



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>
YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>
CONTACT: 9971932488



PATRIOTIC IAS

DAILY CURRENT AFFAIRS

THE HINDU NEWSPAPER

22 FEBRUARY 2026

YouTube link: <https://www.youtube.com/@PatrioticIAS>

Telegram Channel: <https://t.me/patrioticIAS>

PCS Special:	22 February
22F	Joseph Philip, management education pioneer, dies जोसेफ फिलिप, प्रबंधन शिक्षा के अग्रदूत, का निधन
22F	Constitution released in Tamil and Gujarati संविधान तमिल और गुजराती में जारी

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : 9971932488
Website : patrioticias.in



Joseph Philip, management education pioneer, dies

PCS
The Hindu Bureau
CHENNAI

Professor Joseph Philip, a pioneer in Indian management education, passed away on Saturday.

In his six-decade teaching career, Professor Philip, who was a student at XLRI, Jamshedpur, joined the institute's faculty and soon became its dean. He played a key role in designing the institute's flagship postgraduate programme in management.

He later served as Director of IIM Bangalore from 1985 to 1991, which was a period marked by the introduction of several innovative programmes and international collaborations.

Professor Philip headed the Management Training Institute of the Steel Authority of India in 1970s. His stint in the industry included his tenure as vice-president of human resources in the Oberoi Group of Hotels from 1980 to 1984.

He founded the Xavier Institute of Management & Entrepreneurship in 1991 in Bengaluru, which later established campuses in Kochi and Chennai. He is known for his keen insights about management education and has authored several books on management education.

22F. Joseph Philip, management education pioneer, dies जोसेफ फिलिप, प्रबंधन शिक्षा के अग्रदूत, का निधन

- Professor **Joseph Philip**, a pioneer in Indian management education, passed away on Saturday.

भारतीय प्रबंधन शिक्षा के अग्रदूत प्रोफेसर जोसेफ फिलिप का शनिवार को निधन हो गया।

- He played a key role in designing the institute's **flagship postgraduate programme in management**.

उन्होंने संस्थान के प्रमुख स्नातकोत्तर प्रबंधन कार्यक्रम की रूपरेखा तैयार करने में महत्वपूर्ण भूमिका निभाई।

- He later served as **Director of IIM Bangalore** from 1985 to 1991, which was a period marked by the introduction of several **innovative programmes and international collaborations**.

इसके बाद उन्होंने 1985 से 1991 तक IIM बैंगलोर के निदेशक के रूप में कार्य किया, जो कई नवोन्मेषी कार्यक्रमों और अंतरराष्ट्रीय सहयोगों की शुरुआत का दौर था।

- Professor Philip headed the **Management Training Institute of the Steel Authority of India** in 1970s.

प्रोफेसर फिलिप ने 1970 के दशक में स्टील अथॉरिटी ऑफ इंडिया के प्रबंधन प्रशिक्षण संस्थान का नेतृत्व किया।

- His stint in the industry included his tenure as **vice-president of human resources** in the **Oberoi Group of Hotels** from 1980 to 1984.

उद्योग में उनके कार्यकाल में 1980 से 1984 तक ओबेराय होटल समूह में मानव संसाधन के उपाध्यक्ष के रूप में उनकी सेवाएँ शामिल रहीं।

- He founded the **Xavier Institute of Management & Entrepreneurship** in 1991 in **Bengaluru**, which later established campuses in **Kochi** and **Chennai**.

उन्होंने 1991 में बेंगलुरु में जेवियर इंस्टीट्यूट ऑफ मैनेजमेंट एंड एंटरप्रेन्योरशिप की स्थापना की, जिसने बाद में कोच्चि और चेन्नई में परिसर स्थापित किए।

- He is known for his **keen insights** about management education and has authored several **books on management education**.

वे प्रबंधन शिक्षा पर अपनी तीक्ष्ण समझ के लिए जाने जाते थे और उन्होंने प्रबंधन शिक्षा पर कई पुस्तकें लिखीं।

Constitution released in Tamil and Gujarati

PCS
The Hindu Bureau
NEW DELHI

Vice-President C.P. Radhakrishnan on Saturday released the updated versions of the Constitution of India in Tamil and Gujarati languages, along with the 8th Edition of the Legal Glossary (English-Hindi) at Uprashtrapati Bhavan (Vice-President's Enclave) on the occasion of International Mother Language Day. Law Minister Arjun Ram Meghwal was present.

The Vice-President's Office said the initiative was aimed at taking the Constitution to the people in their own languages.

22F. Constitution released in Tamil and Gujarati संविधान तमिल और गुजराती में जारी

- Vice-President **C.P. Radhakrishnan** on Saturday released the **updated versions of the Constitution of India** in **Tamil and Gujarati**



languages, along with the 8th Edition of the Legal Glossary (English-Hindi) at Uprashtrapati Bhavan (Vice-President's Enclave) on the occasion of **International Mother Language Day**.

उपराष्ट्रपति सी. पी. राधाकृष्णन ने शनिवार को अंतरराष्ट्रीय मातृभाषा दिवस के अवसर पर उपराष्ट्रपति भवन (उपराष्ट्रपति आवास) में भारत के संविधान के तमिल और गुजराती भाषाओं में अद्यतन संस्करण, तथा विधि शब्दावली (अंग्रेज़ी-हिंदी) का 8वाँ संस्करण जारी किया।

GS Paper 1: History,	
TOPICS COVERED	22 February 2026
22F	Unearthing the silent splendour of Hoysalas होयसलों की मौन भव्यता का अनावरण

Unearthing the silent splendour of Hoysalas

In the rural parts of Hassan, Mandya and Mysuru in Karnataka, overlooked Hoysala-era temples and *basadis* reveal a thriving medieval kingdom's devotion and sculptural mastery; through star-shaped platforms, serene shrines, finely sculpted pillars and quiet stepwells, the Hoysala imagination continues to whisper through stone



Murali Kumar K.
muralikumar.k@thehindu.co.in

GS I: History
Across the quiet farmlands of Hassan, Mandya and Mysuru stand some of Karnataka's most remarkable yet overlooked Hoysala-era monuments — temples and *basadis* (shrines) that once formed the spiritual fabric of a thriving medieval kingdom. Built between the 11th and 13th centuries, these shrines reveal the dynasty's signature blend of devotion and sculptural mastery, extending far beyond the celebrated sites of Belur, Halebidu and Somanathapura.

Carved from the soft, malleable soapstone favoured by Hoysala artisans, the structures rest on star-shaped platforms and feature sanctums arranged in *ekakuta*, *dvikuta* and *trikuta* formations. Their walls unfold like stone tapestries: celestial dancers, finely turned pillars and friezes dense with epic narratives.

Once a vibrant Hoysala outpost, Koravangala is home to three temples built by three brothers. The Nageshwara and Govindeshwara temples (1160 CE) showcase an early phase of Hoysala workmanship. A decade later came the village's architectural peak — the Bucheshwara temple (1173 CE), raised by Buchi in honour of Veera Ballala II. Today, Bucheshwara stands restored, while the older shrines linger in graceful decay.

Long before it lent its name to fast bowler Javagal Srinath, the village was a key commercial centre under King Vira Someshwara. Its jewel is

the Lakshminarasimha temple (1250 CE), a striking *trikuta* shrine known for its elegant elephant sculptures and a later Vijayanagara-era gateway.

The Lakshmidēvi temple at Doddagaddavalli (1114 CE) is among the earliest surviving Hoysala structures. Its stark lines set it apart from later ornate creations, while its rare Mahakali shrine, guarded by skeletal *betalas* (guardian deity), hints at ancient tantric traditions. Built by merchant woman Sahaja Devi, the temple's four-shrine plan — dedicated to Lakshmidēvi, Shiva, Vishnu and Kali — captures a moment of early Hoysala ambition.

The 12th-century Hulikere Kalyani near Halebidu, with its stepwell, showcases the dynasty's imagination in water architecture. Commissioned around 1160 CE by Lattayya, an official of Narasimha I, it is also steeped in local lore as the private bathing pond of Queen Shantala Devi.

A short walk from the exuberant Hoysaleshwara temple lies the Jain Basadi complex. The Parshvanatha (1133 CE), Shantimatha (1192 CE) and Adinatha Basadis reflect Jain principles of restraint and clarity.

Together, these sites reveal an intricate world beyond the kingdom's famous temples, one in which the Hoysala imagination continues to whisper through stone.



Tantric trace: Built in 1114 CE, the Lakshmidēvi temple stands in stark contrast to the dynasty's later creations, with its highly ornate architecture. Its stone-cut towers frame a rare Mahakali shrine guarded by skeletal *betalas*, figures associated with early tantric traditions.

22F. Unearthing the silent splendour of Hoysalas होयसलों की मौन भव्यता का अनावरण

- In the rural parts of **Hassan, Mandya and Mysuru in Karnataka**, overlooked **Hoysala-era temples and basadis** reveal a thriving medieval kingdom's **devotion and sculptural mastery**; through **star-shaped platforms, serene shrines, finely sculpted pillars and quiet stepwells**, the **Hoysala imagination** continues to whisper through stone.

कर्नाटक के हासन, मंड्या और मैसूरु के ग्रामीण क्षेत्रों में उपेक्षित होयसला काल के मंदिर और बसदियाँ एक समृद्ध मध्यकालीन राज्य की भक्ति और शिल्पकला की उत्कृष्टता को प्रकट करती हैं; तारा-आकार के मंच, शांत तीर्थ, सुघड़ रूप से तराशी गई स्तंभ संरचनाएँ और शांत सीढ़ीनुमा बावड़ियाँ आज भी पत्थरों के माध्यम से होयसला कल्पना की गूँज सुनाती हैं।

- Across the quiet farmlands of **Hassan, Mandya and Mysuru** stand some of **Karnataka's** most remarkable yet overlooked **Hoysala-era monuments** — **temples and basadis (shrines)** that once formed the spiritual fabric of a thriving medieval kingdom.

हासन, मंड्या और मैसूरु के शांत खेतों के बीच कर्नाटक के कुछ सबसे उल्लेखनीय लेकिन उपेक्षित



होयसला-कालीन स्मारक स्थित हैं — मंदिर और बसदियाँ (तीर्थ), जो कभी एक समृद्ध मध्यकालीन राज्य की आध्यात्मिक संरचना का हिस्सा थीं।

- **Built between the 11th and 13th centuries**, these shrines reveal the dynasty's signature blend of **devotion and sculptural mastery**, extending far beyond the celebrated sites of **Belur, Halebidu and Somanathapura**.
11वीं और 13वीं शताब्दी के बीच निर्मित ये तीर्थ **भक्ति और शिल्प कौशल** के होयसला शैलीगत संयोजन को दर्शाते हैं, जो **बेलूर, हलेबीडु और सोमनाथपुरा** जैसे प्रसिद्ध स्थलों से कहीं आगे तक फैला हुआ है।
- **Carved from the soft, malleable soapstone** favoured by Hoysala artisans, the structures rest on **star-shaped platforms** and feature sanctums arranged in **ekakuta, dvikuta and trikuta formations**.
होयसला शिल्पियों द्वारा पसंद किए गए नरम और लचीले **सोपस्टोन** से तराशी गई ये संरचनाएँ **तारा-आकार के मंचों** पर स्थित हैं और इनमें **एककूट, द्विकूट और त्रिकूट** विन्यास में गर्भगृह बनाए गए हैं।
- **Their walls unfold like stone tapestries: celestial dancers, finely turned pillars and friezes dense with epic narratives**.
इनकी दीवारें पत्थर की चित्रावलियों की तरह खुलती हैं, जिनमें **दिव्य नर्तक, सुघड़ रूप से गढ़े स्तंभ** और महाकाव्य कथाओं से भरी **फ्रीज़** उकेरी गई हैं।
- **Once a vibrant Hoysala outpost, Koravangala is home to three temples built by three brothers**.
कभी एक सक्रिय होयसला चौकी रहा **कोरवांगला**, तीन भाइयों द्वारा निर्मित तीन मंदिरों का स्थल है।
- The **Nageshwara and Govindeshwara temples (1160 CE)** showcase an early phase of Hoysala workmanship.
नागेश्वर और गोविंदेश्वर मंदिर (1160 ई.) होयसला शिल्पकला के प्रारंभिक चरण को दर्शाते हैं।
- A decade later came the village's architectural peak — the **Bucheshwara temple (1173 CE)**, raised by Buchi in honour of **Veera Ballala II**.
एक दशक बाद गाँव की स्थापत्य शिखर कृति सामने आई — **बुचेश्वर मंदिर (1173 ई.)**, जिसे **वीर बल्लाल द्वितीय** के सम्मान में बुची द्वारा निर्मित कराया गया।
- **Today, Bucheshwara stands restored, while the older shrines linger in graceful decay**.
आज **बुचेश्वर** पुनर्स्थापित रूप में खड़ा है, जबकि पुराने तीर्थ सौम्य क्षय की अवस्था में हैं।
- **Long before it lent its name to fast bowler Javagal Srinath, the village was a key commercial centre under King Vira Someshwara**.
तेज़ गेंदबाज़ **जवागल श्रीनाथ** को अपना नाम देने से बहुत पहले, यह गाँव राजा **वीर सोमेश्वर** के शासन में एक प्रमुख वाणिज्यिक केंद्र था।
- **Its jewel is the Lakshminarasimha temple (1250 CE)**, a striking **trikuta shrine** known for its elegant **elephant sculptures** and a later **Vijayanagara-era gateway**.
इसका रत्न है **लक्ष्मीनरसिंह मंदिर (1250 ई.)**, एक प्रभावशाली **त्रिकूट तीर्थ**, जो अपनी सुंदर **हाथी मूर्तियों** और बाद के **विजयनगर कालीन प्रवेशद्वार** के लिए प्रसिद्ध है।
- The **Lakshmidevi temple at Doddagaddavalli (1114 CE)** is among the earliest surviving Hoysala structures.
डोड्डगड्डावल्ली का लक्ष्मीदेवी मंदिर (1114 ई.) जीवित बचे सबसे प्रारंभिक होयसला संरचनाओं में से एक है।
- **Its stark lines set it apart from later ornate creations, while its rare Mahakali shrine, guarded by skeletal betalas (guardian deity), hints at ancient tantric traditions**.
इसकी सादी रेखाएँ इसे बाद की अलंकृत कृतियों से अलग करती हैं, जबकि अस्थि-आकृति वाले **बेतलों (रक्षक देवता)** द्वारा संरक्षित दुर्लभ **महाकाली तीर्थ** प्राचीन तांत्रिक परंपराओं की ओर संकेत करता है।
- **Built by merchant woman Sahaja Devi, the temple's four-shrine plan — dedicated to Lakshmidevi, Shiva, Vishnu and Kali — captures a moment of early Hoysala ambition**.
व्यापारी महिला **सहजा देवी** द्वारा निर्मित यह मंदिर **लक्ष्मीदेवी, शिव, विष्णु और काली** को समर्पित चार-तीर्थ योजना के माध्यम से प्रारंभिक होयसला महत्वाकांक्षा का चित्र प्रस्तुत करता है।
- The **12th-century Hulikere Kalyani near Halebidum, with its stepwell, showcases the dynasty's imagination in water architecture**.
हलेबीडुम के निकट स्थित **12वीं शताब्दी की हुलिकेरे कल्याणी**, अपनी **सीढ़ीनुमा बावड़ी** के साथ जल स्थापत्य में होयसला कल्पनाशीलता को दर्शाती है।
- **Commissioned around 1160 CE by Lattayya, an official of Narasimha I, it is also steeped in local lore as the private bathing pond of Queen Shantala Devi**.
लगभग **1160 ई.** में **नरसिंह प्रथम** के अधिकारी **लत्तय्या** द्वारा निर्मित यह स्थल स्थानीय लोककथाओं में **रानी शांतला देवी** के निजी स्नान कुंड के रूप में भी प्रसिद्ध है।



- A short walk from the exuberant **Hoysaleswara temple** lies the **Jain Basadi complex**. भव्य होयसलेश्वर मंदिर से थोड़ी दूरी पर जैन बसदी परिसर स्थित है।
- The **Parshvanatha (1133 CE), Shantinatha (1192 CE) and Adinatha Basadis** reflect Jain principles of **restraint and clarity**. पार्श्वनाथ (1133 ई.), शांतिनाथ (1192 ई.) और आदिनाथ बसदियाँ जैन धर्म के संयम और स्पष्टता के सिद्धांतों को प्रतिबिंबित करती हैं।

GS Paper 1: Society	
TOPICS COVERED	22 February 2026
22F	Tripura CPI(M) slams Devanagari push in tribal languages त्रिपुरा CPI(M) ने आदिवासी भाषाओं में देवनागरी थोपे जाने का विरोध किया

Tripura CPI(M) slams Devanagari push in tribal languages

GS I: Society
Rahul Karmakar
GUWAHATI

The Communist Party of India (Marxist) has criticised the Centre's attempt to impose Devanagari on Northeast Indian tribal languages that are spoken without scripts.

The CPI(M)'s Tripura State secretary, Jitendra Chaudhury, who is also the Leader of the Opposition in the 60-member Assembly, condemned Home Minister Amit Shah's call to the speakers of tribal tongues to adopt the Devanagari script. He told presspersons on Saturday that any attempt to enforce a single-language script would threaten the region's cultural diversity.

Addressing the Northern Regional Rajbhasha Sammelan in Agartala on Friday, Mr. Shah said the 'Nagari Lipi' would help protect linguistic identities in the Northeast, where many dialects and languages have no script. He also urged all stakeholders in the region not to politicise languages or create controversies over scripts.

"The promotion of Hindi through the Official Lan-

Mr. Shah suggested that languages spoken in the region should switch to the script used for Hindi and Sanskrit

guage Department is acceptable, but any attempt to force communities in the Northeast to adopt the Devanagari script for their native tongues is not," Mr. Chaudhury said, expressing concern over Mr. Shah's suggestion that some languages spoken in the region should switch to the script used for Hindi, Sanskrit, and other mainstream languages.

'Freedom to choose'
The CPI(M) leader also said that the Centre's push for linking the adoption of Devanagari with regional development "undermines our linguistic variety and cultural heritage". Stressing that the speakers of each language must have the freedom to choose their script, he said the Centre's "cultural hegemony" was aligned with the ideology of the Rashtriya Swayamsevak Sangh (RSS).

22F. Tripura CPI(M) slams Devanagari push in tribal languages

त्रिपुरा CPI(M) ने आदिवासी भाषाओं में देवनागरी थोपे जाने का विरोध किया

- The **Communist Party of India (Marxist)** has criticised the Centre's attempt to impose **Devanagari** on **Northeast Indian tribal languages that are spoken without scripts**.

भारतीय कम्युनिस्ट पार्टी (मार्क्सवादी) ने केंद्र द्वारा पूर्वोत्तर भारत की उन आदिवासी भाषाओं पर देवनागरी थोपने के प्रयास की आलोचना की है, जो बिना लिपि के बोली जाती हैं।

- **Home Minister Amit Shah's call to the speakers of tribal tongues to adopt the Devanagari script.**

देवनागरी लिपि अपनाने के गृह मंत्री अमित शाह के आह्वान की निंदा की।

- He told presspersons on Saturday that **any attempt to enforce a single-language script would threaten the region's cultural diversity**.

उन्होंने शनिवार को पत्रकारों से कहा कि किसी एकल-भाषा लिपि को थोपने का कोई भी प्रयास क्षेत्र की सांस्कृतिक विविधता के लिए खतरा होगा।

- "The promotion of **Hindi through the Official Language Department** is acceptable, but any attempt to force communities in the Northeast to adopt the **Devanagari script for their native tongues is not**," Mr. Chaudhury said.

"राजभाषा विभाग के माध्यम से हिंदी का प्रचार स्वीकार्य है, लेकिन पूर्वोत्तर के समुदायों को उनकी मातृभाषाओं के लिए देवनागरी लिपि अपनाने के लिए मजबूर करने का कोई भी प्रयास स्वीकार्य नहीं है," श्री चौधरी ने कहा।

- He expressed concern over Mr. Shah's suggestion that **some languages spoken in the region should switch to the script used for Hindi, Sanskrit, and other mainstream languages**.

उन्होंने श्री शाह के उस सुझाव पर चिंता जताई कि क्षेत्र में बोली जाने वाली कुछ भाषाओं को हिंदी, संस्कृत और अन्य मुख्यधारा की भाषाओं में प्रयुक्त लिपि में स्थानांतरित होना चाहिए।

'Freedom to choose'
'चुनने की स्वतंत्रता'



- The **CPI(M) leader** also said that the Centre's push for linking the adoption of **Devanagari with regional development** "undermines our **linguistic variety and cultural heritage**".
CPI(M) नेता ने यह भी कहा कि **देवनागरी को क्षेत्रीय विकास से जोड़ने का केंद्र का दबाव "हमारी भाषाई विविधता और सांस्कृतिक विरासत को कमजोर करता है।"**
- Stressing that the speakers of each language must have the **freedom to choose their script**, he said the Centre's "**cultural hegemony**" was aligned with the ideology of the **Rashtriya Swayamsevak Sangh (RSS)**.
इस बात पर जोर देते हुए कि प्रत्येक भाषा के वक्ताओं को अपनी **लिपि चुनने की स्वतंत्रता** होनी चाहिए, उन्होंने कहा कि केंद्र की "**सांस्कृतिक वर्चस्व**" की सोच **राष्ट्रीय स्वयंसेवक संघ (RSS)** की विचारधारा के अनुरूप है।

GS Paper II: Polity,	
TOPICS COVERED	22 February 2026
22F	U.P. POCSO court orders FIR against Avimukteshwaranand Saraswati उ.प्र. पोक्सो अदालत ने अविमुक्तेश्वरानंद सरस्वती के खिलाफ एफआईआर दर्ज करने का आदेश दिया
22F	Why has eastern Nagaland got autonomy? पूर्वी नागालैंड को स्वायत्तता क्यों मिली है?

U.P. POCSO court orders FIR against Avimukteshwaranand Saraswati

GS II: Polity

Ishita Mishra
NEW DELHI

A special court in Prayagraj on Saturday ordered the Uttar Pradesh police to lodge a first information report (FIR) against Swami Avimukteshwaranand Saraswati and one of his aides Mukundanand Giri, in connection with allegations that he sexually exploited two minors, aged 14 and 17, at his ashram.

Additional Sessions Judge Vinod Kumar Chaurasia, who presides over a court under the Protection of Children from Sexual Offences (POCSO) Act, directed the police to conduct a fair and independent probe in compliance with the provisions of the Act, and to protect the identity and dignity of the victims.

The order came while



The court noted the applicant's allegations are supported by sworn affidavits and were examined in an initial police enquiry. FILE PHOTO

hearing a plea by Sha-kumbhari Peethadhishwar Ashutosh Brahmachari Maharaj, seeking registration of an FIR against the religious leader who was accused of forcing himself on minors at the ashram under the pretext of 'guru seva'.

The court noted that the

applicant's allegations are supported by sworn affidavits and were examined in an initial enquiry by the Prayagraj Police Commissioner.

During this enquiry, both victims told the police that they were sexually abused by the accused on or about January 18, 2026,

during the Magh Mela in Prayagraj.

It is alleged that Mr. Saraswati committed these acts while pretending to provide religious service and guidance.

The Magh Mela is an annual religious fair in which devotees assemble for a holy dip at Triveni Sangam, the confluence of the rivers Ganga, Yamuna and the mythical Saraswati. Hundreds of seers and religious leaders set up their camps at Sangam during that time.

The applicant said that complaints were made to the police authorities, including written complaints to the Commissioner of Police, Prayagraj, and the local Station House Officer. However, no FIR was registered, forcing the applicant to approach the Court.

22F. U.P. POCSO court orders FIR against Avimukteshwaranand Saraswati
उ.प्र. पोक्सो अदालत ने अविमुक्तेश्वरानंद सरस्वती के खिलाफ एफआईआर दर्ज करने का आदेश दिया



- A special court in Prayagraj on Saturday ordered the Uttar Pradesh police to lodge a first information report (FIR) against Swami Avimuktेश्वरानंद Saraswati and one of his aides Mukundanand Giri, in connection with allegations that he sexually exploited two minors, aged 14 and 17, at his ashram.
शनिवार को प्रयागराज की विशेष अदालत ने उत्तर प्रदेश पुलिस को स्वामी अविमुक्तेश्वरानंद सरस्वती और उनके एक सहयोगी मुकुंदानंद गिरि के खिलाफ प्राथमिकी (एफआईआर) दर्ज करने का आदेश दिया, जिन पर 14 और 17 वर्ष आयु के दो नाबालिगों के यौन शोषण के आरोप हैं, जो उनके आश्रम में हुए बताए गए हैं।
- Additional Sessions Judge Vinod Kumar Chaurasia, who presides over a court under the Protection of Children from Sexual Offences (POCSO) Act, directed the police to conduct a fair and independent probe in compliance with the provisions of the Act, and to protect the identity and dignity of the victims.
अपर सत्र न्यायाधीश विनोद कुमार चौरसिया, जो बाल यौन अपराध संरक्षण अधिनियम (POCSO) के तहत अदालत की अध्यक्षता करते हैं, ने पुलिस को अधिनियम के प्रावधानों के अनुरूप निष्पक्ष और स्वतंत्र जांच करने तथा पीड़ितों की पहचान और गरिमा की रक्षा करने का निर्देश दिया।
- The order came while hearing a plea by Shakumbhari Peethadhishwar Ashutosh Brahmachari Maharaj, seeking registration of an FIR against the religious leader who was accused of forcing himself on minors at the ashram under the pretext of 'guru seva'.
यह आदेश शकुंभरी पीठाधीश्वर आशुतोष ब्रह्मचारी महाराज की याचिका पर सुनवाई के दौरान आया, जिसमें उस धार्मिक नेता के खिलाफ एफआईआर दर्ज करने की मांग की गई थी, जिस पर 'गुरु सेवा' के बहाने आश्रम में नाबालिगों पर जबरदस्ती करने का आरोप है।
- The court noted that the applicant's allegations are supported by sworn affidavits and were examined in an initial enquiry by the Prayagraj Police Commissioner.
अदालत ने नोट किया कि आवेदक के आरोप शपथपत्रों द्वारा समर्थित हैं और प्रयागराज पुलिस आयुक्त द्वारा की गई प्रारंभिक जांच में उनकी पड़ताल की गई थी।
- During this enquiry, both victims told the police that they were sexually abused by the accused on or about January 18, 2026, during the Magh Mela in Prayagraj.
इस जांच के दौरान, दोनों पीड़ितों ने पुलिस को बताया कि 18 जनवरी 2026 के आसपास प्रयागराज में माघ मेला के दौरान आरोपी ने उनका यौन शोषण किया।
- It is alleged that Mr. Saraswati committed these acts while pretending to provide religious service and guidance.
आरोप है कि श्री सरस्वती ने धार्मिक सेवा और मार्गदर्शन देने का दिखावा करते हुए ये कृत्य किए।
- The Magh Mela is an annual religious fair in which devotees assemble for a holy dip at Triveni Sangam, the confluence of the rivers Ganga, Yamuna and the mythical Saraswati.
माघ मेला एक वार्षिक धार्मिक मेला है, जिसमें श्रद्धालु त्रिवेणी संगम—गंगा, यमुना और पौराणिक सरस्वती नदियों के संगम—पर पवित्र स्नान के लिए एकत्र होते हैं।
- Hundreds of seers and religious leaders set up their camps at Sangam during that time.
उस समय सैकड़ों संत और धार्मिक नेता संगम पर अपने शिविर लगाते हैं।
- The applicant said that complaints were made to the police authorities, including written complaints to the Commissioner of Police, Prayagraj, and the local Station House Officer.
आवेदक ने कहा कि पुलिस अधिकारियों से शिकायतें की गईं, जिनमें प्रयागराज के पुलिस आयुक्त और स्थानीय थाना प्रभारी को दी गई लिखित शिकायतें भी शामिल थीं।
- However, no FIR was registered, forcing the applicant to approach the Court.
हालांकि, कोई एफआईआर दर्ज नहीं की गई, जिससे आवेदक को अदालत का रुख करना पड़ा।



Why has eastern Nagaland got autonomy?

