for future generations.
बाह्य अंतरिक्ष गतिविधियों की दीर्घकालिक स्थिरता संबंधी संयुक्त राष्ट्र दिशानिर्देश (UN Guidelines for the Long-term Sustainability of Outer Space Activities) 'स्थिरता' को इस रूप में परिभाषित करते हैं कि भावी पीढ़ियों के लिए बाह्य अंतरिक्ष के पर्यावरण को संरक्षित रखते हुए अंतरिक्ष गतिविधियों को बनाए रखा जाए।

'Conditions of permission' 'अनुमति की शर्तें'

- The guidelines have three important elements.
इन दिशानिर्देशों में तीन महत्वपूर्ण तत्व हैं।
- (i) **Accountability** — Any Indian entity undertaking a planned re-entry, whether within or outside Indian territory, now requires the IN-SPACe's authorisation.
(i) **जवाबदेही** — भारत की किसी भी सीमा के भीतर या बाहर नियोजित पुनःप्रवेश (planned re-entry) करने वाली किसी भी भारतीय संस्था को अब IN-SPACe की अनुमति आवश्यक होगी।
- Non-Indian entities seeking to undertake planned re-entry over Indian territory must route the activity through an Indian-incorporated entity, such as a subsidiary, joint venture or partnership, which will be responsible for complying with Indian laws, regulations, and national security requirements.
भारतीय क्षेत्र के ऊपर नियोजित पुनःप्रवेश करने की इच्छुक गैर-भारतीय संस्थाओं को इस गतिविधि को भारत में निगमित किसी संस्था, जैसे सहायक कंपनी (subsidiary), संयुक्त उद्यम (joint venture) या भागीदारी

(partnership) के माध्यम से संचालित करना होगा, जो भारतीय कानूनों, विनियमों और राष्ट्रीय सुरक्षा संबंधी आवश्यकताओं के अनुपालन के लिए जिम्मेदार होगी।

- This has been done because commercialisation creates an accountability gap: i.e. the spacecraft may belong to a private company but the consequences of its return can lie across maritime zones, and jurisdictions.

ऐसा इसलिए किया गया है क्योंकि **व्यावसायीकरण (commercialisation)** जवाबदेही में एक अंतर पैदा करता है: अर्थात्, अंतरिक्षयान किसी निजी कंपनी का हो सकता है, लेकिन उसके पृथ्वी पर लौटने के परिणाम विभिन्न **समुद्री क्षेत्रों** और **अधिकार-क्षेत्रों** में उत्पन्न हो सकते हैं।

- And India has responded by attaching regulatory responsibility to a re-entering entity even before the risk materialises.

और भारत ने जोखिम के वास्तविक रूप लेने से पहले ही पुनःप्रवेश करने वाली संस्था पर **नियामक जिम्मेदारी (regulatory responsibility)** निर्धारित करके इसका उत्तर दिया है।

- Objects designed to survive re-entry or intentionally controlled towards a particular landing or impact area also require separate authorisation.

पुनःप्रवेश के दौरान जीवित रहने के लिए डिजाइन की गई वस्तुओं या जानबूझकर किसी विशेष **अवतरण या प्रभाव क्षेत्र (landing or impact area)** की ओर नियंत्रित की जाने वाली वस्तुओं के लिए भी अलग से अनुमति आवश्यक होगी।

- This is what makes a re-entry 'planned'.

यही किसी पुनःप्रवेश को '**नियोजित (planned)**' बनाता है।

- On the other hand, objects expected to burn up, melt or fragment sufficiently during natural orbital decay do not count as a planned re-entry.

दूसरी ओर, प्राकृतिक **कक्षीय क्षय (orbital decay)** के दौरान जिन वस्तुओं के जलने, पिघलने या पर्याप्त रूप से विखंडित हो जाने की अपेक्षा होती है, उन्हें नियोजित पुनःप्रवेश नहीं माना जाता है।

- (ii) **Risk must be acceptable** — The guidelines say the expected casualty risk must remain below 1 in 10,000, supported by survivability and ground-casualty assessments.

(ii) **जोखिम स्वीकार्य होना चाहिए** — दिशानिर्देशों के अनुसार, अपेक्षित **जनहानि जोखिम (casualty risk)** 10,000 में 1 से कम रहना चाहिए, जिसके समर्थन में **जीवित रहने की क्षमता (survivability)** और **भूमि-जनहानि आकलन (ground-casualty assessments)** होने चाहिए।

- As a result, operators have to analyse failure scenarios, fragmentation patterns, ballistic coefficients, de-orbit plans, flight-path angles, and danger zones, and share the results.

इसके परिणामस्वरूप, संचालकों को **विफलता परिदृश्यों, विखंडन प्रतिरूपों, बैलिस्टिक गुणांकों, कक्षा से बाहर लाने की योजनाओं (de-orbit plans), उड़ान-पथ कोणों और खतरे वाले क्षेत्रों** का विश्लेषण करना होगा तथा परिणाम साझा करने होंगे।

- They must also identify components likely to survive re-entry and hazardous systems such as batteries and pressure vessels.

उन्हें उन घटकों की भी पहचान करनी होगी जिनके पुनःप्रवेश के दौरान सुरक्षित रहने की संभावना है तथा **बैटरियों और दबाव-पात्रों (pressure vessels)** जैसी खतरनाक प्रणालियों की भी पहचान करनी होगी।

- By requiring quantitative studies and attaching a number to the acceptable risk threshold, the guidelines make sustainability measurable and thus trackable.

मात्रात्मक अध्ययनों (quantitative studies) को अनिवार्य करके और स्वीकार्य जोखिम की सीमा के लिए एक निश्चित संख्या निर्धारित करके, दिशानिर्देश स्थिरता को मापनीय और इस प्रकार निगरानी योग्य बनाते हैं।

- (iii) **Permissions** — Per the guidelines, IN-SPACe will re-verify the latest re-entry parameters approximately three months before the proposed operation.

(iii) **अनुमतियाँ** — दिशानिर्देशों के अनुसार, IN-SPACe प्रस्तावित संचालन से लगभग **तीन महीने पहले** नवीनतम पुनःप्रवेश मापदंडों का पुनःसत्यापन करेगा।

- If planned re-entry is decided upon after launch, the operator must apply at least six months in advance.