What does the Frontier Nagaland Territorial Authority offer to six 'backward' districts of the State?

GS II: Polity

Rahul Karmakar

The story so far:

In February 5, the Centre signed a tripartite agreement with the Nagaland Government and the Eastern Nagaland Peoples' Organisation (ENPO) to form the Frontier Nagaland Territorial Authority (FNTA). An experiment in "devolutionary autonomy", the FNTA offers a high degree of administration and financial autonomy to six "backward" eastern districts – Kiphire, Longleng, Mon, Noklak, Shamator, and Tuensang.

What was the ENPO's demand?

The core demand of the ENPO was the creation of a separate State to be carved out of Nagaland. Its demand for a 'Frontier Nagaland' was conveyed in 2010 through a memorandum to the Centre, but is rooted in the policy of the pre-1947 British administration to leave the hills as an un-administered frontier. This lack of governance created a "developmental differential" that postcolonial India struggled to bridge. The eight Naga tribes inhabiting the six eastern districts increasingly began feeling ignored, politically and economically, after

A central feature of the agreement is the establishment of a mini-Secretariat within the region, to bring state machinery to the doorsteps of the eastern tribes

Nagaland was carved out of Assam as a State in 1963. The resentment snowballed into a movement for independence

from the alleged administrative dominance of the western Naga tribes.

Why did Centre find merit in the demand?

The Centre's decision to intervene was driven by a mix of strategic compulsion and political obligation. New Delhi and Kohima, Nagaland's power centre, attempted to satisfy the ENPO with SOPs, including a ₹500-crore package, but these solutions failed to address the underlying political aspirations of the people. In 2024, the situation reached a breaking point when the ENPO leaders called for a total boycott of the Lok Sabha elections, demonstrating their immense collective leverage. That the ENPO region is a critical buffer zone bordering Myanmar also played a role in the Centre's eagerness to resolve the issue. Leaving a large segment of Nagaland's population disillusioned in such a region was a major security risk, especially as armed extremist groups are based across the porous border.

The FNTA is seen as a pacifier for a strategic asset to ensure that the frontier remains stable and aligned with national interests.

What does the FNTA offer?

The FNTA offers semi-autonomous governance to six eastern Nagaland districts. A central feature of the agreement is the establishment of a mini-Secretariat within the region, headed by a high-ranking officer to bring state machinery to the doorsteps of the eastern tribes, reducing their dependence on Kohima. According to the blueprint, development outlays will be shared proportionally based on population and area, and the Ministry of Home Affairs has committed to providing initial expenditure for the authority's establishment. The FNTA will exercise legislative and executive powers over 46 specific subjects. This devolution allows local leaders to make decisions on land use, agriculture, rural development, and infrastructure tailored to the specific needs of their tribes. Crucially, the agreement achieves this without abrogating or altering Article 371(A) of the Constitution, thereby preserving the unique customary laws and social practices central to the Naga identity.

Can the FNTA model be leveraged to resolve the Kuki-Zo demand?

The FNTA model has raised questions about its applicability to the Kuki-Zo demand for a Union Territory-like separate administration in conflict-scarred Manipur. Structurally, the FNTA is similar to the Hill Areas Committee mechanism under Article 371(C) in Manipur, which was provided to protect tribal interests. The Nagaland model suggests that the Centre is willing to create "territorial authorities" as a middle path between total Statehood and standard district administration. This may provide a solution for the Kuki-Zo community, as it demonstrates that New Delhi can innovate constitutionally to grant autonomy without redrawing State maps. However, the differences in context are stark. In Nagaland, Chief Minister Neiphiu Rio was a willing partner in the negotiations, and there was no active, violent conflict between the Nagas. In Manipur, the government based in the Meitei-dominated Imphal Valley remains vehemently opposed to any administrative separation, and the levels of inter-group trust are currently non-existent. Furthermore, the presence of other groups, especially the Tangkhul Naga-heavy National Socialist Council of Nagalim, who also claim parts of the hill districts, makes a clean administrative carve-out much more difficult.

22F. Why has eastern Nagaland got autonomy? पूर्वी नागालैंड को स्वायत्तता क्यों मिली है?

Frontier Nagaland Territorial Authority (FNTA)

फ्रंटियर नागालैंड प्रादेशिक प्राधिकरण (FNTA)

- On February 5, the Centre signed a tripartite agreement with the Nagaland Government and the Eastern Nagaland Peoples' Organisation (ENPO) to form the Frontier Nagaland Territorial Authority (FNTA).

5 फरवरी को केंद्र ने नागालैंड सरकार और ईस्टर्न नागालैंड पीपुल्स' ऑर्गेनाइजेशन (ENPO) के साथ फ्रंटियर नागालैंड प्रादेशिक प्राधिकरण (FNTA) बनाने के लिए त्रिपक्षीय समझौते पर हस्ताक्षर किए।

- An experiment in "devolutionary autonomy", the FNTA offers a high degree of administration and financial autonomy to six "backward" eastern districts — Kiphire, Longleng, Mon, Noklak, Shamator, and Tuensang.

“विकेन्द्रीकृत स्वायत्तता” का एक प्रयोग, FNTA छह “पिछड़े” पूर्वी जिलों — किफिरे, लॉन्गलेंग, मोन, नोकलाक,

शमाटोर और तुएनसांग — को उच्च स्तर की प्रशासनिक और वित्तीय

स्वायत्तता प्रदान करता है।

What was the ENPO's demand? ENPO की मांग क्या थी?

- The core demand of the ENPO was the creation of a **separate State** to be carved out of Nagaland.
ENPO की मुख्य मांग नागालैंड से अलग एक अलग राज्य का गठन थी।



- Its demand for a 'Frontier Nagaland' was conveyed in 2010 through a memorandum to the Centre, but is rooted in the policy of the pre-1947 British administration to leave the hills as an un-administered frontier.
'फ्रंटियर नागालैंड' की मांग 2010 में केंद्र को एक ज्ञापन के माध्यम से रखी गई थी, लेकिन इसकी जड़ें 1947 से पूर्व ब्रिटिश प्रशासन की उस नीति में हैं जिसमें पहाड़ियों को बिना प्रशासन के सीमांत क्षेत्र के रूप में छोड़ा गया था।
- This lack of governance created a "developmental differential" that postcolonial India struggled to bridge.
शासन की इस कमी ने एक "विकासात्मक अंतर" पैदा किया जिसे स्वतंत्रता-उत्तर भारत पाटने के लिए संघर्ष करता रहा।
- The eight Naga tribes inhabiting the six eastern districts increasingly began feeling ignored, politically and economically, after Nagaland was carved out of Assam as a State in 1963.
छह पूर्वी जिलों में रहने वाली आठ नागा जनजातियाँ 1963 में असम से अलग होकर नागालैंड राज्य बनने के बाद स्वयं को राजनीतिक और आर्थिक रूप से उपेक्षित महसूस करने लगीं।
- The resentment snowballed into a movement for independence from the alleged administrative dominance of the western Naga tribes.
यह असंतोष कथित पश्चिमी नागा जनजातियों के प्रशासनिक प्रभुत्व से स्वतंत्रता के आंदोलन में बदल गया।

Why did the Centre find merit in the demand? केंद्र को इस मांग में औचित्य क्यों लगा?

- The Centre's decision to intervene was driven by a mix of strategic compulsion and political obligation.
केंद्र का हस्तक्षेप करने का निर्णय रणनीतिक आवश्यकता और राजनीतिक दायित्व के मिश्रण से प्रेरित था।
- New Delhi and Kohima, Nagaland's power centre, attempted to satisfy the ENPO with SOPs, including a ₹500-crore package, but these solutions failed to address the underlying political aspirations of the people.
नई दिल्ली और कोहिमा, जो नागालैंड का शक्ति केंद्र है, ने SOPs सहित ₹500 करोड़ पैकेज देकर ENPO को संतुष्ट करने का प्रयास किया, लेकिन ये समाधान लोगों की मूल राजनीतिक आकांक्षाओं को संबोधित करने में विफल रहे।
- In 2024, the situation reached a breaking point when the ENPO leaders called for a total boycott of the Lok Sabha elections, demonstrating their immense collective leverage.
2024 में स्थिति तब चरम पर पहुँची जब ENPO नेताओं ने लोकसभा चुनावों के पूर्ण बहिष्कार का आह्वान किया, जिससे उनकी सामूहिक शक्ति का प्रदर्शन हुआ।
- That the ENPO region is a critical buffer zone bordering Myanmar also played a role in the Centre's eagerness to resolve the issue.
यह तथ्य कि ENPO क्षेत्र म्यांमार से सटा एक महत्वपूर्ण बफर ज़ोन है, इस मुद्दे को सुलझाने में केंद्र की तत्परता का कारण बना।
- Leaving a large segment of Nagaland's population disillusioned in such a region was a major security risk, especially as armed extremist groups are based across the porous border.
ऐसे क्षेत्र में नागालैंड की बड़ी आबादी को निराश छोड़ना एक बड़ा सुरक्षा जोखिम था, विशेषकर क्योंकि सशस्त्र उग्रवादी समूह छिद्रपूर्ण सीमा के पार स्थित हैं।
- The FNTA is seen as a pacifier for a strategic asset to ensure that the frontier remains stable and aligned with national interests.
FNTA को एक रणनीतिक संपत्ति के लिए शांतिदूत के रूप में देखा जा रहा है ताकि सीमांत क्षेत्र स्थिर रहे और राष्ट्रीय हितों के अनुरूप बना रहे।

What does the FNTA offer? FNTA क्या प्रदान करता है?

- The FNTA offers semi-autonomous governance to six eastern Nagaland districts.
FNTA नागालैंड के छह पूर्वी जिलों को अर्ध-स्वायत्त शासन प्रदान करता है।
- A central feature of the agreement is the establishment of a mini-Secretariat within the region, headed by a high-ranking officer to bring state machinery to the doorsteps of the eastern tribes, reducing their dependence on Kohima.



समझौते की एक प्रमुख विशेषता क्षेत्र में एक **मिनी-सेक्रेटेरिएट** की स्थापना है, जिसका नेतृत्व एक **उच्च-स्तरीय अधिकारी** करेगा ताकि राज्य की प्रशासनिक व्यवस्था पूर्वी जनजातियों के द्वार तक पहुँचे और उनकी **कोहिमा** पर निर्भरता कम हो।

- According to the blueprint, **development outlays** will be shared proportionally based on **population and area**, and the **Ministry of Home Affairs** has committed to providing **initial expenditure** for the authority's establishment.

योजना के अनुसार **विकास व्यय** को **जनसंख्या और क्षेत्रफल** के आधार पर अनुपातिक रूप से बाँटा जाएगा, और **गृह मंत्रालय** ने प्राधिकरण की स्थापना के लिए **प्रारंभिक व्यय** देने का वचन दिया है।

- The **FNTA** will exercise **legislative and executive powers** over **46 specific subjects**. **FNTA 46 विशिष्ट विषयों** पर **विधायी और कार्यकारी शक्तियों** का प्रयोग करेगा।
- This devolution allows local leaders to make decisions on **land use, agriculture, rural development, and infrastructure** tailored to the specific needs of their tribes. यह विकेन्द्रीकरण स्थानीय नेताओं को **भूमि उपयोग, कृषि, ग्रामीण विकास और बुनियादी ढाँचे** पर अपनी जनजातियों की विशेष आवश्यकताओं के अनुसार निर्णय लेने की अनुमति देता है।
- Crucially, the agreement achieves this **without abrogating or altering Article 371(A)** of the Constitution, thereby preserving the unique **customary laws and social practices** central to the **Naga identity**.

महत्वपूर्ण रूप से, यह समझौता संविधान के **अनुच्छेद 371(A)** को **निरस्त या परिवर्तित किए बिना** इसे संभव बनाता है, जिससे **नागा पहचान** के केंद्र में मौजूद **विशिष्ट परंपरागत कानून और सामाजिक प्रथाएँ** सुरक्षित रहती हैं।

Can the FNTA model be leveraged to resolve the Kuki-Zo demand? क्या FNTA मॉडल का उपयोग कुकी-जो मांग को सुलझाने में किया जा सकता है?

- The **FNTA model** has raised questions about its applicability to the **Kuki-Zo demand** for a **Union Territory-like separate administration** in conflict-scarred **Manipur**. **FNTA मॉडल** ने संघर्ष-ग्रस्त **मणिपुर** में **कुकी-जो की केंद्र शासित प्रदेश** जैसी अलग प्रशासनिक व्यवस्था की मांग पर इसकी उपयोगिता को लेकर प्रश्न खड़े किए हैं।
- Structurally, the **FNTA** is similar to the **Hill Areas Committee** mechanism under **Article 371(C)** in Manipur, which was provided to protect **tribal interests**. संरचनात्मक रूप से **FNTA**, मणिपुर में **अनुच्छेद 371(C)** के तहत बने **हिल एरियाज़ कमेटी** तंत्र के समान है, जिसे **जनजातीय हितों** की रक्षा के लिए बनाया गया था।
- The Nagaland model suggests that the **Centre** is willing to create **“territorial authorities”** as a middle path between **total Statehood** and **standard district administration**. नागालैंड मॉडल संकेत देता है कि **केंद्र पूर्ण राज्यत्व** और **सामान्य जिला प्रशासन** के बीच मध्य मार्ग के रूप में **“प्रादेशिक प्राधिकरण”** बनाने के लिए तैयार है।
- This may provide a solution for the **Kuki-Zo community**, as it demonstrates that **New Delhi** can innovate constitutionally to grant **autonomy without redrawing State maps**. यह **कुकी-जो समुदाय** के लिए समाधान प्रदान कर सकता है, क्योंकि यह दर्शाता है कि **नई दिल्ली** संवैधानिक रूप से नवाचार कर **राज्य की सीमाएँ बदले बिना स्वायत्तता** दे सकती है।
- However, the differences in context are stark. हालाँकि, संदर्भ में अंतर स्पष्ट है।
- In Nagaland, **Chief Minister Neiphiu Rio** was a willing partner in the negotiations, and there was no active, violent conflict between the **Nagas**. नागालैंड में **मुख्यमंत्री नेफियू रियो** वार्ता में सहयोगी थे और **नागाओं** के बीच कोई सक्रिय हिंसक संघर्ष नहीं था।
- In Manipur, the government based in the **Meitei-dominated Imphal Valley** remains vehemently opposed to any administrative separation, and the levels of **inter-group trust** are currently non-existent. मणिपुर में **मैतेई-प्रभुत्व वाली इम्फाल घाटी** की सरकार किसी भी प्रशासनिक विभाजन का कड़ा विरोध करती है और **समूहों के बीच विश्वास** का स्तर वर्तमान में शून्य है।
- Furthermore, the presence of other groups, especially the **Tangkhuil Naga-heavy National Socialist Council of Nagalim**, who also claim parts of the hill districts, makes a clean administrative carve-out much more difficult. इसके अतिरिक्त अन्य समूहों की उपस्थिति, विशेषकर **टांगखुल नागा-प्रधान नेशनल सोशलिस्ट काउंसिल**



ऑफ नागालिम, जो पहाड़ी जिलों के कुछ हिस्सों पर दावा करते हैं, एक स्पष्ट प्रशासनिक विभाजन को और अधिक कठिन बना देती है।

GS Paper II: International Relations	
TOPICS COVERED	22 February 2026
22F	85 countries, 3 bodies sign New Delhi Declaration for equitable AI at Summit 85 देशों और 3 संस्थाओं ने शिखर सम्मेलन में समान AI के लिए नई दिल्ली घोषणा पर हस्ताक्षर किए
22F	India, Brazil ink pacts on minerals, steel mining; agree to step up trade भारत और ब्राज़ील ने खनिजों, इस्पात खनन पर समझौते किए; व्यापार बढ़ाने पर सहमति
22F	'India and U.S. Navies have critical role to play in IOR and Indo-Pacific' 'IOR और इंडो-पैसिफिक में भारत और अमेरिका की नौसेनाओं की अहम भूमिका'
22F	Champion of European autonomy यूरोपीय स्वायत्तता के चैंपियन
22F	Deal in deep water गहरे पानी में सौदा

PATRIOTIC IAS



85 countries, 3 bodies sign New Delhi Declaration for equitable AI at Summit

GS III: IR

Aroon Deep
NEW DELHI

Eighty-five countries and three international organisations signed the New Delhi Declaration at the AI Impact Summit, a day after the event's scheduled conclusion, as officials sought to expand the signatory list to achieve as broad a consensus as possible.

"Guided by the principle of *Sarvajan Hitaya, Sarvajan Sukhaya* (Welfare for all, Happiness for all), the Declaration underscores that the benefits of AI must be equitably shared across humanity," the government said in a statement regarding the declaration.

Major participants, including the United States and China, endorsed the document.

As with the 2023 G20 Summit, the road to consensus was paved with non-binding and voluntary commitments.

Democratising AI

While the declaration does mention AI safety and trust – issues that the U.S. in particular rejected during last year's Paris discussions – its commitments lean heavily on knowledge sharing.

The 900-word statement offers a "Charter for the Democratic Diffusion of AI" as a "voluntary and non-binding framework to promote access to foundational AI resources, support locally relevant innovation, and strengthen resilient AI ecosystems



Union Minister Piyush Goyal with U.S. Ambassador to India Sergio Gor, Bhutan Prime Minister Tshering Tobgay, OpenAI CEO Sam Altman, and other dignitaries on the sidelines of the AI Impact Summit, in New Delhi on Friday. ANI

While the declaration does mention AI safety and trust, its commitments lean on knowledge sharing

while respecting national laws."

It also introduces a Global AI Impact Commons – described as a voluntary initiative – to exhibit AI use cases for governments to draw inspiration from.

Human capital

On security and trust, the statement says, "Advancing secure, trustworthy and robust AI is foundational to building trust and maximising societal and economic benefits. Noting that deepening our understanding of the potential security aspects remains important, we recognise the importance of security in AI systems, industry-led voluntary measures, and

the adoption of technical solutions, and appropriate policy frameworks that enable innovation while promoting public interest throughout the AI's lifecycle."

The statement also emphasised that achieving "the full promise of AI requires equipping individuals with relevant skills by expanding AI human resource development, specific initiatives on education, AI workforce development, training of public officials, enhancing public awareness of AI capabilities, increasing AI literacy, as well as upgrading vocational and training ecosystems."

"We take note of the voluntary guiding principles for reskilling in the age of AI and the playbook on AI workforce development, which would support participants in preparation for a future AI-driven economy," the statement added.

22F. 85 countries, 3 bodies sign New Delhi Declaration for equitable AI at Summit
85 देशों और 3 संस्थाओं ने शिखर सम्मेलन में समान AI के लिए नई दिल्ली घोषणा पर हस्ताक्षर किए

- Eighty-five countries and three international organisations signed the **New Delhi Declaration** at the **AI Impact Summit**, a day after the event's scheduled conclusion, as officials sought to expand the signatory list to achieve as broad a consensus as possible. कार्यक्रम की निर्धारित समाप्ति के एक दिन बाद, **AI इम्पैक्ट समिट** में **85 देशों और तीन अंतरराष्ट्रीय संगठनों ने नई दिल्ली घोषणा पर हस्ताक्षर किए**, क्योंकि अधिकारी अधिकतम व्यापक सहमति प्राप्त करने के लिए हस्ताक्षरकर्ताओं की सूची का विस्तार करना चाहते थे।

- "Guided by the principle of *Sarvajan Hitaya, Sarvajan Sukhaya* (Welfare for all, Happiness for all), the Declaration underscores that the benefits of AI must be equitably shared across humanity," the government said in a statement regarding the declaration. घोषणा के संबंध में सरकार ने एक बयान में कहा, "**सर्वजन हिताय, सर्वजन सुखाय (सबके लिए कल्याण, सबके लिए सुख)** के सिद्धांत से निर्देशित यह घोषणा इस बात पर जोर देती है कि **AI** के लाभ पूरी मानवता में समान रूप से साझा किए जाने चाहिए।"

- Major participants, including the **United States and China**, endorsed the document.

संयुक्त राज्य अमेरिका और चीन सहित प्रमुख प्रतिभागियों ने इस दस्तावेज़ का समर्थन किया।

- As with the **2023 G20 Summit**, the road to consensus was paved with **non-binding and voluntary commitments**. **2023 के G20 शिखर सम्मेलन की तरह, सहमति का मार्ग गैर-बाध्यकारी और स्वैच्छिक प्रतिबद्धताओं से प्रशस्त किया गया।**

Democratising AI AI का लोकतंत्रीकरण

- While the declaration does mention **AI safety and trust** — issues that the **U.S.** in particular rejected during last year's **Paris discussions** — its commitments lean heavily on **knowledge**



sharing.

हालांकि घोषणा में **AI की सुरक्षा और विश्वास** का उल्लेख है — ऐसे मुद्दे जिन्हें पिछले वर्ष की **पेरिस चर्चाओं** के दौरान विशेष रूप से **अमेरिका** ने खारिज किया था — लेकिन इसकी प्रतिबद्धताएं मुख्य रूप से **ज्ञान साझा करने** पर केंद्रित हैं।

- The 900-word statement offers a “**Charter for the Democratic Diffusion of AI**” as a “**voluntary and non-binding framework** to promote access to foundational AI resources, support locally relevant innovation, and strengthen resilient AI ecosystems while respecting national laws.”
900 शब्दों के इस बयान में “**AI के लोकतांत्रिक प्रसार के लिए चार्टर**” को एक “**स्वैच्छिक और गैर-बाध्यकारी ढांचा**” के रूप में प्रस्तुत किया गया है, जिसका उद्देश्य बुनियादी AI संसाधनों तक पहुंच को बढ़ावा देना, स्थानीय रूप से प्रासंगिक नवाचार का समर्थन करना और राष्ट्रीय कानूनों का सम्मान करते हुए सशक्त AI पारिस्थितिकी तंत्र को मजबूत करना है।
- It also introduces a **Global AI Impact Commons** — described as a voluntary initiative — to exhibit AI use cases for governments to draw inspiration from.
इसमें **ग्लोबल AI इम्पैक्ट कॉमन्स** को भी पेश किया गया है — जिसे एक स्वैच्छिक पहल के रूप में वर्णित किया गया है — ताकि सरकारें AI के उपयोग मामलों से प्रेरणा ले सकें।

Human capital मानव पूंजी

- On security and trust, the statement says, “Advancing **secure, trustworthy and robust AI** is foundational to building trust and maximising **societal and economic benefits**.
सुरक्षा और विश्वास पर बयान में कहा गया है, “**सुरक्षित, भरोसेमंद और मजबूत AI** को आगे बढ़ाना विश्वास निर्माण और **सामाजिक व आर्थिक लाभों** को अधिकतम करने की आधारशिला है।
- Noting that deepening our understanding of the potential **security aspects** remains important, we recognise the importance of security in AI systems, **industry-led voluntary measures**, and the adoption of **technical solutions**, and appropriate **policy frameworks** that enable innovation while promoting public interest throughout the AI’s lifecycle.”
संभावित **सुरक्षा पहलुओं** की हमारी समझ को गहरा करना महत्वपूर्ण बताते हुए, हम AI प्रणालियों में सुरक्षा, **उद्योग-नेतृत्व वाली स्वैच्छिक पहल, तकनीकी समाधानों** को अपनाने और ऐसे उपयुक्त **नीति ढांचे** के महत्व को स्वीकार करते हैं जो AI के पूरे जीवनचक्र में सार्वजनिक हित को बढ़ावा देते हुए नवाचार को सक्षम बनाते हैं।”
- The statement also emphasised that achieving “the **full promise of AI** requires equipping individuals with relevant skills by expanding **AI human resource development**, specific initiatives on education, **AI workforce development**, training of public officials, enhancing public awareness of AI capabilities, increasing **AI literacy**, as well as upgrading vocational and training ecosystems.”
बयान में यह भी जोर दिया गया कि “**AI की पूरी क्षमता** को हासिल करने के लिए व्यक्तियों को प्रासंगिक कौशल से लैस करना आवश्यक है, जिसके लिए **AI मानव संसाधन विकास**, शिक्षा पर विशेष पहल, **AI कार्यबल विकास**, सार्वजनिक अधिकारियों का प्रशिक्षण, AI क्षमताओं के प्रति जन-जागरूकता बढ़ाना, **AI साक्षरता** में वृद्धि और व्यावसायिक व प्रशिक्षण पारिस्थितिकी तंत्र को उन्नत करना शामिल है।”
- “We take note of the **voluntary guiding principles** for reskilling in the age of AI and the **playbook on AI workforce development**, which would support participants in preparation for a future **AI-driven economy**,” the statement added.
बयान में आगे कहा गया, “हम AI के युग में पुनः कौशल विकास के लिए **स्वैच्छिक मार्गदर्शक सिद्धांतों** और **AI कार्यबल विकास की प्लेबुक** पर ध्यान देते हैं, जो प्रतिभागियों को भविष्य की **AI-संचालित अर्थव्यवस्था** के लिए तैयार होने में सहायता करेगी।”



India, Brazil ink pacts on minerals, steel mining; agree to step up trade

Day after the U.S. Supreme Court struck down Trump's tariffs, Modi and Lula discuss developments, launch action plan on digital partnership for the future; the Brazilian President proposes increasing bilateral trade to \$30 billion annually by 2030

GS II: IR

Suhasini Haidar
NEW DELHI

India signed agreements to cooperate in rare earth and critical minerals, and steel mining with Brazil as Prime Minister Narendra Modi held talks with Brazilian President Luiz Inacio Lula da Silva in New Delhi on Saturday. The two countries committed to enhancing trade beyond the current target of \$20 billion by 2030, and to expanding the India-Mercosur Preferential Trading Agreement.