यदि प्रक्षेपण के बाद नियोजित पुनःप्रवेश का निर्णय लिया जाता है, तो संचालक को कम से कम **छह महीने पहले** आवेदन करना होगा।

- Operators must also obtain an IN-SPACe advisory note to issue warnings to airborne and marine vessels in the re-entry area at least 45 days before the re-entry begins.
संचालकों को पुनःप्रवेश क्षेत्र में वायुयान और समुद्री जहाजों को चेतावनी जारी करने के लिए पुनःप्रवेश शुरू होने से कम से कम **45 दिन पहले** IN-SPACe की सलाहकारी टिप्पणी भी प्राप्त करनी होगी।
- If a re-entry site falls within the territorial control of a non-Indian state, including in its exclusive economic zones, the applicant must also submit the relevant clearance or authorisation from that state.
यदि कोई पुनःप्रवेश स्थल किसी गैर-भारतीय राज्य के **क्षेत्रीय नियंत्रण**, जिसमें उसके **विशेष आर्थिक क्षेत्र (Exclusive Economic Zones)** भी शामिल हैं, के अंतर्गत आता है, तो आवेदक को उस राज्य से संबंधित मंजूरी या प्राधिकरण भी प्रस्तुत करना होगा।
- These checkpoints ensure that the regulator has fixed windows and mechanisms to intervene when the re-entry parameters change after the mission has launched or the risk pattern has changed for some reason.
ये जांच-बिंदु सुनिश्चित करते हैं कि जब मिशन के प्रक्षेपण के बाद पुनःप्रवेश के मापदंड बदल जाएँ या किसी कारण से जोखिम का स्वरूप बदल जाए, तब नियामक के पास हस्तक्षेप करने के लिए **निर्धारित समय-सीमा और तंत्र** उपलब्ध हों।

Soft law to domestic rule सॉफ्ट लॉ से घरेलू नियम तक

- For nearly two decades, the international community has developed principles for sustainable space activities.
लगभग दो दशकों से **अंतरराष्ट्रीय समुदाय** ने सतत अंतरिक्ष गतिविधियों के लिए सिद्धांत विकसित किए हैं।
- Notable among them are the Inter-Agency Space Debris Coordination Committee's 'Space Debris Mitigation Guidelines' and the 'Guidelines for the Long-term Sustainability of Outer Space Activities' of the U.N. Committee for the Peaceful Uses of Outer Space.
इनमें **अंतर-एजेंसी अंतरिक्ष मलबा समन्वय समिति (Inter-Agency Space Debris Coordination Committee)** के 'अंतरिक्ष मलबा न्यूनीकरण दिशानिर्देश (Space Debris Mitigation Guidelines)' तथा **संयुक्त राष्ट्र बाह्य अंतरिक्ष के शांतिपूर्ण उपयोग संबंधी समिति (U.N. Committee for the Peaceful Uses of Outer Space)** के 'बाह्य अंतरिक्ष गतिविधियों की दीर्घकालिक स्थिरता संबंधी दिशानिर्देश' उल्लेखनीय हैं।
- Article IX of the Outer Space Treaty 1967** also provides an important foundation for environmental responsibility.
1967 की बाह्य अंतरिक्ष संधि (Outer Space Treaty) का **अनुच्छेद IX** भी पर्यावरणीय जिम्मेदारी के लिए एक महत्वपूर्ण आधार प्रदान करता है।
- However, most of the contemporary sustainability architecture works on guidelines and other similar forms of 'soft law', which operators are not obligated to follow.
हालाँकि, वर्तमान समय की अधिकांश **स्थिरता संबंधी व्यवस्था** दिशानिर्देशों और '**सॉफ्ट लॉ (soft law)**' के अन्य समान रूपों पर आधारित है, जिनका पालन करने के लिए संचालक कानूनी रूप से बाध्य नहीं होते हैं।
- The **IN-SPACe guidelines solve** this problem for India by tying an operator's fragmentation analysis and insurance policies to the national regulator.
IN-SPACe के दिशानिर्देश भारत के लिए इस समस्या का समाधान करते हैं, क्योंकि वे संचालक के **विखंडन विश्लेषण (fragmentation analysis)** और **बीमा नीतियों (insurance policies)** को राष्ट्रीय नियामक से जोड़ते हैं।
- The guidelines also address the financial risks that follow from the Space Liability Convention 1972, which places absolute liability on a launching state for damage caused by its space



object on the surface of the earth or to aircraft in flight.

दिशानिर्देश 1972 के अंतरिक्ष दायित्व अभिसमय (Space Liability Convention) से उत्पन्न होने वाले वित्तीय जोखिमों को भी संबोधित करते हैं, जो किसी प्रक्षेपणकारी राज्य के अंतरिक्ष पिंड द्वारा पृथ्वी की सतह पर या उड़ान में किसी वायुयान को पहुँचाए गए नुकसान के लिए उस राज्य पर पूर्ण दायित्व (absolute liability) निर्धारित करता है।

- The IN-SPACe guidelines, on the other hand, require operators to undertake planned re-entries at their own risk and say they remain liable for third-party damage and claims. दूसरी ओर, IN-SPACe दिशानिर्देश संचालकों को अपने जोखिम पर नियोजित पुनःप्रवेश करने की आवश्यकता बताते हैं और कहते हैं कि वे तृतीय-पक्ष क्षति एवं दावों (third-party damage and claims) के लिए उत्तरदायी बने रहेंगे।
- They also indemnify the Government of India and its agencies for liability incurred under India's international commitments while satisfying the applicable third-party insurance requirements. वे लागू तृतीय-पक्ष बीमा आवश्यकताओं को पूरा करते हुए, भारत की अंतरराष्ट्रीय प्रतिबद्धताओं के तहत उत्पन्न दायित्व के संबंध में भारत सरकार और उसकी एजेंसियों को क्षतिपूर्ति (indemnify) भी प्रदान करते हैं।
- Taken together, the IN-SPACe guidelines translate international principles into obligations that private operators in India must satisfy before the government gives them permission to act.

समग्र रूप से, IN-SPACe दिशानिर्देश अंतरराष्ट्रीय सिद्धांतों को ऐसे दायित्वों में परिवर्तित करते हैं, जिन्हें भारत में निजी संचालकों को सरकार द्वारा उन्हें कार्य करने की अनुमति दिए जाने से पहले पूरा करना होगा।



What changes when AI moves from reading viral genomes to designing them?

The Stanford experiment does not show that AI can casually manufacture dangerous human viruses; it shows that computers are beginning to move from analysing biological information towards proposing biological designs that scientists can physically build

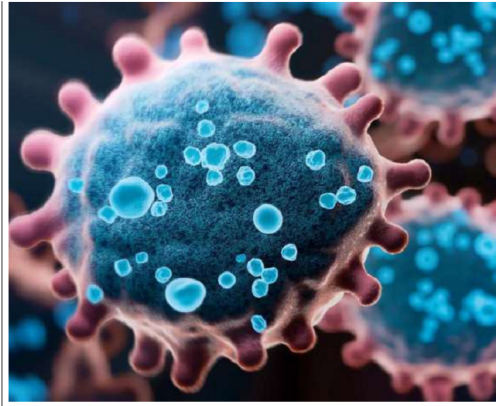
CSUN SAT
Abdul Ghafur

The computer did not create a virus. It did not touch a test tube or handle a living cell. What it did may ultimately be more consequential: it helped decide what the virus's genome should be. Researchers at Stanford University and the Arc Institute used artificial intelligence (AI) to design complete genomes of bacteriophages - viruses that infect bacteria. Of 285 AI-generated designs physically synthesised and tested in the laboratory, 16 produced functioning phages. Some were able to overcome bacterial resistance that defeated the original virus. The phrase 'AI-created viruses' therefore needs qualification. Humans have been synthesising viral genomes and deliberately modifying viruses for decades. What is new is not the physical manufacture of a virus. AI has entered the design stage of biology. For medicine, that creates remarkable opportunities. For biosecurity, it raises equally important questions.

From reading genomes to designing Bacteriophages - literally "bacteria eaters" - have been known for more than a century and are among the most abundant biological entities in nature. In 1977, one particularly small phage, ΦX174, pronounced roughly "phi-X-one-seventy-four", became the first complete DNA genome to be sequenced. By the early 2000s, scientists had shown that viral genetic material could be synthesised from known sequence information and used to recover functioning viruses. Humans had progressed from reading viral genomes to writing them. Scientists then became increasingly capable of deliberately altering viruses. The controversial influenza gain-of-function experiments of 2011-12 showed that genetic changes could modify important properties such as transmission in experimental animals. Such research highlighted a dilemma that remains unresolved: the same science that can improve pandemic preparedness may also create biosafety and biosecurity risks.

The Stanford-Arc experiment represents the next step. The scientists already knew the ΦX174 genome and already knew how to synthesise viral DNA and recover functioning phages. What changed was who - or what - proposed the genome. They used Evo 1 and Evo 2, genome language models. The principle resembles a large language model, except that instead of learning patterns in words, Evo learns patterns in DNA. It studies the genetic alphabet - A, C, G and T - across vast numbers of genomes and then generates new genetic sequences. For this experiment, the models were further trained on thousands of bacteriophage genomes related to ΦX174.

AI did not invent a completely unrelated virus from nothing: it generated previously unseen ΦX174-like whole genomes within a known biological framework. Scientists selected some of these sequences, physically manufactured the DNA and introduced it into *E. coli*. If the genetic instructions were biologically coherent, the bacterial machinery produced new phage particles. 16 designs succeeded. The progression is striking: we learnt to read viral genomes, then to write them, then to



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modify them. Now AI is beginning to help decide what should be written.

One finding shows why this matters. An AI-designed phage successfully combined a viral protein with other genetic changes in a way that conventional engineering had struggled to achieve. The significance is not simply that AI can propose individual mutations; it may increasingly be able to identify multiple genetic changes that work together across an entire genome, exploring combinations that would be extremely difficult for humans to test one by one.

The medical opportunity

The most immediate application may be phage therapy. Antibiotic resistance is steadily eroding conventional treatment options, while bacteriophages offer another way of killing bacteria. Their major limitation is specificity: a phage effective against one bacterial strain may fail against another, and bacteria can also develop resistance to phages.

Traditionally, researchers have searched nature and phage libraries for suitable candidates or modified existing viruses. Generative biology introduces another possibility. Instead of asking only, "Can we find the phage we need?", medicine may increasingly ask, "Can we design the phage we need?"

The Stanford experiment offered an early demonstration. Combinations of AI-designed phages overcame resistance in *E. coli* strains against which the original ΦX174 failed. For clinicians confronting antimicrobial resistance, this is potentially important.

The possibilities extend beyond phage therapy. AI can assist the design of vaccine antigens, antibodies, therapeutic proteins and viral vectors used to deliver genetic treatments. It may eventually help optimise oncolytic viruses that selectively attack cancer cells. The larger revolution is therefore not simply 'AI making viruses'. It is AI becoming capable of designing biological function.

The danger is acceleration

It is tempting to be reassured because ΦX174 is an exceptionally simple bacteriophage, while dangerous human

viruses are vastly more complicated. Human pathogens must negotiate receptor binding, host range, tissue tropism, replication, immune escape and transmission. But complexity should not become false reassurance. Human scientists already understand much about these determinants. Decades of virology, reverse genetics and gain-of-function research have linked many genetic changes to viral behaviour.

AI does not need to rediscover virology. Its power lies in integrating what humanity already knows, examining vastly more combinations than humans can explore manually and accelerating the path from hypothesis to experimental design. This is the real biosecurity concern: capability amplification. The relevant question is not whether an untrained individual can ask today's chatbot to generate a pandemic virus. It is whether increasingly capable AI could make a knowledgeable and well-equipped laboratory substantially more effective at designing biological systems.

Future systems may compress months or years of literature review, modelling and experimental planning into much shorter cycles. Combined with increasingly automated laboratories, that acceleration could become profound. Even the apparently modest success rate in the Stanford study deserves this perspective. Only 16 of 285 designs worked, but digital systems can generate enormous numbers of candidates. A low success rate is reassuring only while the number of attempts remains small. Biosecurity will therefore also have to evolve. Traditional DNA-synthesis screening often asks whether an ordered sequence resembles a known pathogen or toxin. In the age of generative biology, researchers increasingly argue that screening must also consider biological function: not simply whether a sequence looks dangerous, but what it might actually do.

Safety without paralysing science

AI companies are already confronting this dilemma. Claude Fable 5 was initially deployed with strong safeguards around biology, chemistry and cybersecurity. Legitimate scientific work could

sometimes trigger a fallback to a less capable model. The intention was understandable, but the experience illustrated the problem: too little restriction creates risk, while too much restriction can obstruct legitimate science.

Those safeguards have since been refined to reduce false-positive biology fallbacks, while more sensitive capabilities remain restricted. This points towards a more practical model: graduated, auditable access in which legitimate researchers can obtain stronger capabilities under appropriate institutional and security controls. Biosecurity also cannot rest entirely on what an AI model agrees or refuses to answer. Safeguards are needed throughout the chain - AI systems, DNA-synthesis providers, laboratories and institutional biosafety oversight.

India must build capability

There is an important implication for India. If frontier AI becomes central to drug discovery, genomics, vaccines, protein engineering and experimental design, access to advanced AI becomes part of national scientific infrastructure. Smaller and specialised models will be sufficient for many tasks. But a country can choose to use a small model because it is sufficient; it should not be forced to use one because somebody else owns the frontier. If researchers elsewhere receive trusted access to highly capable biomedical models while Indian scientists depend on restricted public versions, the resulting disadvantage could accumulate across drug discovery, vaccines, antimicrobial resistance and other fields.

India is already investing through the IndiaAI Mission and indigenous foundation-model programmes. That ambition should include scientific and biomedical AI, secure compute, high-quality datasets and trusted-access frameworks for legitimate researchers. AI sovereignty without biosecurity would be reckless; biosecurity without AI sovereignty could leave us scientifically dependent.

Governing biological intelligence

The Stanford experiment does not show that AI can casually manufacture dangerous human viruses. It shows something more precise: computers are beginning to move from analysing biological information towards proposing biological designs that scientists can physically build. That capability could transform antimicrobial resistance research, vaccines and therapeutics. It could also accelerate harmful biological engineering. The answer is neither prohibition nor unrestricted access, but controlled acceleration - allowing beneficial science to progress while safeguards increase with capability and risk.