A day after the U.S. Supreme Court struck down tariffs imposed by U.S. President Donald Trump, and Mr. Trump levied a new 10% tariff on all countries, the two leaders also discussed the development, which has cast a cloud over the trade deals just negotiated with the U.S. After the talks, the two sides also launched a joint declaration and action plan on a



Prime Minister Narendra Modi with Brazilian President Luiz Inacio Lula da Silva in New Delhi on Saturday. SHIV KUMAR PUSHPAKAR

digital partnership for the future.

"Brazil is India's biggest trading partner, and we have committed to go beyond 20 billion dollars in the next five years. Our trade is not just a number, it is a symbol of trust," Mr. Modi said in a joint press appearance. "When India and Brazil work together, the voice of Global South becomes stronger..." he added.

The agreement on critical minerals is a significant step towards diversifying from China, which currently dominates all processing supply chains for critical minerals. India and Brazil have also been attempting to increase cooperation on the biofuel alliance announced in 2023 along with the U.S. and other countries, which has taken a back seat given the Trump administration's focus on fossil fuels.

on fossil fuels.

"Increasing investments and cooperation in matters of renewable energies and critical minerals is at the core of the pioneering agreement that we have signed today," Mr. Lula said. "We are not just the two biggest democracies of the Global South. This is a meeting of a digital superpower with a renewable energy superpower," he added, saying India and Brazil are both regional hubs, and defend multilateralism and peace.

Mr. Lula, who was accompanied by 11 Ministers, and the largest ever business delegation for his five-day visit, which included the AI Impact Summit, said India and Brazil should aim for a more ambitious trade target, and proposed doubling current levels of trade estimated at about \$12-15 billion to \$30 billion annually by 2030.

Briefing the media, Secretary (East) P. Kumaran

said that Mr. Modi and Mr. Lula had discussed trade and tariff developments in the U.S. "Both leaders agreed...that both sides need to study the implications of [the U.S. Supreme Court judgment and the new tariffs] and wait for further developments by the U.S. administration. So we are in a wait and watch mode," he added.

In 2025, the U.S. levied 50% tariffs on both India and Brazil, the highest in the world, for different reasons. In recent months, both have negotiated with the U.S. for lower tariffs and more exemptions on goods, although neither has completed a trade deal with the U.S. yet. Both also face the threat of higher U.S. tariffs over their BRICS membership.

The two leaders also agreed to step up ties in defence, energy, healthcare, agriculture and pharmaceuticals, and South-South cooperation.

22F. India, Brazil ink pacts on minerals, steel mining; agree to step up trade भारत और ब्राज़ील ने खनिजों, इस्पात खनन पर समझौते किए; व्यापार बढ़ाने पर सहमति

- Day after the **U.S. Supreme Court** struck down **Trump's tariffs**, **Modi** and **Lula** discussed developments, launch **action plan on digital partnership for the future**; the **Brazilian President** proposes increasing bilateral trade to **\$30 billion annually by 2030**.
अमेरिकी सुप्रीम कोर्ट द्वारा ट्रंप के टैरिफ रद्द किए जाने के एक दिन बाद, मोदी और लूला ने घटनाक्रमों पर चर्चा की, भविष्य के लिए डिजिटल साझेदारी पर कार्य योजना शुरू की; ब्राज़ील के राष्ट्रपति ने 2030 तक द्विपक्षीय व्यापार को 30 अरब डॉलर प्रति वर्ष तक बढ़ाने का प्रस्ताव रखा।
- India signed agreements to cooperate in **rare earth and critical minerals**, and **steel mining** with Brazil as **Prime Minister Narendra Modi** held talks with **Brazilian President Luiz Inacio Lula da Silva** in **New Delhi** on Saturday.
शनिवार को नई दिल्ली में प्रधानमंत्री नरेंद्र मोदी और ब्राज़ील के राष्ट्रपति लुइज़ इनासियो लूला दा सिल्वा के बीच वार्ता के दौरान भारत ने ब्राज़ील के साथ रेयर अर्थ और महत्वपूर्ण खनिजों, तथा इस्पात खनन में सहयोग के लिए समझौते किए।
- The two countries committed to enhancing trade beyond the current target of **\$20 billion by 2030**, and to expanding the **India-Mercosur Preferential Trading Agreement**.
दोनों देशों ने 2030 तक 20 अरब डॉलर के मौजूदा लक्ष्य से आगे व्यापार बढ़ाने और भारत-मर्कोसुर वरीयतापूर्ण व्यापार समझौते के विस्तार के लिए प्रतिबद्धता जताई।
- A day after the **U.S. Supreme Court** struck down tariffs imposed by **U.S. President Donald Trump**, and Mr. Trump levied a new **10% tariff on all countries**, the two leaders also discussed the development, which has cast a cloud over the trade deals just negotiated with the U.S.
अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप द्वारा लगाए गए टैरिफ को अमेरिकी सुप्रीम कोर्ट द्वारा रद्द किए जाने और श्री



ट्रंप द्वारा सभी देशों पर नया **10% टैरिफ** लगाए जाने के एक दिन बाद, दोनों नेताओं ने इस घटनाक्रम पर भी चर्चा की, जिसने अमेरिका के साथ अभी-अभी हुए व्यापार समझौतों पर अनिश्चितता पैदा कर दी है।

- After the talks, the two sides also launched a **joint declaration and action plan on a digital partnership for the future.**

वार्ता के बाद दोनों पक्षों ने **भविष्य के लिए डिजिटल साझेदारी पर संयुक्त घोषणा और कार्य योजना** भी शुरू की।

- “Brazil is India’s biggest trading partner, and we have committed to go beyond **20 billion dollars** in the next **five years.**

“**ब्राज़ील भारत का सबसे बड़ा व्यापारिक साझेदार** है, और हमने अगले **पांच वर्षों** में **20 अरब डॉलर** से आगे जाने की प्रतिबद्धता जताई है।

- Our trade is not just a number, it is a **symbol of trust,**” Mr. Modi said in a joint press appearance.

हमारा व्यापार सिर्फ एक आंकड़ा नहीं, बल्कि **विश्वास का प्रतीक** है,” श्री मोदी ने संयुक्त प्रेस वार्ता में कहा।

- “When India and Brazil work together, the voice of **Global South** becomes stronger...,” he added.

उन्होंने आगे कहा, “जब भारत और ब्राज़ील साथ काम करते हैं, तो **ग्लोबल साउथ** की आवाज़ और मजबूत होती है...।”

- The agreement on **critical minerals** is a significant step towards **diversifying from China,** which currently dominates all processing supply chains for critical minerals.

महत्वपूर्ण खनिजों पर यह समझौता **चीन से विविधीकरण** की दिशा में एक महत्वपूर्ण कदम है, जो वर्तमान में इन खनिजों की सभी प्रसंस्करण आपूर्ति श्रृंखलाओं पर हावी है।

- India and Brazil have also been attempting to increase cooperation on the **biofuel alliance** announced in **2023** along with the **U.S.** and other countries, which has taken a back seat given the **Trump administration’s focus on fossil fuels.**

भारत और ब्राज़ील **2023** में **अमेरिका** और अन्य देशों के साथ घोषित **बायोफ्यूल गठबंधन** पर सहयोग बढ़ाने की भी कोशिश कर रहे हैं, जो **ट्रंप प्रशासन के जीवाश्म ईंधन पर फोकस** के कारण पीछे चला गया है।

- “Increasing investments and cooperation in matters of **renewable energies and critical minerals** is at the core of the **pioneering agreement** that we have signed today,” Mr. Lula said.

श्री लूला ने कहा, “**नवीकरणीय ऊर्जा और महत्वपूर्ण खनिजों** में निवेश और सहयोग बढ़ाना आज हस्ताक्षरित **अग्रणी समझौते** का मूल है।”

- “We are not just the two biggest democracies of the **Global South.**

“हम केवल **ग्लोबल साउथ** की दो सबसे बड़ी लोकतंत्र नहीं हैं।

- This is a meeting of a **digital superpower** with a **renewable energy superpower,**” he added, saying India and Brazil are both regional hubs, and defend **multilateralism and peace.**

उन्होंने जोड़ा, “यह एक **डिजिटल महाशक्ति** और एक **नवीकरणीय ऊर्जा महाशक्ति** की बैठक है,” यह कहते हुए कि भारत और ब्राज़ील दोनों क्षेत्रीय केंद्र हैं और **बहुपक्षवाद तथा शांति** का समर्थन करते हैं।

- Mr. Lula, who was accompanied by **11 Ministers,** and the **largest ever business delegation** for his **five-day visit,** which included the **AI Impact Summit,** said India and Brazil should aim for a more ambitious trade target.

11 मंत्रियों और अपने **अब तक के सबसे बड़े व्यापारिक प्रतिनिधिमंडल** के साथ आए श्री लूला ने, जिनकी **पांच दिवसीय यात्रा** में **AI इम्पैक्ट समिट** भी शामिल था, कहा कि भारत और ब्राज़ील को अधिक महत्वाकांक्षी व्यापार लक्ष्य रखना चाहिए।

- He proposed doubling current levels of trade estimated at about **\$12-15 billion** to **\$30 billion annually by 2030.**

उन्होंने वर्तमान में लगभग **12-15 अरब डॉलर** आंके गए व्यापार को दोगुना कर **2030 तक 30 अरब डॉलर प्रति वर्ष** करने का प्रस्ताव रखा।

- Briefing the media, **Secretary (East) P. Kumaran** said that Mr. Modi and Mr. Lula had discussed **trade and tariff developments in the U.S.**

मीडिया को जानकारी देते हुए **सचिव (पूर्व) पी. कुमारन** ने कहा कि श्री मोदी और श्री लूला ने **अमेरिका में व्यापार और टैरिफ से जुड़े घटनाक्रमों** पर चर्चा की।

- “Both leaders agreed...that both sides need to study the **implications** of [the **U.S. Supreme Court judgment** and the **new tariffs**] and wait for further developments by the **U.S. administration.**



“दोनों नेताओं ने सहमति जताई...कि दोनों पक्षों को [अमेरिकी सुप्रीम कोर्ट के फैसले और नए टैरिफ] के निहितार्थों का अध्ययन करना चाहिए और अमेरिकी प्रशासन के आगे के कदमों का इंतजार करना चाहिए।

- So we are in a **wait and watch mode**,” he added.
इसलिए हम **प्रतीक्षा और निगरानी की स्थिति** में हैं,” उन्होंने जोड़ा।
- In **2025**, the U.S. levied **50% tariffs** on both **India and Brazil**, the highest in the world, for different reasons.
2025 में अमेरिका ने अलग-अलग कारणों से **भारत और ब्राज़ील** दोनों पर **50% टैरिफ** लगाए, जो दुनिया में सबसे अधिक थे।
- In recent months, both have negotiated with the U.S. for **lower tariffs and more exemptions** on goods, although neither has completed a **trade deal** with the U.S. yet.
हाल के महीनों में दोनों देशों ने वस्तुओं पर **कम टैरिफ और अधिक छूट** के लिए अमेरिका से बातचीत की है, हालांकि अभी तक किसी ने भी अमेरिका के साथ **व्यापार समझौता** पूरा नहीं किया है।
- Both also face the threat of **higher U.S. tariffs** over their **BRICS membership**.
दोनों को अपनी **BRICS सदस्यता** के कारण **अमेरिकी टैरिफ बढ़ने** का खतरा भी है।
- The two leaders also agreed to step up ties in **defence, energy, healthcare, agriculture and pharmaceuticals**, and **South-South cooperation**.
दोनों नेताओं ने **रक्षा, ऊर्जा, स्वास्थ्य सेवा, कृषि और फार्मास्यूटिकल्स**, तथा **दक्षिण-दक्षिण सहयोग** में भी संबंध मजबूत करने पर सहमति जताई।

‘India and U.S. Navies have critical role to play in IOR and Indo-Pacific’

GS II: IR

Sumit Bhattacharjee
VISAKHAPATNAM

Both India and the United States have a critical role to play in the Indian Ocean Region (IOR) and the Indo-Pacific, given their strong naval capabilities, says Admiral Stephen T. Koehler, Commander of the U.S. Pacific Fleet.

Speaking to *The Hindu* on the sidelines of the recently held International Fleet Review (IFR) and MILAN-2026 in Visakhapatnam, Admiral Koehler said the IOR and the Indo-Pacific were vast oceanic regions where it was important to safeguard sovereignty and ensure stability.

“It is a major trade route that underpins the economies of many nations. It is vital for like-minded countries such as India and the U.S. to maintain freedom of navigation in this region. Both nations share common values and possess strong naval forces. When they work together with other like-minded partners, their combined strength can help protect the region from various challenges, safeguard sovereignty, maintain peace,



India has the capacity to play a central role in the IOR, says Admiral Stephen T. Koehler, Commander, U.S. Pacific Fleet, on the sidelines of the International Fleet Review in Visakhapatnam. V. RAJU, K.R DEEPAK



respond swiftly to disasters, and, if necessary, act as a deterrent,” he said.

‘Strong partners’

Highlighting the growing operational cooperation between the two countries, Admiral Koehler said India was a strong partner and that both nations regularly undertake joint operations and complex exercises such as Malabar, MILAN, and RIMPAC to enhance interoperability.

“Both Navies operate P-8I aircraft and MH-60R helicopters, which are capable of anti-submarine warfare. We are working to strengthen our capabilities in areas such as quicker response to Humanitarian

Assistance and Disaster Relief (HADR) operations and anti-submarine warfare by deploying our assets, as we value a free and open Indo-Pacific,” he said.

Responding to allegations from China that the Quadrilateral Security Dialogue (Quad) was formed to contain Chinese naval expansion, Admiral Koehler said the grouping – comprising the United States, Japan, India, and Australia – consisted of like-minded nations committed to a free and open IOR and Indo-Pacific, and was not created to contain any particular country.

On the rapid expansion of the Chinese Navy, he said, “We welcome any

country expanding its naval forces. However, we will not accept any breach of peace or challenge to sovereignty. That position applies universally.”

Praising India’s naval capabilities, Admiral Koehler said, “India has a strong Navy and the capacity to play a central role in the IOR. Most importantly, it is a highly professional force. In the coming years, we expect to scale up the complexity of our joint exercises.”

He also noted that Visakhapatnam-based Eastern Naval Command (ENC) was strategically positioned and likely to play a leading role in the years ahead.



22F. 'India and U.S. Navies have critical role to play in IOR and Indo-Pacific' 'IOR और इंडो-पैसिफिक में भारत और अमेरिका की नौसेनाओं की अहम भूमिका'

- Both India and the United States have a critical role to play in the Indian Ocean Region (IOR) and the Indo-Pacific, given their strong naval capabilities, says Admiral Stephen T. Koehler, Commander of the U.S. Pacific Fleet.
भारत और संयुक्त राज्य अमेरिका, अपनी मजबूत नौसैनिक क्षमताओं को देखते हुए, हिंद महासागर क्षेत्र (IOR) और इंडो-पैसिफिक में महत्वपूर्ण भूमिका निभाने वाले हैं, ऐसा कहना है यू.एस. पैसिफिक फ्लीट के कमांडर एडमिरल स्टीफन टी. कोहलर का।
- Speaking to The Hindu on the sidelines of the recently held International Fleet Review (IFR) and MILAN-2026 in Visakhapatnam, Admiral Koehler said the IOR and the Indo-Pacific were vast oceanic regions where it was important to safeguard sovereignty and ensure stability.
हाल ही में विशाखापत्तनम में आयोजित इंटरनेशनल फ्लीट रिव्यू (IFR) और मिलान-2026 के दौरान द हिंदू से बातचीत में, एडमिरल कोहलर ने कहा कि IOR और इंडो-पैसिफिक विशाल समुद्री क्षेत्र हैं, जहाँ संप्रभुता की रक्षा और स्थिरता सुनिश्चित करना आवश्यक है।
- "It is a major trade route that underpins the economies of many nations.
"यह एक प्रमुख व्यापार मार्ग है, जो कई देशों की अर्थव्यवस्थाओं की रीढ़ है।
- It is vital for like-minded countries such as India and the U.S. to maintain freedom of navigation in this region.
इस क्षेत्र में भारत और अमेरिका जैसे समान सोच वाले देशों के लिए नौवहन की स्वतंत्रता बनाए रखना अत्यंत आवश्यक है।
- Both nations share common values and possess strong naval forces.
दोनों देश साझा मूल्यों को साझा करते हैं और उनके पास मजबूत नौसैनिक बल हैं।
- When they work together with other like-minded partners, their combined strength can help protect the region from various challenges, safeguard sovereignty, maintain peace, respond swiftly to disasters, and, if necessary, act as a deterrent," he said.
जब वे अन्य समान सोच वाले साझेदारों के साथ मिलकर काम करते हैं, तो उनकी संयुक्त शक्ति क्षेत्र को विभिन्न चुनौतियों से बचाने, संप्रभुता की रक्षा करने, शांति बनाए रखने, आपदाओं में त्वरित प्रतिक्रिया देने और आवश्यकता पड़ने पर निरोधक के रूप में कार्य करने में मदद कर सकती है," उन्होंने कहा।

'Strong partners' 'मजबूत साझेदार'

- Highlighting the growing operational cooperation between the two countries, Admiral Koehler said India was a strong partner and that both nations regularly undertake joint operations and complex exercises such as Malabar, MILAN, and RIMPAC to enhance interoperability.
दोनों देशों के बीच बढ़ते संचालनात्मक सहयोग को रेखांकित करते हुए, एडमिरल कोहलर ने कहा कि भारत एक मजबूत साझेदार है और दोनों देश मालाबार, मिलान और रिमपैक जैसे संयुक्त अभियान और जटिल अभ्यास नियमित रूप से करते हैं, ताकि इंटरऑपरेबिलिटी बढ़ाई जा सके।
- "Both Navies operate P-8I aircraft and MH-60R helicopters, which are capable of anti-submarine warfare.
"दोनों नौसेनाएँ P-8I विमान और MH-60R हेलीकॉप्टर संचालित करती हैं, जो पनडुब्बी रोधी युद्ध में सक्षम हैं।
- We are working to strengthen our capabilities in areas such as quicker response to Humanitarian Assistance and Disaster Relief (HADR) operations and anti-submarine warfare by deploying our assets, as we value a free and open Indo-Pacific," he said.
हम मानवीय सहायता और आपदा राहत (HADR) अभियानों में त्वरित प्रतिक्रिया और पनडुब्बी रोधी युद्ध जैसे क्षेत्रों में अपनी क्षमताओं को मजबूत करने के लिए अपने संसाधनों की तैनाती पर काम कर रहे हैं, क्योंकि हम एक मुक्त और खुला इंडो-पैसिफिक महत्व देते हैं," उन्होंने कहा।
- Responding to allegations from China that the Quadrilateral Security Dialogue (Quad) was formed to contain Chinese naval expansion, Admiral Koehler said the grouping — comprising



the **United States, Japan, India, and Australia** — consisted of **like-minded nations** committed to a **free and open IOR and Indo-Pacific**, and was not created to contain any particular country.

चीन द्वारा लगाए गए इस आरोप पर कि **क्वाडिलेटरल सिक्योरिटी डायलॉग (Quad)** चीनी नौसैनिक विस्तार को रोकने के लिए बनाया गया है, एडमिरल कोहलर ने कहा कि **संयुक्त राज्य अमेरिका, जापान, भारत और ऑस्ट्रेलिया** से मिलकर बना यह समूह **समान सोच वाले देशों** का है, जो **मुक्त और खुले IOR तथा इंडो-पैसिफिक** के लिए प्रतिबद्ध हैं, और इसे किसी विशेष देश को रोकने के लिए नहीं बनाया गया है।

- On the rapid expansion of the **Chinese Navy**, he said, "We welcome any country expanding its naval forces.

चीनी नौसेना के तीव्र विस्तार पर उन्होंने कहा, "हम किसी भी देश द्वारा अपनी नौसैनिक शक्ति बढ़ाने का स्वागत करते हैं।

- However, we will not accept any **breach of peace** or challenge to **sovereignty**. हालाँकि, हम **शांति के उल्लंघन** या **संप्रभुता** को चुनौती देने को स्वीकार नहीं करेंगे।
- That position applies **universally**. यह रुख **सार्वभौमिक रूप से** लागू होता है।"
- Praising **India's naval capabilities**, Admiral Koehler said, "India has a **strong Navy** and the capacity to play a **central role** in the IOR.
भारत की नौसैनिक क्षमताओं की प्रशंसा करते हुए, एडमिरल कोहलर ने कहा, "भारत के पास एक **मजबूत नौसेना** है और IOR में **केंद्रीय भूमिका** निभाने की क्षमता है।
- Most importantly, it is a **highly professional force**. सबसे महत्वपूर्ण बात यह है कि यह एक **अत्यंत पेशेवर बल** है।
- In the coming years, we expect to **scale up the complexity** of our **joint exercises**." आने वाले वर्षों में, हम अपने **संयुक्त अभ्यासों** की **जटिलता बढ़ाने** की उम्मीद करते हैं।"
- He also noted that **Visakhapatnam-based Eastern Naval Command (ENC)** was **strategically positioned** and likely to play a **leading role** in the years ahead.
उन्होंने यह भी उल्लेख किया कि **विशाखापत्तनम स्थित पूर्वी नौसेना कमान (ENC)** **रणनीतिक रूप से महत्वपूर्ण स्थान** पर है और आने वाले वर्षों में **नेतृत्वकारी भूमिका** निभाने की संभावना है।

Champion of European autonomy

Emmanuel Macron

France's centrist President has been pushing for reducing Europe's reliance on the U.S. and building military and strategic autonomy, but faces policy resistance abroad and political instability at home

JOAN SONY CHERIAN

In 1962, French President Charles de Gaulle declared that "Europe must be organised so that it depends on no one". Now as the world order reassesses itself in light of various upheavals, the same rhetoric rings true from the same quarter as it had over 60 years ago. On February 13, at the Munich Security Conference, French President Emmanuel Macron stated that "Europe has to learn to become a geopolitical power".

Over the past few weeks, Mr. Macron has been clear that Europe must fashion for itself a path of 'strategic autonomy' by deepening the EU's single market, reducing dependencies on external powers especially in critical sectors such as AI and rare-earth minerals, supporting domestic companies by bringing in a 'Buy European' drive, and focusing on creating deep-strike capabilities and re-articulating nuclear deterrence (France is currently the only nuclear power in the EU). On January 20, at the World Economic Forum in Davos, the French President emphasised, "...building more economic sovereignty and strategic economy, especially for the Europeans... is the core answer".

Mr. Macron's push for European autonomy is a result of three main geopolitical realities that Europe is facing at the moment. One, the Russia-Ukraine war. Europe has been supplying Ukraine with arms and aid. Even with such help, Russia is incrementally advancing into Ukrainian territory, with peace talks being endlessly dragged out without breakthroughs. Economic sanctions on Russia as well as Europe's support for Ukraine have meant that Russia is no longer a reliable energy partner for the bloc.

Second, the dominance of China and Chinese companies in areas of critical security such as rare-earth minerals/metals. European investments have not been able to withstand China's position as a fierce competitor in these sectors.

Finally, and the most alarming of all, has been the volatility of the U.S. as both a trade and a security partner. Considered its most traditional trade partner as well as its largest security guarantor under the NATO framework, the U.S. has now become a flashpoint for Europe. In fact, the sweeping tariffs imposed by U.S. President Donald Trump were not enough, his aggressive bid for ownership of Greenland, an island under Danish sovereignty, has signalled to Mr. Macron that the U.S. is no longer reliable as a stable partner. "There are threats and intimidation and then suddenly Washington backs down. And we think it's over. But don't believe it for a second," Mr. Macron said in an interview earlier this month.

This is not the first time that the French leader has put forth his idea of European autonomy. In fact, right at the beginning of his political career in 2017, his foreign policy stood out for its emphasis on strategic autonomy for Europe. While the idea had few takers back then, Mr. Macron has stuck true to his initial stand. He reiterated his position in 2022, when, after a meeting with Chinese President Xi Jinping, he said Europe must not become "America's followers" and that it must not get "caught up in crises that are not ours", referring to Europe possibly getting dragged into a confrontation between the U.S. and China over Taiwan.

Now, by using the 'Greenland moment', Mr. Macron is actively rallying European powers to confront their standing in the world order, and strengthen Europe's ability to stand up to both the U.S. and China. "We have the Chinese tsunami on the trade front, and we have minute-by-minute instability on the American side," Mr. Macron warned.

Regional distrust
Mr. Macron has advanced the call for European autonomy on two main policy pillars, the first being eurobonds. As individual nation states may not be able to fund the scaling up of critical sectors, a common borrowing mechanism will enable joint



ILLUSTRATION: R. RAJESH

investments in specific industries such as security and defence, climate, AI and quantum computing. These "eurobonds", Mr. Macron believes, could fund strategic investments for Europe and challenge the hegemony of the U.S. dollar.

The second policy is the Industrial Accelerator Act, which is expected to be published on February 25 by the European Commission. The Act is meant to reconcile decarbonising high emission industries with maintaining competitiveness both internally and internationally. One of its key provisions includes introducing local-content, that is 'Made in Europe'

requirements in public procurement and consumer schemes. It also imposes certain restrictive criteria on foreign investment in the EU.

However, Mr. Macron has been having a tough time convincing other European nations, especially Germany and Italy, Europe's two main industrial powerhouses. His 'Make in Europe' rhetoric, and pushback on foreign investment in critical sectors has come across as a tad too protectionist for Italian Prime Minister Giorgia Meloni and German Chancellor Friedrich Merz.

At the informal summit of leaders of the EU in Belgium on February 12,

member states committed to the idea of a 'One Europe, One Market', with Germany and France focusing on their goal of creating a "competitive industry in Europe", without clearly addressing the apparent differences in how they wish to achieve the same. However, Mr. Macron has always maintained that "all this must be done in consultation and coordination with all European partners" and structured at the level of the EU.

Domestic insecurities

However, all such grand plans may come to naught, if in next year's presidential elections in France, the far-right National Rally (RN) party comes to power. Mr. Macron will not be able to contest as there is a two-term constitutional limit on the presidency. This means that Emmanuel Macron has just one more year left in office. And if the RN does come to power, there is no guarantee that it will honour Mr. Macron's agenda and commitments to the EU, as the RN has always been a Eurosceptic party going as far as to suggest, at one point, leaving the bloc.

Mr. Macron has been trying to expand his influence within the French bureaucracy and potentially stop the Rally's populist agenda by appointing close allies to top government posts such as replacing France's top auditor, and reshuffling foreign embassies.