The challenge is no longer simply whether AI should be allowed to understand biology. It is how we govern AI when understanding biology increasingly becomes the ability to design it. India must be capable not only of regulating and consuming that revolution, but of participating in its science and helping shape its safeguards. (Dr. Abdul Ghafur is a senior consultant in infectious diseases, Apollo Hospital, Chennai and coordinator, Chennai Declaration on AMR)

24A8. What changes when AI moves from reading viral genomes to designing them?

जब AI वायरल जीनोम को पढ़ने से उन्हें डिजाइन करने की ओर बढ़ता है, तो क्या बदलता है?

- The computer did not create a virus.
कंप्यूटर ने कोई वायरस नहीं बनाया।
- It did not touch a test tube or handle a living cell.
उसने न तो किसी टेस्ट ट्यूब को छुआ और न ही किसी जीवित कोशिका को संभाला।

- What it did may ultimately be more consequential: it helped decide what the virus's genome should be.
उसने जो किया, वह अंततः अधिक महत्वपूर्ण सिद्ध हो सकता है: उसने यह तय करने में सहायता की कि वायरस का जीनोम कैसा होना चाहिए।
- Researchers at Stanford University and the Arc Institute used artificial intelligence (AI) to design complete genomes of bacteriophages — viruses that infect bacteria.
Stanford University और Arc Institute के शोधकर्ताओं ने कृत्रिम बुद्धिमत्ता (AI) का उपयोग बैक्टीरियोफेज के पूर्ण जीनोम डिजाइन करने के लिए किया — ये ऐसे वायरस हैं जो बैक्टीरिया को संक्रमित करते हैं।
- Of 285 AI-generated designs physically synthesised and tested in the laboratory, 16 produced functioning phages.
AI द्वारा तैयार किए गए **285 डिजाइनों** में से, जिन्हें प्रयोगशाला में भौतिक रूप से संश्लेषित और परीक्षण किया गया, **16 ने कार्यशील फेज** उत्पन्न किए।
- Some were able to overcome bacterial resistance that defeated the original virus.
इनमें से कुछ ऐसे **बैक्टीरियल प्रतिरोध** को पार करने में सक्षम थे, जिसने मूल वायरस को निष्प्रभावी कर दिया था।
- The phrase 'AI-created viruses' therefore needs qualification.
इसलिए '**AI-created viruses**' अर्थात 'AI द्वारा बनाए गए वायरस' वाक्यांश को स्पष्टता के साथ समझने की आवश्यकता है।
- Humans have been synthesising viral genomes and deliberately modifying viruses for decades.
मनुष्य दशकों से **वायरल जीनोम का संश्लेषण** और वायरसों में जानबूझकर परिवर्तन करते आ रहे हैं।
- What is new is not the physical manufacture of a virus.
नया यह नहीं है कि वायरस का भौतिक रूप से निर्माण किया जा रहा है।
- AI has entered the design stage of biology.
नया यह है कि **AI जीवविज्ञान के डिजाइन चरण** में प्रवेश कर चुका है।
- For medicine, that creates remarkable opportunities.
चिकित्सा के लिए यह **असाधारण अवसर** उत्पन्न करता है।
- For biosecurity, it raises equally important questions.
जैव-सुरक्षा (biosecurity) के लिए यह उतने ही महत्वपूर्ण प्रश्न भी खड़े करता है।

From reading genomes to designing जीनोम पढ़ने से लेकर उन्हें डिजाइन करने तक

- Bacteriophages — literally “bacteria eaters” — have been known for more than a century and are among the most abundant biological entities in nature.
बैक्टीरियोफेज — जिसका शाब्दिक अर्थ “बैक्टीरिया खाने वाले” है — एक सदी से अधिक समय से ज्ञात हैं और प्रकृति में पाए जाने वाले सबसे प्रचुर **जैविक घटकों** में शामिल हैं।
- In 1977, one particularly small phage, ΦX174, pronounced roughly ‘phi-X-one-seventy-four’, became the first complete DNA genome to be sequenced.
1977 में एक विशेष रूप से छोटे फेज **ΦX174**, जिसका उच्चारण लगभग ‘फाई-X-वन-सेवेंटी-फोर’ है, का जीनोम **पूर्ण रूप से अनुक्रमित किया जाने वाला पहला DNA जीनोम** बना।
- By the early 2000s, scientists had shown that viral genetic material could be synthesised from known sequence information and used to recover functioning viruses.
2000 के दशक की शुरुआत तक वैज्ञानिकों ने प्रदर्शित कर दिया था कि ज्ञात **जीनोमिक अनुक्रम संबंधी जानकारी** से वायरल आनुवंशिक सामग्री का संश्लेषण किया जा सकता है और उसका उपयोग **कार्यशील वायरस** प्राप्त करने के लिए किया जा सकता है।

- Humans had progressed from reading viral genomes to writing them.
मनुष्य वायरल जीनोम को पढ़ने से उन्हें लिखने तक पहुँच चुके थे।
- Scientists then became increasingly capable of deliberately altering viruses.
इसके बाद वैज्ञानिक वायरसों में जानबूझकर परिवर्तन करने में लगातार अधिक सक्षम होते गए।
- The controversial influenza gain-of-function experiments of 2011-12 showed that genetic changes could modify important properties such as transmission in experimental animals.
2011-12 के विवादास्पद इन्फ्लुएंजा gain-of-function प्रयोगों ने दिखाया कि आनुवंशिक परिवर्तन प्रायोगिक पशुओं में संचरण जैसे महत्वपूर्ण गुणों को बदल सकते हैं।
- Such research highlighted a dilemma that remains unresolved: the same science that can improve pandemic preparedness may also create biosafety and biosecurity risks.
इस प्रकार के शोध ने एक ऐसी दुविधा को उजागर किया जिसका अभी तक समाधान नहीं हुआ है: वही विज्ञान जो महामारी की तैयारी को बेहतर बना सकता है, जैव-सुरक्षा और जैव-रक्षा संबंधी जोखिम भी उत्पन्न कर सकता है।
- The Stanford-Arc experiment represents the next step.
Stanford-Arc प्रयोग अगला चरण प्रस्तुत करता है।
- The scientists already knew the ΦX174 genome and already knew how to synthesise viral DNA and recover functioning phages.
वैज्ञानिक पहले से ही **ΦX174 जीनोम** को जानते थे और यह भी जानते थे कि वायरल DNA का संश्लेषण कैसे करना है तथा कार्यशील फेज कैसे प्राप्त करने हैं।
- What changed was who — or what — proposed the genome.
जो बदला, वह यह था कि **जीनोम का प्रस्ताव किसने — या किसने नहीं बल्कि किस प्रणाली ने — दिया।**
- They used Evo 1 and Evo 2, genome language models.
उन्होंने **Evo 1 और Evo 2**, अर्थात् **जीनोम लैंग्वेज मॉडल**, का उपयोग किया।
- The principle resembles a large language model, except that instead of learning patterns in words, Evo learns patterns in DNA.
इसका सिद्धांत **लार्ज लैंग्वेज मॉडल** के समान है, अंतर यह है कि शब्दों में पैटर्न सीखने के बजाय **Evo DNA में पैटर्न सीखता है।**
- It studies the genetic alphabet — A, C, G and T — across vast numbers of genomes and then generates new genetic sequences.
यह बड़ी संख्या में जीनोम में **आनुवंशिक वर्णमाला — A, C, G और T —** का अध्ययन करता है और फिर नए आनुवंशिक अनुक्रम उत्पन्न करता है।
- For this experiment, the models were further trained on thousands of bacteriophage genomes related to ΦX174.
इस प्रयोग के लिए मॉडलों को **ΦX174 से संबंधित हजारों बैक्टीरियोफेज जीनोम** पर अतिरिक्त रूप से प्रशिक्षित किया गया।
- AI did not invent a completely unrelated virus from nothing: it generated previously unseen ΦX174-like whole genomes within a known biological framework.
AI ने शून्य से कोई पूरी तरह असंबंधित वायरस नहीं बनाया: उसने एक ज्ञात **जैविक ढाँचे** के भीतर पहले कभी न देखे गए **ΦX174-जैसे पूर्ण जीनोम** उत्पन्न किए।
- Scientists selected some of these sequences, physically manufactured the DNA and introduced it into E. coli.
वैज्ञानिकों ने इनमें से कुछ अनुक्रमों का चयन किया, DNA का भौतिक रूप से निर्माण किया और उसे **E. coli** में प्रविष्ट कराया।
- If the genetic instructions were biologically coherent, the bacterial machinery produced new phage particles.
यदि आनुवंशिक निर्देश **जैविक रूप से सुसंगत** थे, तो बैक्टीरियल तंत्र ने नए फेज कण उत्पन्न किए।
- 16 designs succeeded.
16 डिजाइन सफल रहे।

- The progression is striking: we learnt to read viral genomes, then to write them, then to modify them.
यह प्रगति उल्लेखनीय है: हमने पहले वायरल जीनोम पढ़ना, फिर उन्हें लिखना, और उसके बाद उनमें परिवर्तन करना सीखा।
- Now AI is beginning to help decide what should be written.
अब AI यह तय करने में सहायता करना शुरू कर रहा है कि क्या लिखा जाना चाहिए।
- One finding shows why this matters.
एक निष्कर्ष बताता है कि यह क्यों महत्वपूर्ण है।
- An AI-designed phage successfully combined a viral protein with other genetic changes in a way that conventional engineering had struggled to achieve.
एक AI-डिजाइन किए गए फेज ने एक वायरल प्रोटीन को अन्य आनुवंशिक परिवर्तनों के साथ सफलतापूर्वक इस प्रकार संयोजित किया, जिसे पारंपरिक इंजीनियरिंग के माध्यम से हासिल करना कठिन रहा था।
- The significance is not simply that AI can propose individual mutations; it may increasingly be able to identify multiple genetic changes that work together across an entire genome, exploring combinations that would be extremely difficult for humans to test one by one.
महत्व केवल इतना नहीं है कि AI व्यक्तिगत उत्परिवर्तन (mutations) का प्रस्ताव कर सकता है; वह तेजी से ऐसे अनेक आनुवंशिक परिवर्तनों की पहचान करने में सक्षम हो सकता है जो पूरे जीनोम में एक साथ कार्य करते हैं, और ऐसे संयोजनों का पता लगा सकता है जिनका मनुष्यों द्वारा एक-एक करके परीक्षण करना अत्यंत कठिन होगा।

The medical opportunity चिकित्सीय अवसर

- The most immediate application may be phage therapy.
सबसे तात्कालिक अनुप्रयोग फेज थेरेपी (phage therapy) हो सकता है।
- Antibiotic resistance is steadily eroding conventional treatment options, while bacteriophages offer another way of killing bacteria.
एंटीबायोटिक प्रतिरोध पारंपरिक उपचार विकल्पों को लगातार कमजोर कर रहा है, जबकि बैक्टीरियोफेज बैक्टीरिया को नष्ट करने का एक अन्य तरीका प्रदान करते हैं।
- Their major limitation is specificity: a phage effective against one bacterial strain may fail against another, and bacteria can also develop resistance to phages.
उनकी प्रमुख सीमा विशिष्टता (specificity) है: एक बैक्टीरियल स्ट्रेन के विरुद्ध प्रभावी फेज दूसरे स्ट्रेन के विरुद्ध विफल हो सकता है और बैक्टीरिया फेज के प्रति भी प्रतिरोध विकसित कर सकते हैं।
- Traditionally, researchers have searched nature and phage libraries for suitable candidates or modified existing viruses.
परंपरागत रूप से, शोधकर्ताओं ने उपयुक्त उम्मीदवारों की तलाश प्रकृति और फेज लाइब्रेरी में की है या मौजूदा वायरसों में परिवर्तन किया है।
- Generative biology introduces another possibility.
जनरेटिव बायोलॉजी (Generative Biology) एक और संभावना प्रस्तुत करती है।
- Instead of asking only, "Can we find the phage we need?", medicine may increasingly ask, "Can we design the phage we need?"
केवल यह पूछने के बजाय कि "क्या हम आवश्यक फेज खोज सकते हैं?", चिकित्सा विज्ञान तेजी से यह पूछ सकता है कि "क्या हम आवश्यक फेज को डिजाइन कर सकते हैं?"
- The Stanford experiment offered an early demonstration.
Stanford प्रयोग ने इसका एक प्रारंभिक प्रदर्शन प्रस्तुत किया।
- Combinations of AI-designed phages overcame resistance in E. coli strains against which the original ΦX174 failed.

AI-डिजाइन किए गए फेजों के संयोजनों ने E. coli के उन स्ट्रेनों में प्रतिरोध को पार कर लिया, जिनके विरुद्ध मूल $\Phi X174$ विफल रहा था।

- For clinicians confronting antimicrobial resistance, this is potentially important.
रोगाणुरोधी प्रतिरोध (antimicrobial resistance) का सामना कर रहे चिकित्सकों के लिए यह संभावित रूप से महत्वपूर्ण है।
- The possibilities extend beyond phage therapy.
संभावनाएँ फेज थेरेपी से आगे भी विस्तृत हैं।
- AI can assist the design of vaccine antigens, antibodies, therapeutic proteins and viral vectors used to deliver genetic treatments.
AI वैक्सीन एंटीजन, एंटीबॉडी, चिकित्सीय प्रोटीन और आनुवंशिक उपचार पहुँचाने के लिए उपयोग किए जाने वाले वायरल वेक्टर के डिजाइन में सहायता कर सकता है।
- It may eventually help optimise oncolytic viruses that selectively attack cancer cells.
भविष्य में यह ऐसे **ऑन्कोलिटिक वायरस** को अनुकूलित करने में सहायता कर सकता है जो चुनिंदा रूप से **कैंसर कोशिकाओं** पर हमला करते हैं।
- The larger revolution is therefore not simply 'AI making viruses'.
इसलिए बड़ी क्रांति केवल '**AI द्वारा वायरस बनाना**' नहीं है।
- It is AI becoming capable of designing biological function.
यह AI का जैविक कार्यों को डिजाइन करने में सक्षम होना है।