Mr. Macron's rule has been unstable ever since his announcement of snap elections in 2024 when his centrist alliance lost its majority in the European Parliament. As the sudden elections again resulted in a hung Parliament, he went on to appoint three different Prime Ministers in succession until October 2025, as each one was voted out by no-confidence motions or tendered resignations due to political backlash.

These successive short-lived governments have reduced Mr. Macron's standing both domestically and internationally. It remains to be seen how he attempts to bridge his European agenda with the hypernationalist discourse of the RN.

THE GIST

Emmanuel Macron has advanced the call for European autonomy on two main policy pillars, the first being Eurobonds, which envisages a common borrowing mechanism for member states

The second policy is the Industrial Accelerator Act, which is expected to be published on February 25 by the European Commission. This promotes a Make in Europe drive

But Macron has faced a tough time convincing other European nations, especially Germany and Italy, Europe's two main industrial powerhouses



22F. Champion of European autonomy यूरोपीय स्वायत्तता के चैंपियन

- **Emmanuel Macron**
इमैनुएल मैक्रों
- **France's centrist President** has been pushing for **reducing Europe's reliance on the U.S.** and building **military and strategic autonomy**, but faces **policy resistance abroad** and **political instability at home**
फ्रांस के मध्यमार्गी राष्ट्रपति यूरोप की अमेरिका पर निर्भरता कम करने और सैन्य तथा रणनीतिक स्वायत्तता बनाने के लिए प्रयास कर रहे हैं, लेकिन उन्हें विदेश में नीतिगत विरोध और घरेलू राजनीतिक अस्थिरता का सामना करना पड़ रहा है
- In **1962**, French President **Charles de Gaulle** declared that "Europe must be organised so that it depends on no one".
1962 में फ्रांसीसी राष्ट्रपति **चार्ल्स डी गॉल** ने कहा था कि "यूरोप को इस प्रकार संगठित होना चाहिए कि वह किसी पर निर्भर न रहे।"
- On **February 13**, at the **Munich Security Conference**, French President **Emmanuel Macron** stated that "Europe has to learn to become a **geopolitical power**".
13 फरवरी को **म्यूनिख सुरक्षा सम्मेलन** में फ्रांसीसी राष्ट्रपति **इमैनुएल मैक्रों** ने कहा कि "यूरोप को एक भू-राजनीतिक शक्ति बनना सीखना होगा।"
- Over the past few weeks, Mr. Macron has emphasised '**strategic autonomy**' by deepening the **EU's single market**, reducing dependencies in sectors such as **AI and rare-earth minerals**, supporting domestic companies through a '**Buy European**' drive, and focusing on **deep-strike capabilities and nuclear deterrence** (France is the only nuclear power in the EU).
पिछले कुछ हफ्तों में मैक्रों ने 'रणनीतिक स्वायत्तता' पर जोर देते हुए **EU के एकल बाजार** को मजबूत करने, **AI और दुर्लभ पृथ्वी खनिजों** जैसे क्षेत्रों में निर्भरता कम करने, '**Buy European**' अभियान के माध्यम से घरेलू कंपनियों को समर्थन देने और **दीर्घ-प्रहार क्षमता व परमाणु प्रतिरोध** पर ध्यान देने की बात कही (EU में केवल फ्रांस ही परमाणु शक्ति है)।
- On **January 20**, at the **World Economic Forum, Davos**, he emphasised building more **economic sovereignty and strategic economy** for Europeans.
20 जनवरी को **दावोस में विश्व आर्थिक मंच** में उन्होंने यूरोप के लिए अधिक **आर्थिक संप्रभुता और रणनीतिक अर्थव्यवस्था** निर्माण पर बल दिया।
- Mr. Macron's push is driven by three geopolitical realities.
मैक्रों की पहल तीन भू-राजनीतिक वास्तविकताओं से प्रेरित है।
- First, the **Russia-Ukraine war**, where Europe has supplied arms and aid, while **Russia** continues incremental advances and peace talks drag on.
पहला, **रूस-यूक्रेन युद्ध**, जिसमें यूरोप ने हथियार और सहायता दी, जबकि **रूस** लगातार बढ़त बना रहा है और शांति वार्ताएं लंबित हैं।
- Sanctions on Russia and support for Ukraine have meant Russia is no longer a **reliable energy partner** for Europe.
रूस पर प्रतिबंध और यूक्रेन के समर्थन के कारण रूस अब यूरोप के लिए **विश्वसनीय ऊर्जा भागीदार** नहीं रहा।
- Second, the dominance of **China** in critical sectors such as **rare-earth minerals/metals**, where European investments struggle to compete.
दूसरा, **चीन** का **दुर्लभ पृथ्वी खनिज/धातु** जैसे महत्वपूर्ण क्षेत्रों में वर्चस्व, जहाँ यूरोपीय निवेश प्रतिस्पर्धा में पिछड़ रहे हैं।
- Third, the volatility of the **U.S.** as both a trade and security partner under **NATO**.
तीसरा, **NATO** ढांचे के तहत व्यापार और सुरक्षा साझेदार के रूप में **अमेरिका** की अस्थिरता।
- The sweeping **tariffs imposed by U.S. President Donald Trump** and his aggressive bid for **Greenland** under Danish sovereignty have signalled instability.
अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप द्वारा लगाए गए व्यापक **टैरिफ** और डेनमार्क के अधीन **ग्रीनलैंड** पर स्वामित्व की आक्रामक मांग ने अस्थिरता का संकेत दिया।
- "There are threats and intimidation and then suddenly Washington backs down... But don't believe it for a second," Mr. Macron said.



“धमकियां और दबाव होते हैं और फिर अचानक वाशिंगटन पीछे हट जाता है... लेकिन एक पल के लिए भी इस पर विश्वास न करें,” मैक्रों ने कहा।

- This idea of **European autonomy** has been central to Mr. Macron since **2017** at the start of his political career.
यूरोपीय स्वायत्तता का विचार मैक्रों के राजनीतिक जीवन की शुरुआत **2017** से ही प्रमुख रहा है।
- In **2023**, after meeting Chinese President **Xi Jinping**, he reiterated that Europe must not become “**America's followers**” and must avoid being dragged into crises such as a potential **U.S.-China confrontation over Taiwan**.
2023 में चीनी राष्ट्रपति **शी जिनपिंग** से मुलाकात के बाद उन्होंने दोहराया कि यूरोप “**अमेरिका का अनुयायी**” नहीं बने और **ताइवान को लेकर अमेरिका-चीन टकराव** जैसे संकटों में न फंसे।
- Now, by using the ‘**Greenland moment**’, Mr. **Macron** is actively rallying European powers to confront their standing in the world order, and strengthen Europe’s ability to stand up to both the **U.S. and China**.
अब ‘**ग्रीनलैंड क्षण**’ का उपयोग करके श्री **मैक्रों** विश्व व्यवस्था में अपनी स्थिति का सामना करने के लिए यूरोपीय शक्तियों को सक्रिय रूप से संगठित कर रहे हैं और यूरोप की **अमेरिका और चीन** दोनों के सामने खड़े होने की क्षमता को मजबूत कर रहे हैं।
- “We have the **Chinese tsunami** on the trade front, and we have **minute-by-minute instability** on the American side,” Mr. **Macron** warned.
“व्यापार के मोर्चे पर हमारे पास **चीनी सुनामी** है, और अमेरिकी पक्ष में **क्षण-क्षण अस्थिरता** है,” श्री **मैक्रों** ने चेतावनी दी।

Regional distrust क्षेत्रीय अविश्वास

- Mr. **Macron** has advanced the call for European autonomy on two main policy pillars, the first being **eurobonds**.
श्री **मैक्रों** ने यूरोपीय स्वायत्तता के आह्वान को दो मुख्य नीतिगत स्तंभों पर आगे बढ़ाया है, पहला है **यूरोबॉन्ड्स**।
- As individual nation states may not be able to fund the scaling up of critical sectors, a **common borrowing mechanism** will enable joint investments in specific industries such as **security and defence, climate, AI and quantum computing**.
क्योंकि अलग-अलग राष्ट्र महत्वपूर्ण क्षेत्रों के विस्तार को वित्तपोषित करने में सक्षम नहीं हो सकते, एक **सामान्य उधार प्रणाली सुरक्षा व रक्षा, जलवायु, AI और क्वांटम कंप्यूटिंग** जैसे विशिष्ट उद्योगों में संयुक्त निवेश को सक्षम बनाएगी।
- These “**eurobonds**”, Mr. **Macron** believes, could fund strategic investments for Europe and challenge the hegemony of the **U.S. dollar**.
श्री **मैक्रों** का मानना है कि ये “**यूरोबॉन्ड्स**” यूरोप के लिए रणनीतिक निवेश को वित्तपोषित कर सकते हैं और **अमेरिकी डॉलर** के वर्चस्व को चुनौती दे सकते हैं।
- The second policy is the **Industrial Accelerator Act**, which is expected to be published on **February 25** by the **European Commission**.
दूसरी नीति **इंडस्ट्रियल एक्सेलेरेटर एक्ट** है, जिसे **25 फरवरी** को **यूरोपीय आयोग** द्वारा प्रकाशित किए जाने की उम्मीद है।
- The Act is meant to reconcile **decarbonising high emission industries** with maintaining competitiveness both internally and internationally.
यह अधिनियम **उच्च-उत्सर्जन उद्योगों के डीकार्बोनाइजेशन** को आंतरिक और अंतरराष्ट्रीय प्रतिस्पर्धा बनाए रखने के साथ संतुलित करने के लिए है।
- One of its key provisions includes introducing **local-content**, that is ‘**Made in Europe**’ requirements in public procurement and consumer schemes.
इसके प्रमुख प्रावधानों में से एक **स्थानीय सामग्री**, यानी ‘**Made in Europe**’ आवश्यकताओं को सार्वजनिक खरीद और उपभोक्ता योजनाओं में लागू करना है।
- It also imposes certain restrictive criteria on **foreign investment in the EU**.
यह **EU में विदेशी निवेश** पर कुछ प्रतिबंधात्मक मानदंड भी लागू करता है।
- However, Mr. **Macron** has been having a tough time convincing other European nations, especially **Germany and Italy**, Europe’s two main industrial powerhouses.
हालाँकि, श्री **मैक्रों** को अन्य यूरोपीय देशों, विशेष रूप से **जर्मनी और इटली**, जो यूरोप की दो प्रमुख औद्योगिक शक्तियाँ हैं, को मनाने में कठिनाई हो रही है।



- His **'Make in Europe'** rhetoric, and pushback on foreign investment in critical sectors has come across as a tad too **protectionist** for Italian Prime Minister **Giorgia Meloni** and German Chancellor **Friedrich Merz**.
उनकी **'Make in Europe'** नीति और महत्वपूर्ण क्षेत्रों में विदेशी निवेश पर रोक इतालवी प्रधानमंत्री **जॉर्जिया मेलोनी** और जर्मन चांसलर **फ्रेडरिक मर्ज़** को कुछ अधिक **संरक्षणवादी** लगी है।
- At the informal summit of leaders of the **EU in Belgium on February 12**, member states committed to the idea of a **'One Europe, One Market'**, with **Germany and France** focusing on their goal of creating a **"competitive industry in Europe"**, without clearly addressing the apparent differences in how they wish to achieve the same.
12 फरवरी को बेल्जियम में EU नेताओं के अनौपचारिक शिखर सम्मेलन में सदस्य देशों ने **'One Europe, One Market'** के विचार के प्रति प्रतिबद्धता जताई, जहाँ **जर्मनी और फ्रांस** ने **"यूरोप में प्रतिस्पर्धी उद्योग"** बनाने के लक्ष्य पर ध्यान केंद्रित किया, हालांकि इसे प्राप्त करने के तरीकों में स्पष्ट मतभेद बने रहे।
- However, Mr. **Macron** has always maintained that **"all this must be done in consultation and coordination with all European partners"** and structured at the level of the **EU**.
हालांकि, श्री **मैक्रों** हमेशा कहते रहे हैं कि **"यह सब यूरोप के सभी साझेदारों के साथ परामर्श और समन्वय में किया जाना चाहिए"** और इसे **EU स्तर** पर संरचित किया जाना चाहिए।

Domestic insecurities

घरेलू असुरक्षाएँ

- However, all such grand plans may come to naught, if in **next year's presidential elections in France**, the far-right **National Rally (RN)** party comes to power.
हालांकि, यदि **अगले वर्ष फ्रांस के राष्ट्रपति चुनाव** में दूर-दक्षिणपंथी **नेशनल रैली (RN)** पार्टी सत्ता में आती है, तो ये सभी बड़े योजनाएँ विफल हो सकती हैं।
- Mr. **Macron** will not be able to contest as there is a **two-term constitutional limit** on the presidency.
श्री **मैक्रों** चुनाव नहीं लड़ पाएंगे क्योंकि राष्ट्रपति पद पर **दो कार्यकाल की संवैधानिक सीमा** है।
- This means that **Emmanuel Macron** has just **one more year** left in office.
इसका अर्थ है कि **इमैनुएल मैक्रों** के पास पद पर केवल **एक वर्ष** शेष है।
- And if the **RN** does come to power, there is no guarantee that it will honour Mr. **Macron's agenda and commitments to the EU**, as the RN has always been a **Eurosceptic party** going as far as to suggest, at one point, leaving the bloc.
और यदि **RN** सत्ता में आती है, तो यह सुनिश्चित नहीं है कि वह श्री **मैक्रों के एजेंडा और EU के प्रति प्रतिबद्धताओं** का सम्मान करेगी, क्योंकि RN हमेशा से एक **यूरो-स्केप्टिक पार्टी** रही है और कभी ब्लॉक छोड़ने तक का सुझाव दे चुकी है।
- Mr. **Macron** has been trying to expand his influence within the **French bureaucracy** and potentially stop the Rally's **populist agenda** by appointing close allies to top government posts such as replacing **France's top auditor**, and reshuffling **foreign embassies**.
श्री **मैक्रों फ्रांसीसी नौकरशाही** में अपना प्रभाव बढ़ाने और रैली के **लोकलुभावन एजेंडा** को रोकने के लिए अपने करीबी सहयोगियों को शीर्ष सरकारी पदों पर नियुक्त कर रहे हैं, जैसे **फ्रांस के शीर्ष ऑडिटर** को बदलना और **विदेशी दूतावासों** में फेरबदल करना।
- Mr. **Macron's rule** has been unstable ever since his announcement of **snap elections in 2024** when his **centrist alliance lost its majority** in the **European Parliament**.
श्री **मैक्रों का शासन 2024 के अचानक चुनावों** की घोषणा के बाद से अस्थिर रहा है, जब उनके **केंद्रपंथी गठबंधन ने यूरोपीय संसद में बहुमत खो दिया**।
- As the sudden elections again resulted in a **hung Parliament**, he went on to appoint **three different Prime Ministers** in succession until **October 2025**, as each one was voted out by **no-confidence motions** or tendered resignations due to **political backlash**.
चूँकि अचानक चुनावों के परिणामस्वरूप फिर **त्रिशंकु संसद** बनी, उन्होंने **अक्टूबर 2025 तक लगातार तीन अलग-अलग प्रधानमंत्री** नियुक्त किए, क्योंकि प्रत्येक को **अविश्वास प्रस्तावों** से हटाया गया या **राजनीतिक विरोध** के कारण इस्तीफा देना पड़ा।
- These successive **short-lived governments** have reduced Mr. **Macron's standing** both **domestically and internationally**.
इन लगातार **अल्पकालिक सरकारों** ने श्री **मैक्रों की स्थिति** को **घरेलू और अंतरराष्ट्रीय** दोनों स्तरों पर कमजोर किया है।



- It remains to be seen how he attempts to bridge his **European agenda** with the **hypernationalist discourse** of the RN.
यह देखना बाकी है कि वह अपने यूरोपीय एजेंडा को RN के अति-राष्ट्रवादी विमर्श के साथ कैसे संतुलित करने का प्रयास करते हैं।

Deal in deep water

Chagos Islands

As the UK's draft legislation to ratify the transfer of sovereignty over the Chagos Islands to Mauritius moves through Parliament, Trump is taking aim at the deal

GS II: IR
Sruthi Darbhamulla

In a social media post, U.S. President Donald Trump asked the U.K. to “not give away Diego Garcia”, referring to the site where a U.S.-U.K. military base is located in the Chagos archipelago.

The U.K. deal concerning the Chagos Island grouping is the result of a long negotiation surrounding the archipelago, located in the central Indian Ocean, around 1,600 km from the tip of the Indian subcontinent. The archipelago, positioned around 2,000 km north-east of Mauritius about mid-way between East Africa and Indonesia, is an overseas territory of the U.K., one of 14 remaining in the post-colonial era.

Officially referred to as the British Indian Ocean Territory (BIOT), the grouping consists of 60 islands set in seven ring-shaped coral atolls. The largest of the lot, Diego Garcia, plays host to the joint U.S.-U.K. military base, which reportedly has an airfield, a deep-water port, and communications and surveillance-related infrastructure. The islands have American and British military presence and contract civilian personnel, but do not host a permanent civilian population as of today.

The islands were uninhabited when they were discovered by Portuguese explorers in the 16th century.



REUTERS

Given its strategic location on international trade routes, several foreign powers sought to establish control over the archipelago. In the late 18th century, France took over the islands, along with Seychelles, treating them as dependencies of Mauritius. In the early 19th century, the islands were taken over by the U.K.; Mauritius and its dependencies were proclaimed colonies of Britain in 1814 under the Treaty of Paris. Seychelles was detached from Mauritius and became a separate colony in 1903. The BIOT came into being in 1965 following the U.S.-U.K. agreement.

Mauritius gained independence in 1968; the U.K. reportedly paid it a £3 million grant to maintain control over the Chagos Islands. In 1971, a military facility was constructed on Diego Garcia, and the local Ilois/Chagossians, descended from African slaves and Indian plantation workers, were offered the choice to relocate to Seychelles or Mauritius. While

most resettled in Mauritius, a few moved to the U.K.

Right to return

In 2000, the British High Court found that the removal of the Chagossians was illegal and granted them the right to return. While this was upheld by the Court of Appeal in 2007, it was reversed by the House of Lords in 2008. An ICJ advisory ruling in 2019 found that the decolonisation process pertaining to Mauritius was illegal and recommended that the U.K. stop its administration of the Chagos Islands.

Although non-binding, the ruling had international weight, and the U.K. government began negotiations over this in 2022, under then-Conservative Prime Minister Rishi Sunak. An agreement was sketched out in October 2024. A final treaty to transfer sovereignty over the islands to Mauritius was signed in May 2025 by Labour Prime Minister Keir Starmer and Mauritius Prime Minister Navin Ramgoolam. Before the treaty

enters into force, it needs to be ratified by legislation, and a draft law dealing with this is progressing through Parliament.

The plan, estimated to cost £3.4 billion, envisages the handing over of Chagos Islands to Mauritius by the U.K. and the leasing back of the military base in Diego Garcia for 99 years, at an average cost of £101 million a year. The deal includes a £40 million trust fund to support Chagossians, who will be permitted to resettle in all islands except Diego Garcia.

Mr. Trump has called the deal “an act of great stupidity”, and the potential loss of the land “a blight on our Great Ally”. Describing the island as “strategically located”, Mr. Trump indicated that Diego Garcia may be brought into play “in order to eradicate a potential attack by a highly unstable and dangerous Regime”— a reference to Iran. He has also linked the deal to his own designs to acquire Greenland.

The U.K. has maintained that the deal is vital for the U.K.'s security interests, with Mr. Starmer noting that the deal was required to avert the risk of a future binding legal judgment affecting the U.K.'s ability to use the Diego Garcia base. On the other hand, the deal has invited criticism from Conservatives and Reform UK, who view Mauritius's ties with China with suspicion.

22F. Deal in deep water गहरे पानी में सौदा

- Chagos Islands
चागोस द्वीप समूह



- As the U.K.'s draft legislation to ratify the transfer of sovereignty over the Chagos Islands to Mauritius moves through Parliament, Trump is taking aim at the deal जैसे ही यू.के. का मसौदा कानून चागोस द्वीप समूह पर संप्रभुता के हस्तांतरण की पुष्टि करने के लिए मॉरीशस को लेकर संसद से गुजर रहा है, ट्रम्प इस सौदे पर निशाना साध रहे हैं

Diego Garcia and the Chagos archipelago डिएगो गार्सिया और चागोस द्वीपसमूह

- In a social media post, U.S. President Donald Trump asked the U.K. to “not give away Diego Garcia”, referring to the site where a U.S-U.K. military base is located in the Chagos archipelago.
एक सोशल मीडिया पोस्ट में, अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप ने यू.के. से “डिएगो गार्सिया को न देने” के लिए कहा, जहाँ चागोस द्वीपसमूह में अमेरिका-यू.के. सैन्य अड्डा स्थित है।
- The U.K. deal concerning the Chagos Island grouping is the result of a long negotiation surrounding the archipelago, located in the central Indian Ocean, around 1,600 km from the tip of the Indian subcontinent.
चागोस द्वीप समूह से संबंधित यू.के. समझौता लंबे वार्तालाप का परिणाम है, जो केंद्रीय हिंद महासागर में भारतीय उपमहाद्वीप के सिरे से लगभग 1,600 किमी दूर स्थित है।
- The archipelago, positioned around 2,000 km north-east of Mauritius about mid-way between East Africa and Indonesia, is an overseas territory of the U.K., one of 14 remaining in the post-colonial era.
यह द्वीपसमूह मॉरीशस के उत्तर-पूर्व में लगभग 2,000 किमी दूर, पूर्वी अफ्रीका और इंडोनेशिया के बीच स्थित है, और यू.के. का विदेशी क्षेत्र है, जो उत्तर-औपनिवेशिक युग में शेष 14 क्षेत्रों में से एक है।
- Officially referred to as the British Indian Ocean Territory (BIOT), the grouping consists of 60 islands set in seven ring-shaped coral atolls.
आधिकारिक रूप से ब्रिटिश इंडियन ओशन टेरिटरी (BIOT) कहलाने वाला यह समूह सात वलयाकार प्रवाल एटोल में बसे 60 द्वीपों से बना है।
- The largest of the lot, Diego Garcia, plays host to the joint U.S-U.K military base, which reportedly has an airfield, a deep-water port, and communications and surveillance-related infrastructure.
इनमें सबसे बड़ा डिएगो गार्सिया संयुक्त अमेरिका-यू.के. सैन्य अड्डे की मेजबानी करता है, जिसमें कथित रूप से एक हवाई पट्टी, एक गहरे पानी का बंदरगाह, और संचार व निगरानी संबंधी ढांचा है।
- The islands have American and British military presence and contract civilian personnel, but do not host a permanent civilian population as of today.
इन द्वीपों पर अमेरिकी और ब्रिटिश सैन्य उपस्थिति तथा अनुबंधित नागरिक कर्मचारी हैं, लेकिन आज की स्थिति में यहाँ कोई स्थायी नागरिक आबादी नहीं है।
- The islands were uninhabited when they were discovered by Portuguese explorers in the 16th century.
ये द्वीप 16वीं शताब्दी में पुर्तगाली खोजकर्ताओं द्वारा खोजे जाने पर निर्जन थे।
- Given its strategic location on international trade routes, several foreign powers sought to establish control over the archipelago.
अंतरराष्ट्रीय व्यापार मार्गों पर इसकी रणनीतिक स्थिति के कारण कई विदेशी शक्तियों ने इस द्वीपसमूह पर नियंत्रण स्थापित करने की कोशिश की।
- In the late 18th century, France took over the islands, along with Seychelles, treating them as dependencies of Mauritius.
18वीं शताब्दी के अंत में फ्रांस ने सेशेल्स सहित इन द्वीपों पर नियंत्रण किया और उन्हें मॉरीशस की आश्रित इकाइयों के रूप में माना।
- In the early 19th century, the islands were taken over by the U.K.; Mauritius and its dependencies were proclaimed colonies of Britain in 1814 under the Treaty of Paris.
19वीं शताब्दी की शुरुआत में ये द्वीप यू.के. के अधीन आ गए; मॉरीशस और उसके आश्रित क्षेत्र को 1814 में पेरिस की संधि के तहत ब्रिटेन की कॉलोनियाँ घोषित किया गया।
- Seychelles was detached from Mauritius and became a separate colony in 1903.
सेशेल्स को मॉरीशस से अलग कर 1903 में एक अलग कॉलोनी बनाया गया।
- The BIOT came into being in 1965 following the U.S-U.K. agreement.
BIOT की स्थापना 1965 में अमेरिका-यू.के. समझौते के बाद हुई।



- **Mauritius** gained independence in **1968**; the U.K. reportedly paid it a **£3 million grant** to maintain control over the **Chagos Islands**.
मॉरीशस को 1968 में स्वतंत्रता मिली; यू.के. ने कथित रूप से चागोस द्वीपों पर नियंत्रण बनाए रखने के लिए **£3 मिलियन का अनुदान** दिया।
- In **1971**, a military facility was constructed on **Diego Garcia**, and the local **Ilois/Chagossians**, descended from African slaves and Indian plantation workers, were offered the choice to relocate to **Seychelles or Mauritius**.
1971 में **डिएगो गार्सिया** पर एक सैन्य सुविधा बनाई गई, और स्थानीय **इलोइस/चागोसियन**, जो अफ्रीकी दासों और भारतीय बागान श्रमिकों के वंशज थे, को **सेशेल्स या मॉरीशस** जाने का विकल्प दिया गया।
- While most resettled in **Mauritius**, a few moved to the **U.K.**
जहाँ अधिकांश ने **मॉरीशस** में पुनर्वास किया, वहीं कुछ लोग **यू.के.** चले गए।

Right to return वापसी का अधिकार

- In **2000**, the **British High Court** found that the removal of the **Chagossians** was illegal and granted them the **right to return**.
2000 में **ब्रिटिश हाई कोर्ट** ने माना कि **चागोसियनों** को हटाना अवैध था और उन्हें **वापसी का अधिकार** दिया।
- While this was upheld by the **Court of Appeal in 2007**, it was reversed by the **House of Lords in 2008**.
इसे 2007 में **कोर्ट ऑफ अपील** ने बरकरार रखा, लेकिन 2008 में **हाउस ऑफ लॉर्ड्स** ने इसे पलट दिया।
- An **ICJ advisory ruling in 2019** found that the decolonisation process pertaining to **Mauritius** was illegal and recommended that the **U.K.** stop its administration of the **Chagos Islands**.
2019 में **आईसीजे के सलाहकारी निर्णय** ने पाया कि **मॉरीशस** से संबंधित उपनिवेश-मुक्ति प्रक्रिया अवैध थी और **यू.के.** को **चागोस द्वीपों** का प्रशासन रोकने की सिफारिश की।
- Although non-binding, the ruling had international weight, and the **U.K. government** began negotiations over this in **2022**, under then-Conservative Prime Minister **Rishi Sunak**.
हालाँकि यह बाध्यकारी नहीं था, फिर भी निर्णय का अंतरराष्ट्रीय महत्व था, और **यू.के. सरकार** ने 2022 में तत्कालीन कंजरवेटिव प्रधानमंत्री **ऋषि सुनक** के नेतृत्व में वार्ता शुरू की।
- An agreement was sketched out in **October 2024**.
अक्टूबर 2024 में एक समझौते का मसौदा तैयार किया गया।
- A final treaty to transfer sovereignty over the islands to **Mauritius** was signed in **May 2025** by Labour Prime Minister **Keir Starmer** and Mauritius Prime Minister **Navin Ramgoolam**.
द्वीपों की संप्रभुता **मॉरीशस** को हस्तांतरित करने की अंतिम संधि **मई 2025** में लेबर प्रधानमंत्री **कीर स्टारमर** और मॉरीशस प्रधानमंत्री **नवीन रामगुलाम** द्वारा हस्ताक्षरित की गई।
- Before the treaty enters into force, it needs to be ratified by legislation, and a draft law dealing with this is progressing through **Parliament**.
संधि के लागू होने से पहले इसे कानून द्वारा अनुमोदित करना आवश्यक है, और इससे संबंधित विधेयक **संसद** में प्रगति पर है।
- The plan, estimated to cost **£3.4 billion**, envisages the handing over of **Chagos Islands** to **Mauritius** by the **U.K.**, and the leasing back of the military base in **Diego Garcia** for **99 years**, at an average cost of **£101 million a year**.
इस योजना की अनुमानित लागत **£3.4 बिलियन** है, जिसके तहत **यू.के.** द्वारा **चागोस द्वीपों** को **मॉरीशस** को सौंपना और **डिएगो गार्सिया सैन्य अड्डे को 99 वर्षों के लिए** औसतन **£101 मिलियन प्रति वर्ष** की लागत पर लीज पर लेना शामिल है।
- The deal includes a **£40 million trust fund** to support **Chagossians**, who will be permitted to resettle in all islands except **Diego Garcia**.
इस समझौते में **£40 मिलियन ट्रस्ट फंड** शामिल है, जो **चागोसियनों** के समर्थन के लिए है, जिन्हें **डिएगो गार्सिया** को छोड़कर सभी द्वीपों पर पुनर्वास की अनुमति होगी।
- Mr. **Trump** has called the deal “an act of great stupidity”, and the potential loss of the land “a blight on our Great Ally”.
ट्रंप ने इस समझौते को “महान मूर्खता का कार्य” और भूमि के संभावित नुकसान को “हमारे महान सहयोगी पर कलंक” कहा।



- Describing the island as “strategically located”, Mr. Trump indicated that **Diego Garcia** may be brought into play “in order to eradicate a potential attack by a highly unstable and dangerous Regime”— a reference to **Iran**.
द्वीप को “रणनीतिक रूप से महत्वपूर्ण” बताते हुए, ट्रंप ने संकेत दिया कि **डिएगो गार्सिया** का उपयोग “अत्यधिक अस्थिर और खतरनाक शासन द्वारा संभावित हमले को समाप्त करने” के लिए किया जा सकता है— जो **ईरान** की ओर संकेत है।
- He has also linked the deal to his own designs to acquire **Greenland**.
उन्होंने इस समझौते को **ग्रीनलैंड** को प्राप्त करने की अपनी योजना से भी जोड़ा।
- The **U.K.** has maintained that the deal is vital for the **U.K.’s security interests**, with Mr. **Starmmer** noting that the deal was required to avert the risk of a future binding legal judgment affecting the **U.K.’s ability to use the Diego Garcia base**.
यू.के. ने कहा कि यह समझौता उसके **सुरक्षा हितों** के लिए महत्वपूर्ण है, और **स्टारमर** ने कहा कि यह भविष्य के बाध्यकारी कानूनी निर्णय के जोखिम को टालने के लिए आवश्यक था, जो **डिएगो गार्सिया बेस के उपयोग की यू.के. की क्षमता** को प्रभावित कर सकता था।
- On the other hand, the deal has invited criticism from **Conservatives** and **Reform UK**, who view **Mauritius’s ties with China** with suspicion.
दूसरी ओर, इस समझौते की **कंजरवेटिव** और **रिफॉर्म यूके** ने आलोचना की है, जो **मॉरीशस के चीन से संबंधों** को संदेह की दृष्टि से देखते हैं।

GS Paper III: Economy,	
TOPICS COVERED	22 February 2026
22F	‘India studying implications of U.S. tariff moves’ ‘भारत अमेरिकी टैरिफ कदमों के निहितार्थों का अध्ययन कर रहा है’
22F	Sandalwood: An expensive fragrance चंदन: एक महँगी खुशबू
22F	Sericulture farmers take the ‘silk route’ to prosperity रेशम किसानसमृद्धि की ओर ‘रेशम मार्ग’ अपनाते हैं

‘India studying implications of U.S. tariff moves’

Decision against Trump’s reciprocal tariffs renders trade deals one sided, say analysts

T.C.A. Sharad Raghavan
NEW DELHI

While the U.S. Supreme Court has struck down the reciprocal tariffs imposed by President Donald Trump on various countries, including India, several other tariffs remain that continue to hurt various sectors, trade analysts and export data show. In a February 20 ruling, the court held that Mr. Trump’s use of the International Emergency Economic Powers Act to impose tariffs on other countries exceeded his authority as President, and so struck down the duties. However, Mr. Trump soon announced that the U.S. would impose a temporary 150-day 10% baseline tariff on all imports from Febru-

ary 24 under Section 122 of the Trade Act of 1974. This Section of the Act empowers the President to “address certain fundamental international payment problems through surcharges and other special import restrictions”, according to a White House factsheet. In a Truth Social post on Saturday, Mr. Trump said he would be hiking the 10% tariff to the “fully allowed, and legally tested, 15% level”, effective immediately. In a statement on Saturday, the Commerce and Industry Ministry said it had “noted” the U.S. Supreme Court’s judgment, but did not clarify what would happen to India’s interim agreement with Washington.

“We have noted the U.S. Supreme Court judgment on tariffs yesterday,” it

Ruling would prompt countries to re-examine deals with the U.S., and India should do the same, they say

Cost of trade

While the U.S. Supreme Court struck down Trump’s reciprocal tariffs under the IEEPA, import duties remain under other laws

■ New 15% tariff on all goods imports to the U.S. for 150 days under Section 122 of the Trade Act of 1974

■ A 50% tariff on imports of steel and aluminium under Section 232 of the U.S. Trade Expansion Act of 1962



Aluminium and steel form the fourth-largest group of exports for India to the U.S., making up nearly 66% of total exports in December 2025

said. “We are studying all these developments for their implications.”

Trade analysts said the ruling would prompt countries that have trade deals with the U.S. to re-examine them, and called for India to do the same regarding its pact that is yet to be signed.

“The ruling invalidates country-specific ‘recipro-

cal tariffs’ and fentanyl-linked duties imposed on imports from major trading partners,” Ajay Srivastava, founder of the think-tank Global Trade Research Initiative, said. “The decision effectively renders recent trade deals by the U.S. with the U.K., Japan, the EU, Malaysia, Indonesia, Vietnam and India one-sided and useless.”

Put U.S. deal on hold, renegotiate it, says Congress

NEW DELHI

Following the U.S. Supreme Court’s ruling, the Congress on Saturday asked the Narendra Modi-led government to put the India-U.S. interim trade agreement on hold and renegotiate its terms. » PAGE 4

Partner countries may now find reasons to dump these deals.

The U.S. also has other tariffs in place, such as those under Section 232 of the U.S. Trade Expansion Act of 1962.

“It would need to be seen how President Trump could still use other laws like Section 232 to enhance/keep tariffs for co-

tered products outside of this decision,” Krishan Arora, Partner and Indirect Tax and India Investment Roadmap Leader at Grant Thornton Bharat, said.

Under the Section 232 tariffs, the U.S. has imposed a 50% tariff on imports of steel and aluminium. These tariffs will remain, and data shows they could continue to have an impact on India.

Aluminium and steel exports, taken together, form the fourth-largest group of exports for India to the U.S. Exports to the U.S. of these items fell nearly 66% in December 2025, as per the latest trade data, in response to the tariffs.

“De minimis” tariffs In August 2025, the U.S. suspended the ‘de minimis’ exemptions, which had

granted imports of items valued at less than \$800 per person per day. This meant that the import of such items – ranging from textiles to toys, cosmetics, and electronic accessories – would attract the country-specific duties based on their origin.

Following the U.S. Supreme Court’s decision, Mr. Trump issued an executive order saying that he has determined “it is still necessary and appropriate to suspend duty-free de minimis treatment”.

This has an impact on India because a number of small exporters and e-commerce players used this de minimis route to send their goods to customers in the U.S. on a duty-free basis.

TRUMP ON DEAL WITH INDIA » PAGE 4

22F. ‘India studying implications of U.S. tariff moves’
‘भारत अमेरिकी टैरिफ कदमों के निहितार्थों का अध्ययन कर रहा है’



- Decision against **Trump's reciprocal tariffs** renders trade deals **one sided**, say analysts. विश्लेषकों का कहना है कि **ट्रंप के पारस्परिक टैरिफ** के खिलाफ फैसला व्यापार समझौतों को **एकतरफा** बना देता है।
- Ruling would prompt countries to **re-examine deals** with the **U.S.**, and **India** should do the same, they say.
उनका कहना है कि यह फैसला देशों को **अमेरिका** के साथ अपने **समझौतों की पुनः समीक्षा** करने के लिए प्रेरित करेगा और **भारत** को भी ऐसा ही करना चाहिए।
- **Trump hikes 10% tariffs** announced after the **court ruling to 15% 'effective immediately'**. **अदालत के फैसले** के बाद घोषित **10% टैरिफ** को **ट्रंप ने बढ़ाकर 15%** कर दिया, जो **तत्काल प्रभावी** है।
- While the **U.S. Supreme Court** has struck down the **reciprocal tariffs** imposed by **President Donald Trump** on various countries, including **India**, several other tariffs remain that continue to hurt various sectors, trade analysts and export data show.
हालांकि **अमेरिकी सुप्रीम कोर्ट** ने **राष्ट्रपति डोनाल्ड ट्रंप** द्वारा **भारत** सहित विभिन्न देशों पर लगाए गए **पारस्परिक टैरिफ** को रद्द कर दिया है, लेकिन व्यापार विश्लेषकों और निर्यात आंकड़ों के अनुसार कई अन्य टैरिफ अभी भी बने हुए हैं जो विभिन्न क्षेत्रों को नुकसान पहुंचा रहे हैं।
- In a **February 20 ruling**, the court held that Mr. Trump's use of the **International Emergency Economic Powers Act** to impose tariffs on other countries exceeded his authority as President, and so struck down the duties.
20 फरवरी के फैसले में अदालत ने कहा कि अन्य देशों पर टैरिफ लगाने के लिए **अंतरराष्ट्रीय आपातकालीन आर्थिक शक्तियां अधिनियम** का उपयोग करना राष्ट्रपति के रूप में श्री ट्रंप के अधिकार क्षेत्र से बाहर था, इसलिए उन शुल्कों को रद्द कर दिया गया।
- However, Mr. Trump soon announced that the U.S. would impose a temporary **150-day 10% baseline tariff** on all imports from **February 24** under **Section 122 of the Trade Act of 1974**.
हालांकि, श्री ट्रंप ने जल्द ही घोषणा की कि **24 फरवरी से 1974 के व्यापार अधिनियम की धारा 122** के तहत अमेरिका सभी आयातों पर अस्थायी **150 दिनों के लिए 10% आधारभूत टैरिफ** लगाएगा।
- This Section of the Act empowers the President to "address certain fundamental international payment problems through surcharges and other special import restrictions", according to a **White House factsheet**.
व्हाइट हाउस फैक्टशीट के अनुसार, अधिनियम की यह धारा राष्ट्रपति को "अधिभार और अन्य विशेष आयात प्रतिबंधों के माध्यम से कुछ बुनियादी अंतरराष्ट्रीय भुगतान समस्याओं से निपटने" का अधिकार देती है।
- In a **Truth Social post** on Saturday, Mr. Trump said he would be hiking the **10% tariff** to the "fully allowed, and legally tested, **15% level**", effective immediately.
शनिवार को **ट्रुथ सोशल पोस्ट** में श्री ट्रंप ने कहा कि वह **10% टैरिफ** को "पूरी तरह अनुमत और कानूनी रूप से परखे गए **15% स्तर**" तक बढ़ा रहे हैं, जो तुरंत प्रभावी होगा।
- In a statement on Saturday, the **Commerce and Industry Ministry** said it had "noted" the **U.S. Supreme Court's judgment**, but did not clarify what would happen to India's interim agreement with Washington.
शनिवार को एक बयान में **वाणिज्य और उद्योग मंत्रालय** ने कहा कि उसने **अमेरिकी सुप्रीम कोर्ट के फैसले** को "नोट" किया है, लेकिन यह स्पष्ट नहीं किया कि वाशिंगटन के साथ भारत के अंतरिम समझौते का क्या होगा।
- "We have noted the **U.S. Supreme Court judgment** on tariffs yesterday," it said.
मंत्रालय ने कहा, "हमने कल टैरिफ पर **अमेरिकी सुप्रीम कोर्ट के फैसले** को नोट किया है।"
- "We are studying all these developments for their **implications**."
"हम इन सभी घटनाक्रमों के **निहितार्थों** का अध्ययन कर रहे हैं।"
- Trade analysts said the ruling would prompt countries that have **trade deals with the U.S.** to re-examine them, and called for India to do the same regarding its pact that is yet to be signed.
व्यापार विश्लेषकों ने कहा कि यह फैसला **अमेरिका के साथ व्यापार समझौते** रखने वाले देशों को उनकी पुनः समीक्षा के लिए प्रेरित करेगा और भारत से भी उस समझौते के संदर्भ में ऐसा करने का आह्वान किया जो अभी हस्ताक्षरित नहीं हुआ है।
- "The ruling invalidates country-specific '**reciprocal tariffs**' and **fentanyl-linked duties** imposed on imports from major trading partners," **Ajay Srivastava**, founder of the thinktank **Global Trade Research Initiative**, said.
थिंक टैंक **ग्लोबल ट्रेड रिसर्च इनिशिएटिव** के संस्थापक **अजय श्रीवास्तव** ने कहा, "यह फैसला प्रमुख व्यापारिक साझेदारों से आयात पर लगाए गए देश-विशिष्ट '**पारस्परिक टैरिफ**' और **फेंटानिल से जुड़े शुल्कों** को अमान्य कर देता है।"



- “The decision effectively renders recent trade deals by the U.S. with the **U.K., Japan, the EU, Malaysia, Indonesia, Vietnam and India** one-sided and useless.”
“यह फैसला अमेरिका द्वारा यूके, जापान, यूरोपीय संघ, मलेशिया, इंडोनेशिया, वियतनाम और भारत के साथ किए गए हालिया व्यापार समझौतों को प्रभावी रूप से एकतरफा और बेकार बना देता है।”
- Partner countries may now find reasons to dump these deals.
साझेदार देश अब इन समझौतों को छोड़ने के कारण ढूँढ सकते हैं।
- The U.S. also has other tariffs in place, such as those under **Section 232 of the U.S. Trade Expansion Act of 1962**.
अमेरिका के पास 1962 के अमेरिकी व्यापार विस्तार अधिनियम की धारा 232 के तहत लगाए गए अन्य टैरिफ भी हैं।
- “It would need to be seen how President Trump could still use other laws like **Section 232** to enhance or keep tariffs for covered products outside of this decision,” **Krishan Arora**, Partner and Indirect Tax and India Investment Roadmap Leader at **Grant Thornton Bharat**, said.
ग्रंट थॉर्नटन भारत में पार्टनर और अप्रत्यक्ष कर एवं भारत निवेश रोडमैप लीडर **कृष्ण अरोड़ा** ने कहा, “यह देखना होगा कि राष्ट्रपति ट्रंप इस फैसले के बाहर आने वाले उत्पादों पर टैरिफ बढ़ाने या बनाए रखने के लिए **धारा 232** जैसे अन्य कानूनों का कैसे उपयोग कर सकते हैं।”
- Under the **Section 232 tariffs**, the U.S. has imposed a **50% tariff on imports of steel and aluminium**.
धारा 232 टैरिफ के तहत अमेरिका ने **इस्पात और एल्युमिनियम के आयात पर 50% टैरिफ** लगाया है।
- These tariffs will remain, and data shows they could continue to have an impact on **India**.
ये टैरिफ बने रहेंगे और आंकड़े दिखाते हैं कि इनका **भारत** पर प्रभाव जारी रह सकता है।
- **Aluminium and steel exports**, taken together, form the **fourth-largest group of exports** for India to the U.S.
एल्युमिनियम और इस्पात निर्यात, संयुक्त रूप से, अमेरिका को भारत के **चौथे सबसे बड़े निर्यात समूह** का निर्माण करते हैं।
- Exports to the U.S. of these items fell nearly **66% in December 2025**, as per the latest trade data, in response to the tariffs.
नवीनतम व्यापार आंकड़ों के अनुसार, टैरिफ के जवाब में **दिसंबर 2025 में** इन वस्तुओं का अमेरिका को निर्यात लगभग **66%** गिर गया।

‘De minimis’ tariffs ‘डी मिनिमिस’ टैरिफ

- In **August 2025**, the U.S. suspended the **‘de minimis’ exemptions**, which had granted imports of items valued at less than **\$800 per person per day**.
अगस्त 2025 में अमेरिका ने **‘डी मिनिमिस’ छूट** को निलंबित कर दिया, जो प्रति व्यक्ति प्रति दिन **800 डॉलर से कम मूल्य** की वस्तुओं के आयात की अनुमति देती थी।
- This meant that the import of such items — ranging from **textiles to toys, cosmetics, and electronic accessories** — would attract the country-specific duties based on their origin.
इसका मतलब यह हुआ कि **वस्त्र, खिलौने, सौंदर्य प्रसाधन और इलेक्ट्रॉनिक एक्सेसरीज़** जैसी वस्तुओं के आयात पर उनके मूल देश के आधार पर देश-विशिष्ट शुल्क लगेंगे।
- Following the **U.S. Supreme Court’s decision**, Mr. Trump issued an **executive order** saying that he has determined “it is still necessary and appropriate to suspend duty-free de minimis treatment”.
अमेरिकी सुप्रीम कोर्ट के फैसले के बाद श्री ट्रंप ने एक **कार्यकारी आदेश** जारी किया, जिसमें कहा गया कि उन्होंने यह निर्धारित किया है कि “ड्यूटी-फ्री डी मिनिमिस व्यवस्था को निलंबित करना अभी भी आवश्यक और उपयुक्त है।”
- This has an impact on **India** because a number of **small exporters and e-commerce players** used this de minimis route to send items to customers in the U.S. on a duty-free basis.
इसका **भारत** पर प्रभाव पड़ता है क्योंकि कई **छोटे निर्यातक और ई-कॉमर्स खिलाड़ी** इस डी मिनिमिस मार्ग का उपयोग अमेरिका में ग्राहकों को बिना शुल्क के वस्तुएं भेजने के लिए करते थे।



Sandalwood: An expensive fragrance

India was the world's leading producer of sandalwood until the last century, but it has been displaced by Australia. What led to this fall, and what does the recent Union Budget's offering to collaborate with States to revive the sandalwood industry in India mean for farmers? **Chetan B.C.** explores.

SS III, Economy
In February 10, high drama ensued near the Vidhana Soudha in Bengaluru when a farmer from Chikkamagaluru, T.N. Vishu Kumar, carried a machete and severed a few branches of sandalwood trees planted near the legislative building. The act was a form of protest against the National Highways Authority of India (NHAI), which had begun felling sandalwood trees cultivated by Kumar at Halayur in Tarikere taluk of Karnataka. The land had been notified for clearance to build National Highway 206 (Shivamogga-Tumakuru). "It is unbearable for authorities to see a few branches being cut, but at my home, they killed over 100 trees that I nurtured for 14 years. How must I feel then?" Kumar asked.

He further stated that while the NHAI had notified the clearance of 2,148 trees on his farm, the compensation had not been decided fairly. He claimed that he ought to be compensated over ₹100 crore, whereas he was being offered only ₹1 crore.

His argument is based on the sustained and steadily rising demand for sandalwood over the decades. Globally, the estimated annual demand for sandalwood stands at 5,000 to 6,000 tonnes, according to a recent report by the sandalwood development committee (SDC) set up by the Union Government. Meanwhile, global data indicates that sandalwood prices increase by at least 20% annually.

In India, the major buyers are Karnataka Soaps and Detergents Limited (KSDL), which requires 8,000 to 9,000 kg of sandalwood oil annually for its products. Nearly 70% of this requirement is met through imports from Australia, while the rest is procured through domestic auctions, and directly from farmers.

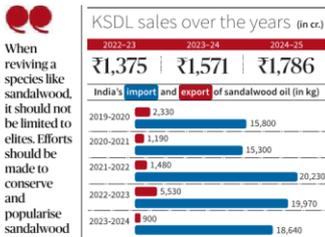
Ironically, Australia began commercial cultivation of the Indian sandalwood variety (*Santalum album L.*), considered the finest variety, only in 1999. Experts attribute the current situation to the contrasting approaches adopted by India and Australia. While Australia invested years in research before large-scale cultivation, India's approach was marred by flawed policies and restrictive laws.

According to the committee's report, India was the world's leading producer of sandalwood until the last century. Globally, Australia now leads the market, accounting for 69% of total sandalwood production, followed by India with a 20% share.

Despite Australian companies dominating the global market, KSDL, a Karnataka government undertaking, recorded sales of ₹1,375 crore in the financial year 2022-23, which rose to ₹1,571 crore in 2023-24. In 2024-25, sales further increased to ₹1,786 crore, highlighting the sector's potential and the strong demand for sandalwood products.

KSDL exports a variety of products, including Mysore Sandal Soap, Mysore Sandal Gold Soap, Millennium Soap, agarbathis and talcum powder. Nearly 26 countries across the globe, including France, the United Kingdom, Qatar, the United States and Australia, import products from KSDL.

The same report reveals that nearly 75% of



Note: sandalwood oil is used in perfume industry, ayurveda, and medical research

sandalwood in Karnataka is harvested illegally, while globally, about 33% of sandalwood is sourced through illegal means. These figures underscore not only the immense demand for sandalwood but also the need to relax laws governing its harvesting and transit. However, Karnataka is not yet ready for such changes, as officials of the Karnataka Forest Department (KFD) argue that easing regulations could pose risks to sandalwood trees in remote forests and to wildlife.

Despite global demand, KFD and KSDL officials estimate that fewer than 2,000 farmers in Karnataka currently cultivate sandalwood. Of these, 718 farmers have signed memoranda of understanding (MOU) with KSDL, under which the company provides technical support in exchange for assured procurement.

The low number of growers is attributed to high production costs, vulnerability to theft, uncertain commercial viability, and lack of research. Farmers like Kumar, however, are early adopters. He has been cultivating sandalwood on 44 acres for the past 20 years. Officials from the Indian Council of Forestry Research and Education-Institute of Wood Science and Technology (ICFRE-IWST) note that the trend is picking up in northern States, with farmers in Punjab showing particular interest in sandalwood cultivation.

This trend has coincided with signs of a collapse in commercial sandalwood cultivation in Australia, as recorded by the central committee. Meanwhile, in the Union Budget, the Finance Minister announced plans to collaborate with States to revive the sandalwood industry in India.

At the same time, ICFRE-IWST has been studying fast heartwood-producing varieties by collecting samples from across the country to develop varieties that can mature more quickly and be commercially viable for farmers. Yet, the question remains: how viable is sandalwood cultivation for India?

Why is sandalwood in demand? According to the central com-

mittee report, the primary beneficiaries of sandalwood include the perfume industry, indigenous medicine systems, attar producers, and Ayurvedic medicine because of its therapeutic properties. The report also notes that Indian sandalwood contains a higher percentage of essential oil compared to other sandalwood species.

Arun Kumar, a scientist at ICFRE-IWST, explained that sandalwood oil serves as an ideal base for perfumes. "When sandalwood oil is mixed with other fragrances, it does not overpower them. Instead, it forms a strong base that allows the individual notes of both fragrances to be retained," he said.

Summing up, he added, "The perfume industry has existed for centuries, and many commercial oils today are synthesised through chemical combinations. Even now, there is no chemical formulation that can completely replicate the original fragrance of sandalwood."

The economics of a 20-year gamble
Sandalwood is a long-duration crop, taking nearly 20 years to develop quality heartwood, which is the primary source of sandalwood oil. Some trees are harvested after 15 years, but for farmers, the investment has been a gamble, as there was no reliable way to assess heartwood development in advance, risking total loss.

Prashanth P.K.M., Managing Director of KSDL, said the price of sandalwood ranges from ₹3,000 to ₹15,000 per kg, depending on heartwood quality, which is categorised into 18 grades.

Moreover, from 1,000 kg of raw wood, only about 100 kg of heartwood remains after processing. Limited heartwood development further reduces returns.

According to an ICFRE-IWST estimate, a farmer can earn a net income of ₹1.06 crore per hectare after deducting expenses incurred over 15 years, which amount to ₹28 lakh.

The high demand has also made sandalwood highly vulnerable to theft. KFD data shows that around 4,500 forest offence cases are registered annually, of which 450 to 500 involve sandalwood theft. Officials say this figure represents only a fraction of the actual problem. There have been instances of forest officials allegedly colluding with smugglers. The severity of the issue prompted M.A. Sailem, Director-General and Inspector General of Police, to issue a circular in 2025, directing the police to mandatorily register sandalwood theft cases, and investigate any nexus that emerges.

On-field challenges
Kumar, who owns 44 acres, spends at least ₹1 lakh every month on security alone. "I have guards working on the farm in two shifts every day, and there is CCTV coverage as well. The farm is electrically fenced, and regular security checks are carried out," he said.

Doddamagge Rangaswamy, a progressive farmer from Doddamagge in Arakalgud taluk of Hassan district, has cultivated sandalwood on more than 200 acres of his total 500-acre plantation.

Rangaswamy has dealt with several theft incidents on his plantation. "The entire area is secured with a 12-foot-high chain-link fence. There are multiple watchtowers along the fencing. In the second layer, there is solar fencing. The gap between the two fences is wide enough for a vehicle to pass," he said.

He has provided security guards with vehicles and licenced weapons. In addition, he keeps dogs. "Despite these security measures, people attempt to enter. So far, they have not succeeded on a large scale," he said. Rangaswamy removed Hebbu, which was planted as a host plant, as it grew taller than the sandalwood trees. He has now replaced Hebbu with grafted jackfruit and macadamia. He maintained that the yield from trees that are very well cared for is not satisfactory.