The danger is acceleration

खतरा त्वरण है

- It is tempting to be reassured because $\Phi X174$ is an exceptionally simple bacteriophage, while dangerous human viruses are vastly more complicated.
यह सोचकर आश्चर्य होना स्वाभाविक है कि **$\Phi X174$ एक अत्यंत सरल बैक्टीरियोफेज** है, जबकि खतरनाक मानव वायरस बहुत अधिक जटिल होते हैं।
- Human pathogens must negotiate receptor binding, host range, tissue tropism, replication, immune escape and transmission.
मानव रोगजनकों को रिसेप्टर बाइंडिंग, होस्ट रेंज, ऊतक-उष्णकटिबंधीयता, प्रतिकृति, प्रतिरक्षा से बचाव और संचरण जैसी अनेक प्रक्रियाओं से गुजरना पड़ता है।
- But complexity should not become false reassurance.
लेकिन जटिलता को झूठी आश्वासिता का आधार नहीं बनना चाहिए।
- Human scientists already understand much about these determinants.
मानव वैज्ञानिक इन निर्धारकों के बारे में पहले से ही बहुत कुछ समझते हैं।
- Decades of virology, reverse genetics and gain-of-function research have linked many genetic changes to viral behaviour.
दशकों के वायरोलॉजी, रिवर्स जेनेटिक्स और gain-of-function शोध ने अनेक आनुवंशिक परिवर्तनों को वायरल व्यवहार से जोड़ा है।
- AI does not need to rediscover virology.
AI को वायरोलॉजी को फिर से खोजने की आवश्यकता नहीं है।
- Its power lies in integrating what humanity already knows, examining vastly more combinations than humans can explore manually and accelerating the path from hypothesis to experimental design.
इसकी शक्ति इस बात में है कि यह मानवता द्वारा पहले से ज्ञात जानकारी को **एकीकृत** कर सकता है, मनुष्यों द्वारा मैन्युअल रूप से खोजे जा सकने वाले संयोजनों की तुलना में कहीं अधिक संयोजनों की जाँच कर सकता है और **परिकल्पना से प्रयोगात्मक डिजाइन तक की प्रक्रिया को तेज** कर सकता है।
- This is the real biosecurity concern: capability amplification.
यही वास्तविक जैव-सुरक्षा चिंता: **क्षमता-वर्धन (capability amplification)** है।

- The relevant question is not whether an untrained individual can ask today's chatbot to generate a pandemic virus.
प्रासंगिक प्रश्न यह नहीं है कि क्या कोई अप्रशिक्षित व्यक्ति आज के चैटबॉट से महामारी उत्पन्न करने वाला वायरस बनाने के लिए कह सकता है।
- It is whether increasingly capable AI could make a knowledgeable and well-equipped laboratory substantially more effective at designing biological systems.
प्रश्न यह है कि क्या अधिक सक्षम होता हुआ AI किसी जानकार और अच्छी तरह सुसज्जित प्रयोगशाला को जैविक प्रणालियों के डिजाइन में काफी अधिक प्रभावी बना सकता है।
- Future systems may compress months or years of literature review, modelling and experimental planning into much shorter cycles.
भविष्य की प्रणालियाँ महीनों या वर्षों की साहित्य समीक्षा, मॉडलिंग और प्रयोगात्मक योजना को बहुत छोटे समय-चक्रों में समेट सकती हैं।
- Combined with increasingly automated laboratories, that acceleration could become profound.
तेजी से स्वचालित होती प्रयोगशालाओं के साथ संयुक्त होने पर यह त्वरण अत्यंत महत्वपूर्ण हो सकता है।
- Even the apparently modest success rate in the Stanford study deserves this perspective.
Stanford अध्ययन में दिखाई देने वाली अपेक्षाकृत कम सफलता दर को भी इसी दृष्टिकोण से देखा जाना चाहिए।
- Only 16 of 285 designs worked, but digital systems can generate enormous numbers of candidates.
केवल 285 में से 16 डिजाइन सफल हुए, लेकिन डिजिटल प्रणालियाँ अत्यधिक बड़ी संख्या में उम्मीदवार उत्पन्न कर सकती हैं।
- A low success rate is reassuring only while the number of attempts remains small.
कम सफलता दर तभी आश्वस्त करती है जब प्रयासों की संख्या सीमित रहे।
- Biosecurity will therefore also have to evolve.
इसलिए जैव-सुरक्षा व्यवस्था को भी विकसित होना होगा।
- Traditional DNA-synthesis screening often asks whether an ordered sequence resembles a known pathogen or toxin.
पारंपरिक DNA-संश्लेषण स्क्रीनिंग में अक्सर यह पूछा जाता है कि ऑर्डर किया गया अनुक्रम किसी ज्ञात रोगजनक या विष से मिलता-जुलता है या नहीं।
- In the age of generative biology, researchers increasingly argue that screening must also consider biological function: not simply whether a sequence looks dangerous, but what it might actually do.
जनरेटिव बायोलॉजी के युग में शोधकर्ता तेजी से यह तर्क दे रहे हैं कि स्क्रीनिंग में जैविक कार्य को भी ध्यान में रखना चाहिए: केवल यह नहीं कि कोई अनुक्रम खतरनाक दिखाई देता है या नहीं, बल्कि यह भी कि वह वास्तव में क्या कर सकता है।

Safety without paralysing science विज्ञान को पंगु बनाए बिना सुरक्षा

- AI companies are already confronting this dilemma.
AI कंपनियाँ पहले से ही इस दुविधा का सामना कर रही हैं।
- Claude Fable 5 was initially deployed with strong safeguards around biology, chemistry and cybersecurity.
Claude Fable 5 को प्रारंभ में जीवविज्ञान, रसायन विज्ञान और साइबर सुरक्षा से संबंधित मजबूत सुरक्षा उपायों के साथ तैनात किया गया था।
- Legitimate scientific work could sometimes trigger a fallback to a less capable model.
वैध वैज्ञानिक कार्य कभी-कभी कम सक्षम मॉडल पर वापस जाने की प्रक्रिया को सक्रिय कर सकता था।