Bachhe Gowda, a farmer from Mallasandra in Kolar taluk, cultivated sandalwood on five acres and maintained it for over 19 years. "Considering the investment we made to cultivate sandalwood, the returns after harvest are meagre. Despite proper fencing, we could not protect our farm from thieves," he said.

"I have decided not to recommend sandalwood cultivation to any farmer," he stated. His family is now exploring options to use the land for non-agricultural purposes.

However, Arun Kumar said there is a misconception that sandalwood grows only in harsh conditions. "It is a crop that can be irrigated and nurtured as well. Farmers who grow sandalwood need training and information on how to go about it, and can get trained at ICFRE-IWST," he said. "Along with there is a need for greater awareness about commercial sandalwood cultivation."

The absence of proven models
A senior IFS officer from the Karnataka Forest Department pointed out that there is no example or research on successful commercial cultivation of sandalwood under Indian conditions. Even a central committee report cites the lack of examples of farmers successfully growing sandalwood.

"When there are no examples and no corroborative research, advising most farmers to grow sandalwood will lead to disasters," the officer explained. In simple terms, he said a small or middle-class farmer with four to five acres of land, who supports a family through mixed cultivation, cannot afford the risk.

"In such cases, the farmer has to dedicate a few acres and about 15 years, which means their regular income may reduce. For small farmers, this is extremely risky. Research must progress first before recommending large-scale commercial cultivation," the officer said.

However, the officer added that limited cultivation, such as planting along farm boundaries, without maximum risk could be a good investment, provided the issue of theft is addressed.

To tackle theft, ICFRE-IWST has worked on chip-based technology with video coverage that can be embedded in trees. However, this technology also requires substantial investment by farmers and is currently being promoted by private players. One of the demands from farmer groups is a subsidised price for these chips so that small farmers can also afford them.

Mr. Arun put it this way: "When reviving a species like sandalwood, it should not be limited to elites. Efforts should be made to conserve and popularise sandalwood even among small farmers."

The harvest hurdles
K.T. Gangadhar, president of the Karnataka State Farmers' Association, said that apart from cultivation challenges, harvesting and transportation have become major hurdles for farmers.

Although there is no restriction on growing sandalwood, farmers must obtain permission from the Forest Department to fell the tree, as it is classified as a forest crop. "A farmer has to make a hundred trips to the forest office. Later, during transit, even with permits, officers harass farmers," he said. "There have been cases where forest officers inform poachers after an application is filed," he alleged.

But the IFS officer said relaxation of rules would be highly risky.

"Look at sandalwood theft statistics (about 450 cases a year), which show how frequently such thefts occur, and this is only the tip of the iceberg. If rules are relaxed, forest property will be at risk," she said. "Along with sandalwood, wildlife will also become easy targets for poachers."

However, she noted that the government should consider developing a separate system that eliminates in-person approvals for harvesting and transit.

Beyond this, sandalwood farmers and aspirants have sought special insurance for trees, research-backed training, and the development of mixed cropping systems with sandalwood.

If the Union Budget's promise on sandalwood addresses these gaps, the tagline of the Karnataka Soaps and Detergents Limited (KSDL) - Grow sandalwood and be rich - could become a reality. (With inputs from Sathish G T in Hassan)

22F. Sandalwood: An expensive fragrance चंदन: एक महँगी खुशबू

- India was the world's leading producer of **sandalwood** until the last century, but it has been displaced by **Australia**.
पिछली सदी तक **भारत** दुनिया में **चंदन** का सबसे बड़ा उत्पादक था, लेकिन अब उसकी जगह **ऑस्ट्रेलिया** ने ले ली है।
- What led to this fall, and what does the recent **Union Budget's** offering to collaborate with States to revive the sandalwood industry in India mean for farmers?
इस गिरावट के क्या कारण रहे, और भारत में चंदन उद्योग को पुनर्जीवित करने के लिए राज्यों के साथ सहयोग की हालिया **केंद्रीय बजट** की घोषणा किसानों के लिए क्या मायने रखती है?



- **Chetan B.C.** explores.
चेतन बी.सी. इस विषय की पड़ताल करते हैं।
- On February 10, high drama ensued near the **Vidhana Soudha in Bengaluru** when a farmer from **Chikkamagaluru, T.N. Vishu Kumar**, carried a machete and severed a few branches of **sandalwood trees** planted near the legislative building.
10 फरवरी को **बेंगलुरु के विधान सौधा** के पास उस समय भारी नाटकीय घटनाक्रम देखने को मिला, जब **चिक्कमगलुरु** के किसान **टी.एन. विषु कुमार** ने एक मछेटी लेकर विधानसभा भवन के पास लगाए गए **चंदन के पेड़ों** की कुछ शाखाएँ काट दीं।
- The act was a form of protest against the **National Highways Authority of India (NHAI)**, which had begun felling sandalwood trees cultivated by Kumar at **Haliyur in Tarikere taluk of Karnataka**.
यह कृत्य **भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (NHAI)** के खिलाफ विरोध का एक रूप था, जिसने **कर्नाटक के तारिकेरे तालुक के हलीयूर** में कुमार द्वारा उगाए गए चंदन के पेड़ों की कटाई शुरू कर दी थी।
- The land had been notified for clearance to build **National Highway 206 (Shivamogga-Tumakuru)**.
इस भूमि को **राष्ट्रीय राजमार्ग 206 (शिवमोग्गा-तुमकुरु)** के निर्माण के लिए साफ़ करने की अधिसूचना जारी की गई थी।
- “It is unbearable for authorities to see a few branches being cut, but at my home, they killed over **100 trees** that I nurtured for **14 years**.
“अधिकारियों के लिए कुछ शाखाएँ कटती देखना असहनीय है, लेकिन मेरे खेत में उन्होंने **100 से अधिक पेड़** काट दिए, जिन्हें मैंने **14 वर्षों** तक पाला-पोसा था।
- How must I feel then?” Kumar asked.
तो मुझे कैसा महसूस होना चाहिए?” कुमार ने पूछा।
- He further stated that while the **NHAI** had notified the clearance of **2,148 trees** on his farm, the compensation had not been decided fairly.
उन्होंने आगे कहा कि जबकि **NHAI** ने उनके खेत में **2,148 पेड़ों** की कटाई की अधिसूचना दी थी, मुआवज़ा निष्पक्ष रूप से तय नहीं किया गया।
- He claimed that he ought to be compensated over **₹100 crore**, whereas he was being offered only **₹1 crore**.
उनका दावा था कि उन्हें **₹100 करोड़ से अधिक** का मुआवज़ा मिलना चाहिए, जबकि उन्हें केवल **₹1 करोड़** की पेशकश की जा रही थी।
- His argument is based on the sustained and steadily rising **demand for sandalwood** over the decades.
उनका तर्क दशकों से लगातार और तेज़ी से बढ़ती **चंदन की मांग** पर आधारित है।
- Globally, the estimated annual demand for sandalwood stands at **5,000 to 6,000 tonnes**, according to a recent report by the **Sandalwood Development Committee (SDC)** set up by the **Union Government**.
केंद्र सरकार द्वारा गठित **चंदन विकास समिति (SDC)** की एक हालिया रिपोर्ट के अनुसार, वैश्विक स्तर पर चंदन की अनुमानित वार्षिक मांग **5,000 से 6,000 टन** है।
- Meanwhile, global data indicates that sandalwood prices increase by at least **20% annually**.
इस बीच, वैश्विक आँकड़े संकेत देते हैं कि चंदन की कीमतें हर साल कम से कम **20%** बढ़ती हैं।
- In India, the major buyers are **Karnataka Soaps and Detergents Limited (KSDL)**, which requires **8,000 to 9,000 kg of sandalwood oil annually** for its products.
भारत में प्रमुख खरीदार **कर्नाटक सोप्स एंड डिटर्जेंट्स लिमिटेड (KSDL)** है, जिसे अपने उत्पादों के लिए हर साल **8,000 से 9,000 किलोग्राम चंदन तेल** की आवश्यकता होती है।
- Nearly **70%** of this requirement is met through imports from **Australia**, while the rest is procured through domestic auctions, and directly from farmers.
इस आवश्यकता का लगभग **70%** हिस्सा **ऑस्ट्रेलिया** से आयात के माध्यम से पूरा किया जाता है, जबकि शेष घरेलू नीलामियों और सीधे किसानों से खरीदा जाता है।
- Ironically, Australia began commercial cultivation of the **Indian sandalwood variety (Santalum album L.)**, considered the finest variety, only in **1999**.
विडंबना यह है कि **ऑस्ट्रेलिया** ने सबसे उत्कृष्ट मानी जाने वाली **भारतीय चंदन किस्म (Santalum album L.)** की व्यावसायिक खेती केवल **1999** में शुरू की।



- Experts attribute the current situation to the contrasting approaches adopted by India and Australia.
विशेषज्ञ वर्तमान स्थिति का कारण भारत और ऑस्ट्रेलिया द्वारा अपनाए गए भिन्न दृष्टिकोणों को मानते हैं।
- While Australia invested years in research before large-scale cultivation, India's approach was marred by **flawed policies and restrictive laws**.
जहाँ ऑस्ट्रेलिया ने बड़े पैमाने पर खेती से पहले वर्षों तक अनुसंधान में निवेश किया, वहीं भारत का दृष्टिकोण **खराब नीतियों और प्रतिबंधात्मक कानूनों** से प्रभावित रहा।
- According to the committee's report, India was the world's leading producer of sandalwood until the last century.
समिति की रिपोर्ट के अनुसार, पिछली सदी तक भारत दुनिया का सबसे बड़ा चंदन उत्पादक था।
- Globally, Australia now leads the market, accounting for **69%** of total sandalwood production, followed by India with a **20%** share.
वैश्विक स्तर पर अब ऑस्ट्रेलिया बाजार में अग्रणी है, जिसकी कुल चंदन उत्पादन में **69%** हिस्सेदारी है, इसके बाद भारत **20%** हिस्सेदारी के साथ है।
- Despite Australian companies dominating the global market, **KSDL**, a Karnataka government undertaking, recorded sales of **₹1,375 crore** in the financial year **2022-23**.
वैश्विक बाजार में ऑस्ट्रेलियाई कंपनियों के प्रभुत्व के बावजूद, कर्नाटक सरकार के उपक्रम **KSDL** ने **2022-23** वित्तीय वर्ष में **₹1,375 करोड़** की बिक्री दर्ज की।
- This rose to **₹1,571 crore** in **2023-24**.
यह **2023-24** में बढ़कर **₹1,571 करोड़** हो गई।
- In **2024-25**, sales further increased to **₹1,786 crore**, highlighting the sector's potential and the strong demand for sandalwood products.
2024-25 में बिक्री और बढ़कर **₹1,786 करोड़** हो गई, जो इस क्षेत्र की संभावनाओं और चंदन उत्पादों की मजबूत मांग को दर्शाती है।
- KSDL exports a variety of products, including **Mysore Sandal Soap, Mysore Sandal Gold Soap, Millennium Soap, agarbathis and talcum powder**.
KSDL **मैसूर सैंडल साबुन, मैसूर सैंडल गोल्ड साबुन, मिलेनियम साबुन, अगरबत्तियाँ और टैल्कम पाउडर** सहित कई उत्पादों का निर्यात करता है।
- Nearly **26 countries** across the globe, including **France, the United Kingdom, Qatar, the United States and Australia**, import products from KSDL.
दुनिया भर के लगभग **26 देश**, जिनमें **फ्रांस, यूनाइटेड किंगडम, कतर, संयुक्त राज्य अमेरिका और ऑस्ट्रेलिया** शामिल हैं, KSDL से उत्पाद आयात करते हैं।
- The same report reveals that nearly **75% of sandalwood in Karnataka** is harvested illegally.
उसी रिपोर्ट से पता चलता है कि **कर्नाटक में लगभग 75% चंदन** अवैध रूप से काटा जाता है।
- Globally, about **33% of sandalwood** is sourced through illegal means.
वैश्विक स्तर पर लगभग **33% चंदन** अवैध तरीकों से प्राप्त किया जाता है।
- These figures underscore not only the immense demand for sandalwood but also the need to relax laws governing its harvesting and transit.
ये आँकड़े न केवल चंदन की अत्यधिक मांग को दर्शाते हैं, बल्कि इसकी कटाई और परिवहन से जुड़े कानूनों में ढील की आवश्यकता को भी रेखांकित करते हैं।
- However, **Karnataka** is not yet ready for such changes.
हालाँकि, **कर्नाटक** अभी ऐसे बदलावों के लिए तैयार नहीं है।
- Officials of the **Karnataka Forest Department (KFD)** argue that easing regulations could pose risks to sandalwood trees in remote forests and to wildlife.
कर्नाटक वन विभाग (KFD) के अधिकारियों का तर्क है कि नियमों में ढील देने से दूरदराज़ के जंगलों में चंदन के पेड़ों और वन्यजीवों को खतरा हो सकता है।
- Despite global demand, **KFD and KSDL officials** estimate that fewer than **2,000 farmers** in Karnataka currently cultivate sandalwood.
वैश्विक मांग के बावजूद, **KFD और KSDL** के अधिकारियों का अनुमान है कि कर्नाटक में वर्तमान में **2,000 से भी कम किसान** चंदन की खेती करते हैं।
- Of these, **718 farmers** have signed **memoranda of understanding (MOU)** with KSDL.
इनमें से **718 किसानों** ने **KSDL** के साथ **समझौता ज्ञापन (MOU)** पर हस्ताक्षर किए हैं।
- The low number of growers is attributed to **high production costs, vulnerability to theft, uncertain commercial viability, and lack of research**.



उत्पादकों की कम संख्या का कारण उच्च उत्पादन लागत, चोरी की आशंका, अनिश्चित व्यावसायिक व्यवहार्यता और अनुसंधान की कमी माना जाता है।

- However, farmers like **Kumar** are early adopters.
हालाँकि, **कुमार** जैसे किसान प्रारंभिक अपनाने वालों में से हैं।
- He has been cultivating sandalwood on **44 acres** for the past **20 years**.
वे पिछले **20 वर्षों** से **44 एकड़** भूमि पर चंदन की खेती कर रहे हैं।
- Officials from the **Indian Council of Forestry Research and Education–Institute of Wood Science and Technology (ICFRE-IWST)** note that the trend is picking up in **northern States**, with farmers in **Punjab** showing particular interest.
भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद-लकड़ी विज्ञान एवं प्रौद्योगिकी संस्थान (ICFRE-IWST) के अधिकारियों का कहना है कि **उत्तरी राज्यों** में यह प्रवृत्ति बढ़ रही है, और **पंजाब** के किसान विशेष रुचि दिखा रहे हैं।
- This trend has coincided with signs of a collapse in commercial sandalwood cultivation in **Australia**.
यह प्रवृत्ति **ऑस्ट्रेलिया** में व्यावसायिक चंदन खेती के पतन के संकेतों के साथ मेल खाती है।
- Meanwhile, in the **Union Budget**, the **Finance Minister** announced plans to collaborate with **States** to revive the sandalwood industry in India.
इस बीच, **केंद्रीय बजट** में **वित्त मंत्री** ने भारत में चंदन उद्योग को पुनर्जीवित करने के लिए **राज्यों** के साथ सहयोग की योजना की घोषणा की।
- At the same time, **ICFRE-IWST** has been studying fast **heartwood-producing varieties**.
साथ ही, **ICFRE-IWST** तेज़ी से **हार्टवुड** उत्पन्न करने वाली किस्मों का अध्ययन कर रहा है।
- Yet, the question remains: **how viable is sandalwood cultivation for Indian farmers?**
फिर भी सवाल बना रहता है: **भारतीय किसानों के लिए चंदन की खेती कितनी व्यवहार्य है?**

Why is sandalwood in demand? चंदन की मांग क्यों है?

- According to the central committee report, the primary beneficiaries of sandalwood include the **perfume industry**, **indigenous medicine systems**, **attar producers**, and **Ayurvedic medicine**.
केंद्रीय समिति की रिपोर्ट के अनुसार, चंदन के मुख्य लाभार्थियों में **इत्र उद्योग**, **स्वदेशी चिकित्सा पद्धतियाँ**, **अत्तर निर्माता** और **आयुर्वेदिक चिकित्सा** शामिल हैं।
- The report also notes that **Indian sandalwood** contains a higher percentage of **essential oil**.
रिपोर्ट में यह भी उल्लेख है कि **भारतीय चंदन** में **आवश्यक तेल** की मात्रा अधिक होती है।
- **Arun Kumar**, a scientist at **ICFRE-IWST**, explained that sandalwood oil serves as an ideal base for perfumes.
ICFRE-IWST के वैज्ञानिक **अरुण कुमार** ने बताया कि चंदन तेल इत्र के लिए एक आदर्श आधार होता है।
- Even now, there is **no chemical formulation** that can completely replicate the original fragrance of sandalwood.
आज भी कोई **रासायनिक संरचना** चंदन की मूल खुशबू को पूरी तरह दोहरा नहीं सकती।
- **The economics of a 20-year gamble**
20 वर्षों के जोखिम की अर्थव्यवस्था
- Sandalwood is a **long-duration crop**, taking nearly **20 years** to develop quality heartwood.
चंदन एक **दीर्घ अवधि की फसल** है, जिसे गुणवत्तापूर्ण हार्टवुड विकसित करने में लगभग **20 वर्ष** लगते हैं।
- According to an **ICFRE-IWST estimate**, a farmer can earn a net income of **₹1.06 crore per hectare** after deducting expenses.
ICFRE-IWST के अनुमान के अनुसार, खर्च घटाने के बाद एक किसान **प्रति हेक्टेयर ₹1.06 करोड़** की शुद्ध आय कमा सकता है।
- The high demand has also made sandalwood highly **vulnerable to theft**.
उच्च मांग ने चंदन को **चोरी के प्रति अत्यंत संवेदनशील** बना दिया है।
- On-field challenges
मैदान स्तर की चुनौतियाँ
- Despite these security measures, people attempt to enter.
इन सुरक्षा उपायों के बावजूद लोग प्रवेश करने का प्रयास करते हैं।



The harvest hurdles कटाई की बाधाएँ

- Beyond this, sandalwood farmers have sought **special insurance, research-backed training, and mixed cropping systems.**
इसके अलावा, चंदन किसानों ने विशेष बीमा, अनुसंधान-आधारित प्रशिक्षण और मिश्रित फसल प्रणालियों की मांग की है।
- If the **Union Budget's promise** on sandalwood addresses these gaps, the tagline of KSDL — **Grow sandalwood and be rich** — could become a reality.
यदि **केंद्रीय बजट** में चंदन से जुड़े वादे इन कमियों को दूर करते हैं, तो KSDL का नारा — **चंदन उगाइए और समृद्ध बनिए** — हकीकत बन सकता है।

Sericulture farmers take the 'silk route' to prosperity

Sericulture farming in southern Andhra Pradesh has seen a steady growth over the past five years, driven by its many advantages such as drought resilience, consistent cash flow, and short production cycles. Officials and farmers alike believe that mulberry cultivation and sericulture have evolved into one of the most resilient rural economic models. **K. Umashankar** explores the economic benefits, social impact, and environmental limits of sericulture farming in the region.

Standing amid his three-acre mulberry plantation in Berupalle village of Palamaner mandal, Chittoor district, 28-year-old sericulture farmer Mahesh Babu proudly refers to it as his "gold." Recognised by the Sericulture Department as a progressive farmer, he exudes quiet confidence as he explains, "As a cocoon farmer, I earn an annual profit of ₹10 lakh."

Reddappa Reddy, another farmer from Palamaner, echoes this confidence. "When I began mulberry cultivation, I was filled with doubts. I gathered courage and invested a few lakhs to raise a plantation and build a silkworm-rearing shed. Within a couple of years, I recovered my capital investment. I also maintain a small workforce. Like groundnuts or mangoes, the silkworm never cheats the farmer, though it ultimately sacrifices its life inside the cocoon," he says.

Mr. Mahesh further adds, "Unlike dairy, agriculture, or horticulture, there is not a single suicide case in sericulture. If the government doubts its encouragement, the Silk Road will begin in India instead of remaining a story from a bygone Chinese era."

Mulberry—described by officials as a "humble, water-efficient, leafy crop"—took deep root in the region. With it came silkworm rearing, cocoon markets, and a year-round livelihood model that wove together agriculture, women's labour, and local enterprise.

"Silkworm rearing is labour-intensive but offers short production cycles and regular cash flow—a major advantage over seasonal crops," says Dr. S. Vimala, Sericulture Officer, Chittoor. "Each cycle lasts 28 days, and farmers can manage up to ten cycles a year. The crop uses virtually no chemicals. We support farmers through training on spacing, pruning, leaf management, and marketing. Our objective is to keep them free from middlemen," the officer adds.

A ray of hope has emerged for sericulture farmers over the past five years, as the influx of "China Silk," which once dominated the global silk market, has slowed in India. The zero-GST regime on silk has provided a further boost. Officials and farmers alike now believe that mulberry cultivation and sericulture have evolved into one of the most resilient rural economic models in southern Andhra Pradesh— weaving a story of transformation, promise, and new challenges.

Growth
In Chittoor district, about 30,000 acres are under active mulberry cultivation, spanning nearly 1,400 villages across 31 mandals and engaging about 20,000 farmers. In Anantapur, acreage has grown from about 500 acres in the 1970s to nearly 50,000 acres in 2000, involving more than 50,000 farmers.

While the sector provides livelihood support to over 5,000 non-farming families in Chittoor

EROSH BASHA
Senior Sericulture Officer

A well-managed acre supports multiple cycles annually. Even small price rises in cocoon markets significantly improve incomes.

through labour in farms, reeling units, and power-looms, the number is several times higher in Anantapur and Annamayya districts, home to silk hubs—Dharmavaram and Madanapalle. Sericulture officials trace the crop's introduction in the region to the British Raj, when it was promoted in the "Ceded Districts" (present-day Rayalaseema) during the late 19th and early 20th centuries to support the silk trade.

However, the Independence movement and subsequent political transitions slowed its acceptance. From the 1970s onward, sericulture quietly began reshaping rural life. Its concentration remained in western Chittoor and southern Anantapur, bordering Karnataka, owing to the semi-arid yet relatively cooler climate.

For farmers now in their 60s and 70s, memories of Rayalaseema's grueling agrarian past remain vivid.

For decades, large parts of present-day Chittoor, Annamayya, Anantapur, and Sri Sathya Sai districts were synonymous with agrarian distress. Erratic monsoons, parched village tanks, debt-driven migration, and gamble-like farm incomes bore testimony to the hardships of the region.

In mandals such as Palamaner, Punganur, Kuppam, and Tamballapalle in the western belt, groundnut—the traditional crop—would wither under heat stress or be washed away by untimely rains. Season after season, villages emptied as men migrated to Chennai, Bengaluru, or Mumbai in search of daily-wage work.

Blessing in disguise
Meanwhile, Mani Krishappa, a farmer from Bairreddipalle mandal, points to an unexpected advantage in elephant-prone regions near the Koudinya Wildlife Sanctuary. "Elephants raid tomatoes, cabbage, groundnuts, paddy, mangoes—everything. But, they avoid mulberry plants. Even if a calf swallows a leaf, it vomits within minutes and never returns. We have not seen crop damage in mulberry fields," he says. Sericulture officials confirm that they have not received a single complaint of elephant-related crop loss in mulberry plantations over the past three decades.

Stable income
Senior Sericulture Officer Erosh Basha, with three decades of experience in Chittoor and Anantapur, describes sericulture as a stabilising force. "A well-managed acre supports multiple cycles annually. Even small price rises in cocoon markets significantly improve incomes. When prices dip, frequent cycles cushion the impact. In my service, I have not encountered distress incidents among stakeholders," he says.

Joint Director (Sericulture) Dr. Padmavathi calls the sector a steady, eco-friendly revolution. Subsidies for mulberry saplings, irrigation, rear-



Clockwise: Women sorting cocoons at a reeling unit in Palamaner. A basket of cocoons arriving for auction at a government market. A worker preparing a silk warp at a reeling unit. Workers preparing for e-auction at a government cocoon market in Palamaner of Chittoor district.

ing sheds, and silkworm seed have lowered entry barriers. "Drip irrigation with 90% subsidy has attracted more farmers. Groundwater levels in western mandals have also improved in recent years," she says.

Robust marketing

A distinctive feature of the sector is its robust marketing system. Government-run cocoon markets operate 363 days a year, conducting three auctions daily. Markets function in Palamaner, Kuppam, and Madanapalle in the combined Chittoor region, and in Hindupur, Dharmavaram, and Kadiri in Anantapur district.

Markets in Palamaner, Kuppam, and Madanapalle in the combined Chittoor region, and in Hindupur, Dharmavaram, and Kadiri in Anantapur district. Marketers offer short production cycles and regular cash flow—a major advantage over seasonal crops. We support farmers through training on spacing, pruning, leaf management, and marketing. Our objective is to keep them free from middlemen.

DR. S. VIMALA
Sericulture Officer, Chittoor.

"Farmers receive lots, reebers inspect quality, and auctions are conducted thrice daily online for transparency. Our aim is to ensure fairness to both farmers and bidders."

In the 2025-26 fiscal alone, nearly 900 tonnes of cocoons have been auctioned in Palamaner market, generating transactions worth around ₹90 crore. Quality cocoons fetch between ₹650 and ₹850 per kg. Farmers from Tamil Nadu districts such as Gudiyattam, Vellore, and Villupuram also sell here, while local farmers access

markets in Karnataka, including Kolar, Siddalaghatta, Ramanagara, and Bengaluru.

Women empowerment

A walk through a sericulture village reveals women at the heart of operations—plucking leaves, disinfecting sheds, monitoring moulting stages, maintaining shed temperatures, and sorting cocoons. "In many households, men handle land and marketing. We manage daily operations," says Sumathi (42), a worker at a reeling unit in Madanapalle. "Earlier, women migrated to Bengaluru and Chennai for construction work. Now silk has brought employment back home," she adds. Locals say the boom has slowed migration and reduced school dropouts.

Officials attribute women's empowerment across Rayalaseema significantly to sericulture, which has made a major contribution.

Subsidy barriers

However, despite favourable climatic conditions in Chittoor and Anantapur, entry barriers persist. The government provides a subsidy of ₹5 lakh for constructing a silkworm rearing shed, but the total cost ranges between ₹15 lakh and ₹18 lakh.

"For small farmers, mobilising the remaining amount is difficult. That discourages youth from entering the sector," says V. Kamesh Reddy, a senior farmer in Palamaner. Officials say that the absence of crop insurance remains a major hurdle in expanding sericulture.

Mohammad Rafi (40), a reeling unit owner, says subsidy payments to reebers and farmers have been pending for years. "Given current output, Anantapur and Chittoor together have the capacity for an annual turnover exceeding ₹1,000 crore, excluding margins earned by large textile units."

Strongly supporting the dream of a modern Silk Road, Mr. Rafi and other sericulture farmers emphasise that with robust policy support, this vision will not remain a mirage.

22F. Sericulture farmers take the 'silk route' to prosperity रेशम किसानसमृद्धि की ओर 'रेशम मार्ग' अपनाते हैं

- Sericulture farming in southern Andhra Pradesh has seen a steady growth over the past five years, driven by its many advantages such as **drought resilience, consistent cash flow, and short production cycles.**



दक्षिणी आंध्र प्रदेश में रेशम की खेती ने पिछले पाँच वर्षों में लगातार वृद्धि देखी है, जिसका कारण **सूखा सहनशीलता, निरंतर नकद प्रवाह, और कम उत्पादन चक्र** जैसे इसके कई लाभ हैं।

- Officials and farmers alike believe that **mulberry cultivation** and sericulture have evolved into one of the **most resilient rural economic models**.
अधिकारी और किसान दोनों का मानना है कि **शहतूत की खेती** और रेशम उत्पादन **सबसे मजबूत ग्रामीण आर्थिक मॉडलों** में से एक बन गया है।
- K. Umashanker explores the **economic benefits, social impact, and environmental limits** of sericulture farming in the region.
के. उमाशंकर इस क्षेत्र में रेशम खेती के **आर्थिक लाभ, सामाजिक प्रभाव, और पर्यावरणीय सीमाओं** की पड़ताल करते हैं।
- Standing amid his three-acre mulberry plantation in Berupalle village of Palamaner mandal, Chittoor district, 28-year-old sericulture farmer Mahesh Babu proudly refers to it as his “gold.”
चित्तूर जिले के पालमनेर मंडल के बेरुपल्ले गाँव में अपनी तीन एकड़ की शहतूत की खेती के बीच खड़े 28 वर्षीय रेशम किसान महेश बाबू गर्व से इसे अपना “सोना” कहते हैं।
- Recognised by the Sericulture Department as a **progressive farmer**, he exudes quiet confidence as he explains, “As a cocoon farmer, I earn an annual profit of ₹10 lakh.”
रेशम विभाग द्वारा **प्रगतिशील किसान** के रूप में मान्यता प्राप्त, वह शांत आत्मविश्वास के साथ बताते हैं, “कोकून किसान के रूप में मैं सालाना ₹10 लाख का मुनाफा कमाता हूँ।”
- Reddappa Reddy, another farmer from Palamaner, echoes this confidence.
पालमनेर के एक अन्य किसान रेडुप्पा रेड्डी भी इसी आत्मविश्वास को दोहराते हैं।
- “When I began mulberry cultivation, I was filled with doubts.
“जब मैंने शहतूत की खेती शुरू की, तो मैं संदेह से भरा हुआ था।
- I gathered courage and invested a few lakhs to raise a plantation and build a silkworm-rearing shed.
मैंने हिम्मत जुटाई और बागान लगाने तथा रेशम कीट पालन शेड बनाने के लिए कुछ लाख रुपये निवेश किए।
- Within a couple of years, I recovered my capital investment.
कुछ ही वर्षों में मैंने अपनी पूंजी वापस पा ली।
- I also maintain a small workforce.
मैं एक छोटी कार्यबल भी बनाए रखता हूँ।
- Like groundnuts or mangoes, the silkworm never cheats the farmer, though it ultimately sacrifices its life inside the cocoon,” he says.
वह कहते हैं, “मूंगफली या आम की तरह, रेशम कीट कभी किसान को धोखा नहीं देता, भले ही अंततः वह कोकून के भीतर अपना जीवन बलिदान कर देता है।”
- Mr. Mahesh further adds, “Unlike dairy, agriculture, or horticulture, there is not a single suicide case in sericulture.”
श्री महेश आगे कहते हैं, “डेयरी, कृषि या बागवानी के विपरीत, रेशम उद्योग में आत्महत्या का एक भी मामला नहीं है।”
- “If the government doubles its encouragement, the Silk Road will begin in India instead of remaining a story from a bygone Chinese era.”
“अगर सरकार अपना प्रोत्साहन दोगुना कर दे, तो रेशम मार्ग भारत में शुरू होगा, न कि प्राचीन चीनी युग की कहानी बनकर रहेगा।”
- Mulberry—described by officials as a “**humble, water-efficient, leafy crop**”—took deep root in the region.
अधिकारियों द्वारा “**सरल, जल-कुशल, पत्तेदार फसल**” के रूप में वर्णित शहतूत ने इस क्षेत्र में गहरी जड़ें जमा लीं।
- With it came silkworm rearing, cocoon markets, and a **year-round livelihood model**.
इसके साथ रेशम कीट पालन, कोकून बाजार, और **सालभर की आजीविका का मॉडल** भी आया।
- “Silkworm rearing is labour-intensive but offers **short production cycles and regular cash flow**,” says Dr. S. Vimala, Sericulture Officer, Chittoor.
चित्तूर की रेशम अधिकारी डॉ. एस. विमला कहती हैं, “रेशम कीट पालन श्रम-सघन है, लेकिन **कम उत्पादन चक्र और नियमित नकद प्रवाह** प्रदान करता है।”
- “Each cycle lasts 28 days, and farmers can manage up to ten cycles a year.”
“प्रत्येक चक्र 28 दिनों का होता है, और किसान साल में दस चक्र तक संभाल सकते हैं।”
- “The crop uses virtually no chemicals.”
“इस फसल में लगभग कोई रसायन नहीं लगता।”



- “We support farmers through training on spacing, pruning, leaf management, and marketing.”
“हम किसानों को दूरी, छंटाई, पत्ती प्रबंधन और विपणन का प्रशिक्षण देकर सहायता करते हैं।”
- “Our objective is to keep them free from middlemen.”
“हमारा उद्देश्य उन्हें बिचौलियों से मुक्त रखना है।”
- A ray of hope has emerged as the influx of “China Silk” has slowed in India.
भारत में “चीन सिल्क” के प्रवाह में कमी आने से आशा की किरण जगी है।
- The **zero-GST regime** on silk has provided a further boost.
रेशम पर **शून्य जीएसटी व्यवस्था** ने इसे और बढ़ावा दिया है।

Growth विकास

- In Chittoor district, about **30,000 acres** are under mulberry cultivation.
चित्तूर जिले में लगभग **30,000 एकड़** में शहतूत की खेती हो रही है।
- In Anantapur, acreage has grown to nearly **50,000 acres**, involving more than **50,000 farmers**.
अनंतपुर में क्षेत्रफल बढ़कर लगभग **50,000 एकड़** हो गया है, जिसमें **50,000 से अधिक किसान** जुड़े हैं।

Blessing in disguise छिपा हुआ वरदान

- Elephants raid many crops, but they **avoid mulberry plants**.
हाथी कई फसलों को नुकसान पहुँचाते हैं, लेकिन वे **शहतूत के पौधों से बचते हैं**।
- Officials confirm no elephant-related crop loss in mulberry plantations for three decades.
अधिकारी पुष्टि करते हैं कि तीन दशकों में शहतूत बागानों में हाथियों से फसल हानि का एक भी मामला नहीं है।

Stable income स्थिर आय

- Sericulture is described as a **stabilising force** for rural incomes.
रेशम उद्योग को ग्रामीण आय के लिए एक **स्थिरता प्रदान करने वाली शक्ति** बताया गया है।

Robust marketing मजबूत विपणन

- Government-run cocoon markets operate **363 days a year**.
सरकारी कोकून बाजार **साल में 363 दिन** चलते हैं।

Women empowerment महिला सशक्तिकरण

- Women are at the heart of sericulture operations.
रेशम उत्पादन की गतिविधियों के केंद्र में महिलाएँ हैं।
- Silk has brought **employment back home**.
रेशम ने **रोजगार को घर वापस** लाया है।

Subsidy barriers सब्सिडी की बाधाएँ

- The absence of **crop insurance** remains a major hurdle.
फसल बीमा की अनुपस्थिति एक बड़ी बाधा बनी हुई है।

The harvest hurdles कटाई की चुनौतियाँ



- Harvesting and transportation have become major hurdles for farmers. कटाई और परिवहन किसानों के लिए बड़ी चुनौतियाँ बन गए हैं।
- If the Union Budget's promise addresses these gaps, the tagline — **Grow sandalwood and be rich** — could become a reality. यदि केंद्रीय बजट का वादा इन कमियों को दूर करता है, तो नारा — **चंदन उगाओ और अमीर बनो** — साकार हो सकता है।

GS Paper III: S&T,	
TOPICS COVERED	22 February 2026
22F	Modi hails India's surge towards robust semiconductor ecosystem मोदी ने मजबूत सेमीकंडक्टर पारिस्थितिकी तंत्र की ओर भारत की तेज़ प्रगति की सराहना की
22F	'AI must remain a tool for humans' 'AI को मनुष्यों के लिए एक उपकरण ही बने रहना चाहिए'
22F	Indigenous tetanus and adult diphtheria vaccine launched; Nadda calls it momentous स्वदेशी टिटनेस और वयस्क डिप्थीरिया वैक्सीन लॉन्च; नड्डा ने इसे ऐतिहासिक बताया
22F	What are the key takeaways from the AI summit? AI शिखर सम्मेलन से प्रमुख निष्कर्ष क्या हैं?
22F	Why has NGT cleared the Nicobar project? NGT ने निकोबार परियोजना को क्यों मंजूरी दी है?
22F	Security dilemma सुरक्षा दुविधा
22F	The curious case of the star that may have swallowed itself उस तारे का जिज्ञासापूर्ण मामला जिसने संभवतः स्वयं को निगल लिया
22F	New Kashmir wheat varieties to solve crop cycle issue फसल चक्र समस्या को हल करने के लिए कश्मीर की नई गेहूं किस्में
22F	Scientists find bouba-kiki effect in three-day chicks वैज्ञानिकों ने तीन दिन के चूजों में बूबा-किकी प्रभाव पाया
22F	The biology of belief, optimism, and good health विश्वास, आशावाद और अच्छे स्वास्थ्य का जैव-विज्ञान
22F	Why do shrubs like hibiscus flower/fruit profusely only on the sunlit side? गुड़हल जैसे झाड़ियाँ धूप वाली तरफ ही अधिक फूल/फल क्यों देती हैं?
22F	The curious case of the star that may have swallowed itself उस तारे का जिज्ञासापूर्ण मामला जिसने संभवतः स्वयं को निगल लिया
22F	Laser pulses turn glass into super-dense data store लेज़र पल्स कांच को अति-सघन डेटा भंडारण में बदल देते हैं



Modi hails India's surge towards robust semiconductor ecosystem

Countries with prowess in chip-making will rule the century, says the Prime Minister during the groundbreaking ceremony for the HCL-Foxconn semiconductor unit in Uttar Pradesh; he says the State is set to emerge as a technology powerhouse

GS III: S&T

The Hindu Bureau

Hailing India's rapid strides in technology sector at the groundbreaking ceremony of India Chip Private Ltd., Prime Minister Narendra Modi on Saturday said, "This decade is tech-ade for India."

"If the 20th century was about nations with the highest oil reserves, the 21st century is ruled by countries with prowess in chip-making," he said, underlining India's surge towards building a robust semiconductor ecosystem.

Participating in the event via video conferencing, Mr. Modi noted that during COVID-19, the world saw the fragility of the chip supply chain. "When supply hit a brake, global economies faltered." He highlighted that India learned from that cri-



Uttar Pradesh Chief Minister Yogi Adityanath, Union IT Minister Ashwini Vaishnaw, and others at the groundbreaking ceremony of India Chip Private Ltd. in Gautam Buddha Nagar on Saturday. ANI

sis and turned it into an opportunity, deciding to become self-reliant in chip manufacturing. "Today's programme is a reflection of this vision," he said.

The India Chip Private Ltd., a joint venture between HCL Group

and Taiwanese Foxconn in Greater Noida, being set up with an investment of ₹3,700 crore at Yamuna Expressway Industrial Development Authority, is expected to become operational by 2028, the companies said in a joint

statement. It is projected to create over 3,500 direct and indirect jobs, build local supply chains, and attract ecosystem partners across the semiconductor value chain. With a planned capacity to process 20,000 wafers per

month, the facility will play a pivotal role in meeting India's growing domestic semiconductor demand, the statement said.

Stressing the nation's drive toward self-reliance in chip production, Mr. Modi praised Uttar Pradesh's emergence as a hub in India's burgeoning semiconductor ecosystem. He credited the 'double-engine government' for changing the identity of U.P. from a State once associated with crime and migration to one known for expressways, defence corridors, and dedicated freight corridors.

Uttar Pradesh Chief Minister Yogi Adityanath, who attended the event along with Minister for Information and Technology Ashwini Vaishnaw, said the development of State will depend on the Prime Minister's vision for chips.

22F. Modi hails India's surge towards robust semiconductor ecosystem मोदी ने मजबूत सेमीकंडक्टर पारिस्थितिकी तंत्र की ओर भारत की तेज़ प्रगति की सराहना की

- Countries with prowess in **chip-making** will rule the century, says the Prime Minister during the **groundbreaking ceremony** for the **HCL-Foxconn semiconductor unit in Uttar Pradesh**; he says the State is set to emerge as a **technology powerhouse**.
प्रधानमंत्री ने उत्तर प्रदेश में HCL-फॉक्सकॉन सेमीकंडक्टर इकाई के भूमिपूजन समारोह के दौरान कहा कि चिप निर्माण में दक्षता रखने वाले देश इस सदी पर शासन करेंगे; उन्होंने कहा कि राज्य एक तकनीकी महाशक्ति के रूप में उभरने जा रहा है।
- Hailing India's rapid strides in **technology sector** at the groundbreaking ceremony of **India Chip Private Ltd.**, Prime Minister **Narendra Modi** on Saturday said, "**This decade is tech-ade for India.**"
शनिवार को इंडिया चिप प्राइवेट लिमिटेड के भूमिपूजन समारोह में प्रौद्योगिकी क्षेत्र में भारत की तेज़ प्रगति की सराहना करते हुए प्रधानमंत्री नरेंद्र मोदी ने कहा, "यह दशक भारत के लिए टेक-एड है।"
- "If the **20th century** was about nations with the highest **oil reserves**, the **21st century** is ruled by countries with prowess in **chip-making**," he said, underlining India's surge towards building a **robust semiconductor ecosystem**.
उन्होंने कहा, "यदि 20वीं सदी सबसे अधिक तेल भंडार वाले देशों की थी, तो 21वीं सदी चिप निर्माण में दक्ष देशों द्वारा शासित होगी," और भारत के मजबूत सेमीकंडक्टर पारिस्थितिकी तंत्र के निर्माण की दिशा में तेज़ बढ़त को रेखांकित किया।
- Participating in the event via **video conferencing**, Mr. Modi noted that during **COVID-19**, the world saw the **fragility of the chip supply chain**.
वीडियो कॉन्फ्रेंसिंग के माध्यम से कार्यक्रम में भाग लेते हुए श्री मोदी ने कहा कि कोविड-19 के दौरान दुनिया ने चिप आपूर्ति श्रृंखला की नाजुकता देखी।
- "When supply hit a brake, **global economies faltered.**"
उन्होंने कहा, "जब आपूर्ति पर ब्रेक लगा, तो वैश्विक अर्थव्यवस्थाएँ डगमगा गईं।"



- He highlighted that India learned from that crisis and turned it into an opportunity, deciding to become **self-reliant in chip manufacturing**.
उन्होंने बताया कि भारत ने उस संकट से सीख ली और उसे अवसर में बदला, तथा **चिप निर्माण में आत्मनिर्भर बनने का निर्णय लिया**।
- “Today’s programme is a **reflection of this vision**,” he said.
उन्होंने कहा, “आज का कार्यक्रम इसी **दृष्टि का प्रतिबिंब है**।”
- The **India Chip Private Ltd.**, a joint venture between **HCL Group** and **Taiwanese Foxconn** in **Greater Noida**, being set up with an investment of **₹3,700 crore** at **Yamuna Expressway Industrial Development Authority**, is expected to become **operational by 2028**, the companies said in a joint statement.
कंपनियों ने संयुक्त बयान में कहा कि **ग्रेटर नोएडा में HCL समूह और ताइवान की फॉक्सकॉन** के बीच संयुक्त उद्यम **इंडिया चिप प्राइवेट लिमिटेड**, जिसे **यमुना एक्सप्रेसवे औद्योगिक विकास प्राधिकरण** में **₹3,700 करोड़** के निवेश से स्थापित किया जा रहा है, के **2028 तक परिचालन में आने की उम्मीद है**।
- It is projected to create over **3,500 direct and indirect jobs**, build **local supply chains**, and attract **ecosystem partners** across the semiconductor value chain.
इससे **3,500 से अधिक प्रत्यक्ष और अप्रत्यक्ष रोजगार** सृजित होने, **स्थानीय आपूर्ति श्रृंखलाएँ बनने और सेमीकंडक्टर मूल्य श्रृंखला में पारिस्थितिकी तंत्र साझेदारों** को आकर्षित करने का अनुमान है।
- With a planned capacity to process **20,000 wafers per month**, the facility will play a **pivotal role** in meeting India’s growing **domestic semiconductor demand**, the statement said.
बयान में कहा गया कि प्रति माह **20,000 वेफर** प्रसंस्करण की नियोजित क्षमता के साथ यह संयंत्र भारत की बढ़ती **घरेलू सेमीकंडक्टर मांग** को पूरा करने में **महत्वपूर्ण भूमिका** निभाएगा।
- Stressing the nation’s drive toward **self-reliance in chip production**, Mr. Modi praised **Uttar Pradesh’s emergence** as a hub in India’s **burgeoning semiconductor ecosystem**.
चिप उत्पादन में आत्मनिर्भरता की राष्ट्रीय पहल पर जोर देते हुए श्री मोदी ने भारत के **तेजी से विकसित हो रहे सेमीकंडक्टर पारिस्थितिकी तंत्र में उत्तर प्रदेश के उभरते केंद्र** के रूप में विकास की सराहना की।
- He credited the **‘double-engine government’** for changing the identity of **U.P.** from a State once associated with **crime and migration** to one known for **expressways, defence corridors, and dedicated freight corridors**.
उन्होंने **‘डबल इंजन सरकार’** को उत्तर प्रदेश की पहचान बदलने का श्रेय दिया, जो कभी **अपराध और पलायन** से जुड़ा था और अब **एक्सप्रेसवे, रक्षा गलियारों और समर्पित मालवाहक गलियारों** के लिए जाना जाता है।
- **Uttar Pradesh Chief Minister Yogi Adityanath**, who attended the event along with **Minister for Information and Technology Ashwini Vaishnaw**, said the development of the State will depend on the **Prime Minister’s vision for chips**.
कार्यक्रम में **सूचना एवं प्रौद्योगिकी मंत्री अश्विनी वैष्णव** के साथ उपस्थित **उत्तर प्रदेश के मुख्यमंत्री योगी आदित्यनाथ** ने कहा कि राज्य का विकास **चिप्स को लेकर प्रधानमंत्री की दृष्टि** पर निर्भर करेगा।



'AI must remain a tool for humans'

At the AI Impact Summit held in the national capital, Bhutanese Prime Minister placed emphasis on ethics, regulation and transparency to keep AI human-centric; he sees space for India's leadership and proposes Gelephu Mindfulness City as a regional technology hub powered by clean energy

GS III: S&T

INTERVIEW

Tshering Tobgay

Sahasini Haidar
NEW DELHI

Artificial Intelligence (AI) must remain a tool for humans, and not replace humans, Bhutan's Prime Minister Tshering Tobgay says, sounding an alarm on the need for ethics and guardrails in an industry where the U.S. and China dominate 70% of the products and research. Mr. Tobgay, who was a speaker at the AI Impact Summit plenary session for leaders held in New Delhi, also made a pitch for the Gelephu Mindfulness City as a technological hub in the region, using India-Bhutan cooperation on hydropower for energy needs.

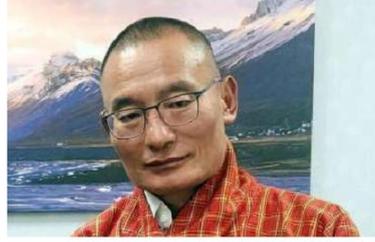
You are here for the AI Impact Summit in India, and Bhutan is a guest like so many others. But at the end of the day, it's

clear that the AI industry today is dominated by only two countries – the U.S. and China. Is there space for other countries to have a voice?

1.4 billion Indians under the leadership of Prime Minister Narendra Modi, I dare say, is more than a space. I know that India has the ambition and the mettle to pull it off and lead [the sector] too. I hope that AI remains a tool. I hope the big powers, the U.S., China and India, will ensure that it is a tool, a good tool, an efficient tool, a tool like no other. But I hope it remains a tool. In the wrong hands, this tool could become something more, or be misused.

So we need ethics, we need values. We need regulation. We need oversight. We need transparency, as Prime Minister Modi said at the summit – he said we want a glass box, not a black box.

Are you hopeful of new synergies between India



and Bhutan when it comes to AI, especially as AI requires a lot of electricity?

Yes. The development cooperation between India and Bhutan has been most successful in harnessing energy that is clean and green, from Bhutan's hydropower. We have ambitious targets to develop something like 25 gigawatts in the next 15 years.

We are working with the Government of India and private firms in India, and that energy is going to be used for development of technology in particular. Much of our development of Artificial Intelligence is

going to take place in the Gelephu Mindfulness City (GMC), which his Majesty the King (Fifth King of Bhutan) Jigme Khesar Namgyel Wangchuck has established as a special administrative region along the border with India.

Gelephu's domestic airport is now operating international flights to India, and an international airport is being built.

GMC is going to be a hub for Vajrayana Buddhism, and many monasteries and universities and meditation centres will be built, and a lot of the infrastructure is coming up already. GMC has its own laws, Board, and authority, own

government structure, and many businesses have expressed interest.

Tata Consultancy [Services] has an office in GMC, Tata Power, and Adani Power are doing a lot of work in developing energy. We now have many 'founding members' for GMC (these include Gautam Adani), and we are hopeful that we will get even more founding members from India.

During the COVID pandemic, Bhutan was seen as crypto power. Do you see a space for more outsourcing, high tech, AI, and quantum computing in the GMC?

Look, at the GMC, we have stability. We have proximity to India. We have a good friendship with India. We have Prime Minister Modi's personal support for the Gelephu Mindfulness City.

We have access to huge amounts of energy that is clean and green.

We have an area that is clean and sustainable and liveable, and therefore we can do a lot together in the

technological space.

Is building a global institution for the governance of AI a solution?

Every leader at the AI Summit has expressed a need for guardrails.

They have all expressed a need for ethics and values and transparency and equity, also in terms of enjoying the benefits of AI. And every leader I have heard has expressed concerns about the lack of moderation, regulation, of oversight.

So if political leaders are so concerned and they apply action to their concerns, then we should be able to moderate how AI is developed.

I believe India is poised to provide that leadership in terms of moderation, because India is the seat of the world's most ancient wisdom, ancient civilisations. If we ignore ancient wisdom, however, then I think this technology can get out of hand.

(Full interview is at newsth.live/tobgay)

22F. 'AI must remain a tool for humans' 'AI को मनुष्यों के लिए एक उपकरण ही बने रहना चाहिए'

- At the AI Impact Summit held in the national capital, Bhutanese Prime Minister placed emphasis on ethics, regulation and transparency to keep AI human-centric; he sees space for India's leadership and proposes Gelephu Mindfulness City as a regional technology hub powered by clean energy.

राष्ट्रीय राजधानी में आयोजित AI इम्पैक्ट समिट में भूटान के प्रधानमंत्री ने AI को मानव-केंद्रित बनाए रखने के लिए नैतिकता, विनियमन और पारदर्शिता पर जोर दिया; उन्होंने भारत के नेतृत्व की संभावना देखी और स्वच्छ ऊर्जा से संचालित क्षेत्रीय तकनीकी केंद्र के रूप में गेलेफू माइंडफुलनेस सिटी का प्रस्ताव रखा।

- Artificial Intelligence (AI) must remain a tool for humans, and not replace humans, Bhutan's Prime Minister Tshering Tobgay says, sounding an alarm on the need for ethics and guardrails in an industry where the U.S. and China dominate 70% of the products and research.

आर्टिफिशियल इंटेलिजेंस (AI) को मनुष्यों के लिए एक उपकरण ही बने रहना चाहिए, मनुष्यों का स्थान नहीं लेना चाहिए, भूटान के प्रधानमंत्री त्शेरिंग तोबगे ने कहा, और ऐसे उद्योग में नैतिकता और सुरक्षा-सीमाओं की आवश्यकता पर चेतावनी दी, जहाँ अमेरिका और चीन 70% उत्पादों और शोध पर हावी हैं।

- Mr. Tobgay, who was a speaker at the AI Impact Summit plenary session for leaders held in New Delhi, also made a pitch for the Gelephu Mindfulness City as a technological hub in the region, using India-Bhutan cooperation on hydropower for energy needs.

नई दिल्ली में आयोजित AI इम्पैक्ट समिट के नेताओं के पूर्ण सत्र में वक्ता रहे श्री तोबगे ने ऊर्जा आवश्यकताओं के लिए भारत-भूटान जलविद्युत सहयोग का उपयोग करते हुए क्षेत्र में तकनीकी केंद्र के रूप में गेलेफू माइंडफुलनेस सिटी का भी प्रस्ताव रखा।

- You are here for the AI Impact Summit in India, and Bhutan is a guest like so many others. आप भारत में AI इम्पैक्ट समिट के लिए यहाँ हैं, और भूटान भी अन्य कई देशों की तरह एक अतिथि है।
- But at the end of the day, it's clear that the AI industry today is dominated by only two countries — the U.S. and China.