- The intention was understandable, but the experience illustrated the problem: too little restriction creates risk, while too much restriction can obstruct legitimate science.
उद्देश्य समझ में आने वाला था, लेकिन इस अनुभव ने समस्या को स्पष्ट किया: बहुत कम प्रतिबंध जोखिम उत्पन्न करते हैं, जबकि बहुत अधिक प्रतिबंध वैध विज्ञान में बाधा डाल सकते हैं।
- Those safeguards have since been refined to reduce false-positive biology fallbacks, while more sensitive capabilities remain restricted.
तब से इन सुरक्षा उपायों को परिष्कृत किया गया है ताकि जीवविज्ञान से संबंधित गलत-सकारात्मक फॉलबैक को कम किया जा सके, जबकि अधिक संवेदनशील क्षमताओं पर प्रतिबंध अभी भी लागू हैं।
- This points towards a more practical model: **graduated, auditable access** in which legitimate researchers can obtain stronger capabilities under appropriate institutional and security controls.
यह एक अधिक व्यावहारिक मॉडल की ओर संकेत करता है: **क्रमिक और ऑडिट योग्य पहुँच**, जिसमें वैध शोधकर्ता उपयुक्त संस्थागत और सुरक्षा नियंत्रणों के तहत अधिक शक्तिशाली क्षमताओं तक पहुँच प्राप्त कर सकें।
- Biosecurity also cannot rest entirely on what an AI model agrees or refuses to answer.
जैव-सुरक्षा केवल इस बात पर पूरी तरह निर्भर नहीं रह सकती कि कोई AI मॉडल किस प्रश्न का उत्तर देने के लिए सहमत होता है या किसका उत्तर देने से इनकार करता है।
- Safeguards are needed throughout the chain - AI systems, DNA-synthesis providers, laboratories and institutional biosafety oversight.
पूरी श्रृंखला में सुरक्षा उपायों की आवश्यकता है—AI प्रणालियों, **DNA-संश्लेषण प्रदाताओं**, प्रयोगशालाओं और संस्थागत जैव-सुरक्षा निगरानी में।

India must build capability

भारत को क्षमता का निर्माण करना होगा

- There is an important implication for India.
भारत के लिए इसका एक महत्वपूर्ण निहितार्थ है।
- If frontier AI becomes central to drug discovery, genomics, vaccines, protein engineering and experimental design, access to advanced AI becomes part of **national scientific infrastructure**.
यदि **फ्रंटियर AI** दवा खोज, जीनोमिक्स, टीकों, प्रोटीन इंजीनियरिंग और प्रयोगात्मक डिजाइन के लिए केंद्रीय बन जाता है, तो उन्नत AI तक पहुँच **राष्ट्रीय वैज्ञानिक अवसंरचना** का हिस्सा बन जाएगी।
- Smaller and specialised models will be sufficient for many tasks.
कई कार्यों के लिए **छोटे और विशिष्ट मॉडल** पर्याप्त होंगे।
- But a country can choose to use a small model because it is sufficient; it should not be forced to use one because somebody else owns the frontier.
लेकिन कोई देश छोटे मॉडल का उपयोग इसलिए चुन सकता है क्योंकि वह पर्याप्त है; उसे केवल इसलिए इसका उपयोग करने के लिए बाध्य नहीं किया जाना चाहिए क्योंकि **फ्रंटियर तकनीक किसी अन्य के स्वामित्व में है**।
- If researchers elsewhere receive trusted access to highly capable biomedical models while Indian scientists depend on restricted public versions, the resulting disadvantage could accumulate across **drug discovery, vaccines, antimicrobial resistance** and other fields.
यदि अन्य देशों के शोधकर्ताओं को अत्यधिक सक्षम **बायोमेडिकल मॉडल** तक विश्वसनीय पहुँच मिलती है, जबकि भारतीय वैज्ञानिक प्रतिबंधित सार्वजनिक संस्करणों पर निर्भर रहते हैं, तो इससे उत्पन्न नुकसान **दवा खोज, टीकों, रोगाणुरोधी प्रतिरोध** और अन्य क्षेत्रों में लगातार बढ़ सकता है।
- India is already investing through the **IndiaAI Mission** and indigenous foundation-model programmes.
भारत पहले से ही **IndiaAI Mission** और स्वदेशी **फाउंडेशन-मॉडल कार्यक्रमों** के माध्यम से निवेश कर रहा है।
- That ambition should include scientific and biomedical AI, secure compute, high-quality datasets and **trusted-access frameworks** for legitimate researchers.

इस महत्वाकांक्षा में वैज्ञानिक और बायोमेडिकल AI, सुरक्षित कंप्यूटर, उच्च-गुणवत्ता वाले डेटासेट तथा वैध शोधकर्ताओं के लिए विश्वसनीय पहुँच के ढाँचे शामिल होने चाहिए।

- AI sovereignty without biosecurity would be reckless; biosecurity without AI sovereignty could leave us scientifically dependent.
जैव-सुरक्षा के बिना AI संप्रभुता लापरवाहीपूर्ण होगी; और AI संप्रभुता के बिना जैव-सुरक्षा हमें वैज्ञानिक रूप से निर्भर बना सकती है।

Governing biological intelligence

जैविक बुद्धिमत्ता का शासन

- The Stanford experiment does not show that AI can casually manufacture dangerous human viruses.
स्टैनफोर्ड प्रयोग यह नहीं दर्शाता कि AI आसानी से खतरनाक मानव वायरस का निर्माण कर सकता है।
- It shows something more precise: computers are beginning to move from analysing biological information towards proposing **biological designs** that scientists can physically build.
यह इससे अधिक सटीक बात दर्शाता है: कंप्यूटर जैविक जानकारी का विश्लेषण करने से आगे बढ़कर ऐसे **जैविक डिजाइन प्रस्तावित करने** की दिशा में बढ़ रहे हैं, जिन्हें वैज्ञानिक भौतिक रूप से निर्मित कर सकते हैं।
- That capability could transform **antimicrobial resistance research, vaccines and therapeutics**.
यह क्षमता रोगाणुरोधी प्रतिरोध अनुसंधान, टीकों और उपचारात्मक विज्ञान को रूपांतरित कर सकती है।
- It could also accelerate harmful biological engineering.
यह हानिकारक जैविक इंजीनियरिंग को भी तेज कर सकती है।
- The answer is neither prohibition nor unrestricted access, but **controlled acceleration** - allowing beneficial science to progress while safeguards increase with capability and risk.
समाधान न तो प्रतिषेध है और न ही अनियंत्रित पहुँच, बल्कि **नियंत्रित त्वरण (controlled acceleration)** है—अर्थात् लाभकारी विज्ञान को आगे बढ़ने देना, जबकि क्षमताओं और जोखिम के साथ-साथ सुरक्षा उपायों को भी बढ़ाना।
- The challenge is no longer simply whether AI should be allowed to understand biology.
चुनौती अब केवल यह नहीं है कि AI को जीवविज्ञान को समझने की अनुमति दी जानी चाहिए या नहीं।
- It is how we govern AI when understanding biology increasingly becomes the ability to design it.
चुनौती यह है कि जब जीवविज्ञान को समझना धीरे-धीरे उसे डिजाइन करने की क्षमता में परिवर्तित हो रहा है, तब हम AI का शासन किस प्रकार करें।
- India must be capable not only of regulating and consuming that revolution, but of participating in its science and helping shape its safeguards.
भारत को न केवल उस क्रांति को विनियमित करने और उसका उपयोग करने में सक्षम होना चाहिए, बल्कि उसके विज्ञान में भागीदारी करने और उसकी सुरक्षा व्यवस्था को आकार देने में भी सक्षम होना चाहिए।

AI is Moving from Reading Biology to Designing It

- The development described here is **not that AI itself physically created a virus**.
- Instead, researchers at **Stanford University and the Arc Institute used AI to design complete genetic blueprints (genomes) of bacteriophages**—viruses that infect bacteria.
- Scientists then synthesised these designs in laboratories. Of **285 AI-generated designs, 16 produced functioning phages**.



How does it work?

- Think of **DNA as a language** written using four letters—**A, C, G and T**. Models called **Evo 1 and Evo 2** work somewhat like language models: instead of learning patterns among words, they learn patterns in DNA sequences and can propose new genetic sequences.
- **Example:** Just as AI can study thousands of sentences and generate a new meaningful sentence, genomic AI can study thousands of related genomes and propose a **new biological blueprint**.

Why could this be revolutionary?

- One major application is **phage therapy**.
- Antibiotics are becoming less effective because bacteria develop **antibiotic resistance**. Scientists may eventually be able to design **phages specifically capable of attacking resistant bacteria** rather than merely searching nature for suitable ones.
- **AI could also assist in designing vaccines, antibodies, therapeutic proteins and viral vectors.**

But where is the danger?

- AI can examine enormous numbers of genetic combinations much faster than humans.
- This could **accelerate beneficial research, but potentially also harmful biological engineering.**
- Therefore, the real concern is “**capability amplification**”—AI making already knowledgeable laboratories substantially more powerful.

What should be done?

- The solution is neither banning such AI nor providing completely unrestricted access.
- The article advocates “**controlled acceleration**”: stronger capabilities should come with stronger safeguards across **AI systems, DNA-synthesis companies, laboratories and biosafety institutions.**
- For **India**, this means developing indigenous biomedical AI, secure computing infrastructure, quality datasets and strong biosecurity simultaneously.
- **Scientific self-reliance and biological safety must advance together.**

GS Paper III: Environment		24 August 2026
TOPICS COVERED		
24A8	Barren-land fallacy बंजर-भूमि भ्रांति	



Barren-land fallacy

CS III: Environment
Vasudevan Mukunth

Trees provide many benefits, including helping cool the neighbourhood, keeping soil from getting eroded, drawing carbon from the environment and storing it, and supporting many birds, small animals, and insects. However, these effects are beneficial only when trees are in the right ecosystem; otherwise, they can be harmful.

The barren-land fallacy is the idea that land that does not have tree cover is barren land, thus ecologically deficient, and that it will 'evolve' or should be helped to 'evolve' into a forest. The tree-planting drives that happen in India often perpetuate this fallacy by planting trees in the wrong ecosystems. They often also plant trees that are unsuitable for the local conditions, e.g. eucalyptus trees — which draw a lot of water — in a water-stressed area.

Forests are only one kind of ecosystem. Others include grasslands, savannah, scrubland, wetlands, and deserts, plus many naturally open ecosystems. As University of California professor of history and geography Diana Davis has written, "The assumption that the world's drylands are worthless, deforested, and overgrazed landscapes has led ... to programs and policies that have often systematically damaged dryland environments".

To ecologically restore a place does not always mean planting more trees.



The Sahel region in Mali is a semi-desert landscape. TIMM GUENTHER (CC BY-SA)

Instead, it is to do whatever will protect or restore the ecosystem that would naturally occur there. In the same vein, planting trees or regenerating forests is only valuable where forests have been degraded or cleared and where a forest is the native ecosystem.

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24A8. Barren-land fallacy

बंजर-भूमि भ्रांति

Trees provide many benefits, including helping cool the neighbourhood, keeping soil from getting eroded, drawing carbon from the environment and storing it, and supporting many birds, small animals, and insects.

वृक्ष अनेक लाभ प्रदान करते हैं, जिनमें आस-पड़ोस को ठंडा रखने में सहायता करना, मिट्टी को कटाव से बचाना, पर्यावरण से कार्बन को अवशोषित करके उसका भंडारण करना, तथा अनेक पक्षियों, छोटे जीव-जंतुओं और कीटों को आश्रय प्रदान करना शामिल है।

The **barren-land fallacy** is the idea that land that does not have tree cover is barren land, thus ecologically deficient, and that it will 'evolve' or should be helped to 'evolve' into a forest.

बंजर-भूमि भ्रांति यह धारणा है कि जिस भूमि पर वृक्षों का आवरण नहीं है, वह बंजर भूमि है और इसलिए पारिस्थितिक रूप से अपर्याप्त है, तथा यह कि वह 'विकसित होकर' वन का रूप लेगी या उसे 'विकसित होकर' वन में परिवर्तित होने में सहायता दी जानी चाहिए।

- They often also plant trees that are unsuitable for the local conditions, e.g. **eucalyptus trees** — which draw a lot of water — in a water-stressed area.

वे अक्सर ऐसे वृक्ष भी लगाते हैं जो स्थानीय परिस्थितियों के लिए अनुपयुक्त होते हैं, उदाहरण के लिए, जल-संकटग्रस्त क्षेत्र में नीलगिरी के वृक्ष—जो बहुत अधिक पानी अवशोषित करते हैं—लगाए जाते हैं।

- Others include **grasslands, savannah, scrubland, wetlands, and deserts**, plus many naturally open ecosystems.

अन्य पारिस्थितिकी तंत्रों में घासभूमियाँ, सवाना, झाड़ीदार क्षेत्र, आर्द्रभूमियाँ और मरुस्थल शामिल हैं, साथ ही अनेक प्राकृतिक रूप से खुले पारिस्थितिकी तंत्र भी होते हैं।

- As University of California professor of history and geography **Diana Davis** has written, "The assumption that the world's drylands are worthless, deforested, and overgrazed landscapes has led ... to programs and policies that have often systematically damaged dryland environments".

जैसा कि कैलिफोर्निया विश्वविद्यालय की इतिहास और भूगोल की प्रोफेसर डायना डेविस ने लिखा है, "यह धारणा कि विश्व के शुष्क क्षेत्र निरर्थक, वनों से विहीन और अत्यधिक चराई वाले भू-दृश्य हैं, ऐसी योजनाओं और नीतियों को जन्म देती रही है, जिन्होंने अक्सर शुष्क-भूमि के पर्यावरण को व्यवस्थित रूप से क्षति पहुँचाई है।"

- To ecologically restore a place does not always mean planting more trees.

किसी स्थान को पारिस्थितिक रूप से पुनर्स्थापित करने का अर्थ हमेशा अधिक वृक्ष लगाना नहीं होता।

- In the same vein, planting trees or regenerating forests is only valuable where forests have been degraded or cleared and where a forest is the native ecosystem.

इसी प्रकार, वृक्षारोपण या वनों का पुनर्जनन केवल उन्हीं स्थानों पर मूल्यवान है जहाँ वन क्षीण या साफ किए जा चुके हों और जहाँ वन मूल पारिस्थितिकी तंत्र हों।