लेकिन अंततः यह स्पष्ट है कि आज AI उद्योग पर केवल दो देशों — अमेरिका और चीन — का वर्चस्व है।



- Is there space for other countries to have a **voice**?
क्या अन्य देशों के लिए भी अपनी आवाज़ रखने की जगह है?
- **1.4 billion Indians** under the leadership of **Prime Minister Narendra Modi**, I dare say, is more than a space.
प्रधानमंत्री नरेंद्र मोदी के नेतृत्व में **1.4 अरब भारतीय**, मैं कहूँगा, सिर्फ जगह से कहीं अधिक हैं।
- I know that **India** has the **ambition and the mettle** to pull it off and **lead** the sector too.
मुझे पता है कि **भारत** के पास इसे हासिल करने और इस क्षेत्र का **नेतृत्व** करने की **महत्वाकांक्षा और क्षमता** है।
- I hope that **AI remains a tool**.
मुझे उम्मीद है कि **AI एक उपकरण ही बना रहेगा**।
- I hope the **big powers**, the **U.S., China and India**, will ensure that it is a **tool**, a **good tool**, an **efficient tool**, a tool like no other.
मुझे उम्मीद है कि **महाशक्तियाँ** — अमेरिका, चीन और भारत — यह सुनिश्चित करेंगी कि यह एक **उपकरण**, एक **अच्छा उपकरण**, एक **कुशल उपकरण**, और अद्वितीय उपकरण बना रहे।
- But I hope it remains a **tool**.
लेकिन मेरी आशा है कि यह **उपकरण ही बना रहे**।
- In the **wrong hands**, this tool could become something more, or be **misused**.
गलत हाथों में यह उपकरण कुछ और बन सकता है, या इसका **दुरुपयोग** हो सकता है।
- So we need **ethics**, we need **values**.
इसलिए हमें **नैतिकता** चाहिए, हमें **मूल्य** चाहिए।
- We need **regulation**.
हमें **विनियमन** चाहिए।
- We need **oversight**.
हमें **निगरानी** चाहिए।
- We need **transparency**, as **Prime Minister Modi** said at the summit — he said we want a **glass box**, not a **black box**.
हमें **पारदर्शिता** चाहिए, जैसा कि **प्रधानमंत्री मोदी** ने शिखर सम्मेलन में कहा — उन्होंने कहा कि हमें **ग्लास बॉक्स** चाहिए, **ब्लैक बॉक्स** नहीं।
- Are you hopeful of new **synergies** between **India and Bhutan** when it comes to **AI**, especially as AI requires a lot of **electricity**?
क्या **AI** के संदर्भ में **भारत और भूटान** के बीच **नई सहयोग संभावनाओं** को लेकर आप आशान्वित हैं, खासकर जब AI को बहुत अधिक **बिजली** की आवश्यकता होती है?
- Yes.
हाँ।
- The **development cooperation** between **India and Bhutan** has been most successful in harnessing **clean and green energy**, from **Bhutan's hydropower**.
भारत और भूटान के बीच **विकास सहयोग स्वच्छ और हरित ऊर्जा** के दोहन में सबसे अधिक सफल रहा है, जो **भूटान की जलविद्युत** से आती है।
- We have **ambitious targets** to develop something like **25 gigawatts** in the next **15 years**.
अगले **15 वर्षों** में लगभग **25 गीगावाट** विकसित करने के **महत्वाकांक्षी लक्ष्य** हमारे पास हैं।
- We are working with the **Government of India** and **private firms in India**, and that energy is going to be used for **development of technology** in particular.
हम **भारत सरकार** और **भारत की निजी कंपनियों** के साथ काम कर रहे हैं, और उस ऊर्जा का उपयोग विशेष रूप से **प्रौद्योगिकी के विकास** के लिए किया जाएगा।
- Much of our development of **Artificial Intelligence** is going to take place in the **Gelephu Mindfulness City (GMC)**, which **His Majesty the King (Fifth King of Bhutan Jigme Khesar Namgyel Wangchuck)** has established as a **special administrative region** along the **border with India**.
हमारे **आर्टिफिशियल इंटेलिजेंस** का अधिकांश विकास **गेलेफू माइंडफुलनेस सिटी (GMC)** में होगा, जिसे **भूटान के पंचम राजा जिग्मे खेसर नामग्याल वांगचुक** ने **भारत की सीमा** के साथ एक **विशेष प्रशासनिक क्षेत्र** के रूप में स्थापित किया है।
- **Gelephu's domestic airport** is now operating **international flights to India**, and an **international airport** is being built.
गेलेफू का घरेलू हवाई अड्डा अब **भारत के लिए अंतरराष्ट्रीय उड़ानें** संचालित कर रहा है, और एक **अंतरराष्ट्रीय हवाई अड्डा** बनाया जा रहा है।



- **GMC** is going to be a hub for **Vajrayana Buddhism**, and many **monasteries and universities and meditation centres** will be built, and a lot of the **infrastructure** is coming up already.
GMC वज्रयान बौद्ध धर्म का केंद्र बनने जा रहा है, और कई मठ, विश्वविद्यालय और ध्यान केंद्र बनाए जाएंगे, तथा काफी बुनियादी ढांचा पहले से ही विकसित हो रहा है।
- **GMC** has its own **laws, Board, and authority**, own **government structure**, and many **businesses** have expressed interest.
GMC के अपने **कानून, बोर्ड और प्राधिकरण**, अपनी **सरकारी संरचना** है, और कई **व्यवसायों** ने रुचि दिखाई है।
- **Tata Consultancy [Services]** has an office in **GMC**, **Tata Power**, and **Adani Power** are doing a lot of work in **developing energy**.
टाटा कंसल्टेंसी [सर्विसेज] का **GMC** में कार्यालय है, और **टाटा पावर** तथा **अडानी पावर ऊर्जा विकास** में काफी काम कर रहे हैं।
- We now have many **'founding members'** for **GMC** (these include **Gautam Adani**), and we are hopeful that we will get even more founding members from **India**.
अब हमारे पास **GMC** के कई **'संस्थापक सदस्य'** हैं (इनमें **गौतम अडानी** शामिल हैं), और हमें उम्मीद है कि **भारत** से और भी संस्थापक सदस्य मिलेंगे।
- During the **COVID pandemic**, Bhutan was seen as **crypto power**.
कोविड महामारी के दौरान **भूटान** को **क्रिप्टो शक्ति** के रूप में देखा गया।
- Do you see a space for more **outsourcing, high tech, AI, and quantum computing** in the **GMC**?
क्या आप **GMC** में अधिक **आउटसोर्सिंग, हाई-टेक, AI और क्वांटम कंप्यूटिंग** की संभावना देखते हैं?
- Look, at the **GMC**, we have **stability**.
देखिए, **GMC** में हमारे पास **स्थिरता** है।
- We have **proximity to India**.
हमारी **भारत से निकटता** है।
- We have a good **friendship with India**.
हमारी **भारत के साथ अच्छी मित्रता** है।
- We have **Prime Minister Modi's personal support** for the **Gelephu Mindfulness City**.
हमें **गोलेफू माइंडफुलनेस सिटी** के लिए **प्रधानमंत्री मोदी का व्यक्तिगत समर्थन** प्राप्त है।
- We have access to **huge amounts of energy** that is **clean and green**.
हमें **स्वच्छ और हरित ऊर्जा की विशाल मात्रा** तक पहुँच है।
- We have an area that is **clean and sustainable and liveable**, and therefore we can do a lot together in the **technological space**.
हमारे पास ऐसा क्षेत्र है जो **स्वच्छ, सतत और रहने योग्य** है, और इसलिए हम **तकनीकी क्षेत्र** में मिलकर बहुत कुछ कर सकते हैं।
- Is building a **global institution** for the **governance of AI** a solution?
क्या **AI के शासन** के लिए एक **वैश्विक संस्था** बनाना समाधान है?
- Every leader at the **AI Summit** has expressed a need for **guardrails**.
AI समिट में प्रत्येक नेता ने **सुरक्षा-सीमाओं** की आवश्यकता व्यक्त की है।
- They have all expressed a need for **ethics and values and transparency and equity**, also in terms of enjoying the **benefits of AI**.
सभी ने **नैतिकता, मूल्य, पारदर्शिता और समानता** की आवश्यकता जताई है, साथ ही **AI के लाभों** का समान रूप से आनंद लेने की बात कही है।
- And every leader I have heard has expressed **concerns** about the lack of **moderation, regulation, oversight**.
और जिन नेताओं को मैंने सुना है, सभी ने **संयम, विनियमन और निगरानी** की कमी को लेकर **चिंता** व्यक्त की है।
- So if **political leaders** are so concerned and they apply **action** to their concerns, then we should be able to **moderate** how AI is developed.
इसलिए यदि **राजनीतिक नेता** इतने चिंतित हैं और अपनी चिंताओं पर **कार्रवाई** करते हैं, तो हम **AI के विकास** को **संयमित** कर सकेंगे।
- I believe **India** is poised to provide that **leadership** in terms of moderation, because India is the seat of the world's **most ancient wisdom, ancient civilisations**.



मेरा मानना है कि **भारत** इस संदर्भ में **नेतृत्व** प्रदान करने की स्थिति में है, क्योंकि भारत दुनिया की सबसे **प्राचीन ज्ञान परंपराओं** और **प्राचीन सभ्यताओं** की भूमि है।

- If we ignore **ancient wisdom**, however, then I think this **technology** can get **out of hand**. लेकिन यदि हम **प्राचीन ज्ञान** की उपेक्षा करते हैं, तो मुझे लगता है कि यह **प्रौद्योगिकी नियंत्रण से बाहर** हो सकती है।

Indigenous tetanus and adult diphtheria vaccine launched; Nadda calls it momentous

GS III: S&T

The Hindu Bureau
CHANDIGARH

Union Health Minister J.P. Nadda on Saturday launched the indigenously manufactured tetanus and adult diphtheria (Td) vaccine at the Central Research Institute (CRI) in Kasauli, Himachal Pradesh.

Describing the indigenous launch of the vaccine as a momentous occasion, he said the launch marks a significant step towards safeguarding national health security and strengthening India's public health infrastructure.

With the formal launch of the Td vaccine, it has now been introduced for



Union Minister for Health and Family Welfare JP Nadda launches of vaccine at Central Research Institute (CRI), Kasauli on Saturday. ANI

supply under the Universal Immunization Programme (UIP). The Central Research Institute will supply 55 lakh doses through UIP

by April this year, with production expected to scale up progressively in subsequent years to further strengthen the programme

implemented by the Government of India, said Mr. Nadda while addressing the gathering.

Global pharmacy hub

Highlighting India's global standing, the Minister also stated that the country is widely recognised as the "pharmacy of the world" and is among the leading vaccine manufacturers globally. "Historically, vaccine and drug development timelines were long, tetanus vaccine development took decades globally, tuberculosis medicines took nearly 30 years to evolve and the Japanese Encephalitis vaccine took almost a century of scientific effort," he said,

adding "In contrast, during the COVID-19 pandemic, India developed two indigenous vaccines within nine months and administered over 220 crore doses, including booster doses."

Mr. Nadda said that CRI is the first government institute to manufacture vaccines under Good Manufacturing Practices (GMP) standards, reflecting the modernisation of public sector vaccine manufacturing units. He said the Universal Immunization Programme is the world's largest immunisation programme, which currently provides 11 vaccines protecting against 12 vaccine-preventable diseases.

22F. Indigenous tetanus and adult diphtheria vaccine launched; Nadda calls it momentous

स्वदेशी टिटनेस और वयस्क डिप्थीरिया वैक्सीन लॉन्च; नड्डा ने इसे ऐतिहासिक बताया

- Union Health Minister J.P. Nadda on Saturday launched the **indigenously manufactured tetanus and adult diphtheria (Td) vaccine** at the **Central Research Institute (CRI)** in **Kasauli, Himachal Pradesh**.
केंद्रीय स्वास्थ्य मंत्री जे.पी. नड्डा ने शनिवार को हिमाचल प्रदेश के कसौली स्थित केंद्रीय अनुसंधान संस्थान (CRI) में स्वदेशी रूप से निर्मित टिटनेस और वयस्क डिप्थीरिया (Td) वैक्सीन का शुभारंभ किया।
- Describing the indigenous launch of the vaccine as a **momentous occasion**, he said the launch marks a **significant step** towards safeguarding **national health security** and strengthening **India's public health infrastructure**.
वैक्सीन के स्वदेशी लॉन्च को ऐतिहासिक अवसर बताते हुए उन्होंने कहा कि यह लॉन्च राष्ट्रीय स्वास्थ्य सुरक्षा को सुनिश्चित करने और भारत के सार्वजनिक स्वास्थ्य ढांचे को मजबूत करने की दिशा में एक महत्वपूर्ण कदम है।
- With the formal launch of the **Td vaccine**, it has now been introduced for supply under the **Universal Immunization Programme (UIP)**.
Td वैक्सीन के औपचारिक शुभारंभ के साथ ही इसे अब सार्वभौमिक टीकाकरण कार्यक्रम (UIP) के अंतर्गत आपूर्ति के लिए शामिल कर लिया गया है।
- The **Central Research Institute** will supply **55 lakh doses** through **UIP** by **April this year**, with production expected to **scale up progressively** in subsequent years to further strengthen the programme implemented by the **Government of India**, said Mr. Nadda while addressing the gathering.
सभा को संबोधित करते हुए श्री नड्डा ने कहा कि केंद्रीय अनुसंधान संस्थान इस वर्ष अप्रैल तक UIP के माध्यम



से 55 लाख खुराकें उपलब्ध कराएगा, और आने वाले वर्षों में उत्पादन को क्रमिक रूप से बढ़ाया जाएगा, जिससे भारत सरकार द्वारा संचालित कार्यक्रम और अधिक मजबूत होगा।

Global pharmacy hub वैश्विक फार्मसी केंद्र

- Highlighting India's **global standing**, the Minister also stated that the country is widely recognised as the “**pharmacy of the world**” and is among the **leading vaccine manufacturers globally**.
भारत की वैश्विक स्थिति को रेखांकित करते हुए मंत्री ने कहा कि देश को व्यापक रूप से “**दुनिया की फार्मसी**” के रूप में पहचाना जाता है और यह वैश्विक स्तर पर अग्रणी वैक्सीन निर्माताओं में शामिल है।
- “Historically, vaccine and drug development timelines were long, **tetanus vaccine** development took decades globally, **tuberculosis medicines** took nearly **30 years** to evolve and the **Japanese Encephalitis vaccine** took almost a **century of scientific effort**,” he said.
उन्होंने कहा, “ऐतिहासिक रूप से वैक्सीन और दवा विकास की समय-सीमा लंबी रही है, **टिटनेस वैक्सीन** के विकास में वैश्विक स्तर पर दशकों लगे, **तपेदिक की दवाओं** को विकसित होने में लगभग **30 वर्ष** लगे और **जापानी एन्सेफलाइटिस वैक्सीन** को लगभग **एक सदी का वैज्ञानिक प्रयास** लगा।”
- Adding, “In contrast, during the **COVID-19 pandemic**, India developed **two indigenous vaccines** within **nine months** and administered over **220 crore doses**, including **booster doses**.”
उन्होंने जोड़ा, “इसके विपरीत, **COVID-19 महामारी** के दौरान भारत ने **नौ महीनों** के भीतर **दो स्वदेशी वैक्सीन** विकसित कीं और **बूस्टर खुराकों** सहित **220 करोड़ से अधिक खुराकें** दीं।”
- Mr. Nadda said that **CRI** is the **first government institute** to manufacture vaccines under **Good Manufacturing Practices (GMP) standards**, reflecting the **modernisation of public sector vaccine manufacturing units**.
श्री नड्डा ने कहा कि **CRI**, **गुड मैनुफैक्चरिंग प्रैक्टिसेज़ (GMP) मानकों** के तहत वैक्सीन बनाने वाला **पहला सरकारी संस्थान** है, जो **सार्वजनिक क्षेत्र की वैक्सीन निर्माण इकाइयों के आधुनिकीकरण** को दर्शाता है।
- He said the **Universal Immunization Programme** is the **world's largest immunisation programme**, which currently provides **11 vaccines** protecting against **12 vaccine-preventable diseases**.
उन्होंने कहा कि **सार्वभौमिक टीकाकरण कार्यक्रम** दुनिया का **सबसे बड़ा टीकाकरण कार्यक्रम** है, जो वर्तमान में **12 वैक्सीन-रोकथाम योग्य बीमारियों** से बचाव के लिए **11 वैक्सीन** उपलब्ध कराता है।



What are the key takeaways from AI summit?

What does the New Delhi Declaration say? How many countries are signatories? What were the goals? What is the aim of the Global AI Impact Commons? Apart from Reliance and the Adani Group, which companies have announced investments in domestic AI?

GS III:

PQB

Aroon Deep

The story so far:

The AI Impact Summit from February 16-20 attracted lakhs of visitors, with high-profile AI executives and heads of state visiting New Delhi. On Saturday, 88 countries and international organisations signed the New Delhi Declaration on AI, which stresses that the technology must be democratised to make a difference.

Since when are AI summits being held?

Since 2023, dozens of countries have participated in annual gatherings to discuss AI. In its first instalment in Bletchley Park, the U.K. hosted a small dialogue on safety, where India was represented by then Minister of State for Electronics and Information Technology Rajeev Chandrasekhar. There is no international organisation that convenes these gatherings as of now – participating countries have generally passed on the baton for the following year's summit. 2024's edition was held in Seoul, and the last AI Action Summit was held in Paris in February 2025, with Prime Minister Narendra Modi co-chairing the edition with President Emmanuel Macron. In the Paris summit, the multilateral AI dialogue saw a significant shift, with U.S. Vice-President J.D. Vance vocally rejecting a safety-first approach, instead emphasising innovation and unrestrained investment into frontier research and commercialisation of the technology.

What were the India-hosted summit's goals?

For India's turn, the government advanced a key set of priorities: that AI's capabilities must be available to as many people as possible; more work must be done to make it relevant in the

The summit is expected to catalyse long-term international partnerships

Global South, such as by expanding representation for languages that have been under-represented in the training of western LLMs (large language models); and that the technology should be "safe and trusted".

On the domestic front, the government sought to project India as an attractive destination for AI infrastructure and research, drum up investor sentiment for putting money into AI, and for encouraging the technology's already-enthusiastic adoption in India, especially in fields such as healthcare, agriculture and education. The names of the working groups convened for this purpose reflect some of these priorities: human capital, inclusion for social empowerment, safe and trusted AI, resilience, innovation, and efficiency, science, democratising AI resources, and AI for economic development and social good.

What were the outcomes of the summit?

The government says that the summit attracted over five lakh visitors, a record that easily surpassed the attendance of the G20 summit in 2023. The government also touted \$250 billion in investment commitments, as well as \$20 billion in commitments for frontier deep tech research. The event also hosted over 500 individual discussions, with speakers from around the world. During the summit, India joined the U.S.-led Pax Silica initiative, which seeks to build a network of like-minded countries opposed to concentration of power in electronics manufacturing and critical minerals. India also achieved broad consensus among 88 countries and international organisations for the New Delhi Declaration on AI, which was signed by the U.S., China, France, and several other countries who are key for the development and deployment of AI at present.

The event saw the long-anticipated launch of India's first domestically trained multi-billion parameter LLMs by Sarvam AI. Sarvam is a Bengaluru-based firm that enjoys millions of dollars in private equity investment as well as government support in subsidised access to computing resources under the IndiaAI Mission. The firm says its models are efficient, and beat comparable models at many benchmarks. It has announced that its models will be open source, and after the summit, launched a chatbot interface in beta to interact with its LLMs.

The event was also plagued by a series of setbacks almost every day. On the opening day – three days before the plenary with the heads of state and keynotes by figures like OpenAI CEO Sam Altman and Google CEO Sundar Pichai – organisers were overwhelmed by an unexpected number of participants. Security and logistics

issues abounded, with significant traffic snarls delaying even some speakers from making it to their discussions. On the second day, an exhibitor at the summit's concurrent expo, Galgotias University, passed off a Chinese-made robot dog as their students' creation. The wide publicity to this caused significant embarrassment to the organisers, who ordered the university to vacate the premises. And on Friday, a group of Indian Youth Congress members stormed the expo, revealing hidden T-shirts and chanting, "Modi is Compromised," before being apprehended by the police. The Delhi Police has apprehended the protesters, and is investigating the protest.

What were the investment commitments?

Reliance Industries Ltd. announced commitments of ₹10 lakh crore in domestic AI, only slightly more than the Adani Group's similar commitment. Google gave a few fresh details about its existing \$15 billion investment in data centre and AI projects in India, such as a subsea cable system that would directly connect India and the U.S. The event also saw high-profile pacts between OpenAI and the Tata Group, along with another agreement between Anthropic and Infosys. OpenAI said it would lease 100 megawatts of data centre capacity from Tata's HyperVault, and provide its advanced models to the firm's employees. The pacts were notable due to the stock price damage that both firms took after Anthropic's latest coding LLM shocked investors with its advanced capabilities. Yotta Data Services, a domestic data centre operator, announced \$2 billion in data centre infrastructure build-out, with graphics processing units from Nvidia.

What does the New Delhi Declaration say?

The declaration is broadly in line with India's stated multilateral priorities when organising the summit. Nearly all commitments are described in the statement as "voluntary" and "non-binding," encouraging wider participation. These include a charter for the "democratic diffusion" of AI; a "Global AI Impact Commons," which would serve as a database of use cases for countries to draw inspiration from; a "Trusted AI Commons," described as a "repository of tools, benchmarks, and best practices [that supports the] development of secure and trustworthy AI systems"; an "International Network of AI for Science Institutions" which would link technical institutes around the world; an "AI for Social Empowerment Platform"; an "AI Workforce Development Playbook and Reskilling Principles," and "Guiding Principles on Resilient and Efficient AI." "The summit is expected to catalyse long-term international partnerships and position AI as a key driver of economic growth," the government said in a statement, adding that there was "broad-based global consensus on leveraging AI for economic growth and social good".



New route: PM Modi poses with Google CEO Sundar Pichai, OpenAI CEO Sam Altman, and other leaders at the AI summit, in Delhi on February 19. REUTERS

22F. What are the key takeaways from the AI summit?

AI शिखर सम्मेलन से प्रमुख निष्कर्ष क्या हैं?

AI Impact Summit

एआई इम्पैक्ट समिट

- The AI Impact Summit from February 16-20 attracted lakhs of visitors, with high-profile AI executives and heads of state visiting New Delhi.

16-20 फरवरी तक आयोजित एआई इम्पैक्ट समिट में लाखों आगंतुक आए, जिसमें उच्च-स्तरीय एआई अधिकारी और राष्ट्राध्यक्ष नई दिल्ली पहुँचे।

- On Saturday, 88 countries and international organisations signed the New Delhi Declaration on AI, which stresses that the technology must be democratised to make a difference.

शनिवार को 88 देशों और अंतरराष्ट्रीय संगठनों ने एआई पर नई दिल्ली घोषणा पर हस्ताक्षर किए, जिसमें इस तकनीक को प्रभावी बनाने के लिए लोकतांत्रिक बनाने पर जोर दिया गया।



Since when are AI summits being held? एआई समिट कब से आयोजित हो रहे हैं?

- Since **2023**, dozens of countries have participated in **annual gatherings** to discuss **AI**.
2023 से कई देशों ने **वार्षिक बैठकों** में भाग लेकर **एआई** पर चर्चा की है।
- In its **first instalment** in **Bletchley Park**, the **U.K.** hosted a small dialogue on **safety**, where **India** was represented by then Minister of State for Electronics and Information Technology **Rajeev Chandrasekhar**.
अपने **पहले संस्करण** में **ब्लेचली पार्क** में **यू.के.** ने **सुरक्षा** पर एक छोटा संवाद आयोजित किया, जहाँ **भारत** का प्रतिनिधित्व तत्कालीन राज्य मंत्री **राजीव चंद्रशेखर** ने किया।
- There is no **international organisation** that convenes these gatherings as of now — participating countries have generally passed on the baton for the following year's summit. अब तक इन बैठकों को आयोजित करने वाली कोई **अंतरराष्ट्रीय संस्था** नहीं है — भाग लेने वाले देश आमतौर पर अगले वर्ष की मेजबानी एक-दूसरे को सौंपते रहे हैं।
- **2024's edition** was held in **Seoul**, and the last **AI Action Summit** was held in **Paris in February 2025**, with Prime Minister **Narendra Modi** co-chairing the edition with President **Emmanuel Macron**.
2024 का संस्करण सियोल में आयोजित हुआ, और अंतिम **एआई एक्शन समिट फरवरी 2025 में पेरिस** में हुआ, जिसकी सह-अध्यक्षता प्रधानमंत्री **नरेंद्र मोदी** और राष्ट्रपति **इमैनुएल मैक्रों** ने की।
- In the **Paris summit**, the multilateral AI dialogue saw a significant shift, with U.S. Vice-President **J.D. Vance** vocally rejecting a **safety-first approach**, instead emphasising **innovation and unrestrained investment** into frontier research and commercialisation of the technology.
पेरिस समिट में बहुपक्षीय एआई संवाद में बड़ा बदलाव देखा गया, जहाँ अमेरिकी उपराष्ट्रपति **जे.डी. वेंस** ने **सुरक्षा-प्रथम दृष्टिकोण** को अस्वीकार करते हुए **नवाचार और निर्बाध निवेश** पर जोर दिया।

What were the India-hosted summit's goals? भारत द्वारा आयोजित समिट के उद्देश्य क्या थे?

- For India's turn, the government advanced a key set of priorities: that **AI's capabilities** must be available to **as many people as possible**; more work must be done to make it relevant in the **Global South**; and that the technology should be **"safe and trusted"**.
भारत की बारी पर सरकार ने प्रमुख प्राथमिकताएँ रखीं: **एआई की क्षमताएँ** अधिकतम लोगों तक पहुँचें; इसे **ग्लोबल साउथ** के लिए प्रासंगिक बनाया जाए; और तकनीक **"सुरक्षित और विश्वसनीय"** हो।
- More work must be done to expand **representation for languages** that have been **under-represented** in the training of western **LLMs (large language models)**.
पश्चिमी **एलएलएम (बड़े भाषा मॉडल)** के प्रशिक्षण में **कम प्रतिनिधित्व वाली भाषाओं** के प्रतिनिधित्व को बढ़ाने के लिए अधिक कार्य किया जाना चाहिए।
- On the **domestic front**, the government sought to project **India** as an attractive destination for **AI infrastructure and research**, drum up **investor sentiment**, and encourage adoption in **healthcare, agriculture and education**.
घरेलू स्तर पर सरकार ने **भारत** को **एआई अवसंरचना और अनुसंधान** के लिए आकर्षक गंतव्य के रूप में प्रस्तुत करने, **निवेशक भावना बढ़ाने और स्वास्थ्य, कृषि और शिक्षा** में तकनीक अपनाने को बढ़ावा देने का प्रयास किया।
- The working groups reflected these priorities: **human capital, inclusion for social empowerment, safe and trusted AI, resilience, innovation and efficiency, science, democratising AI resources, and AI for economic development and social good**.
कार्य समूहों ने इन प्राथमिकताओं को दर्शाया: **मानव पूंजी, सामाजिक सशक्तिकरण के लिए समावेशन, सुरक्षित और विश्वसनीय एआई, लचीलापन, नवाचार और दक्षता, विज्ञान, एआई संसाधनों का लोकतंत्रीकरण और आर्थिक विकास व सामाजिक हित के लिए एआई**।

What were the outcomes of the summit? समिट के परिणाम क्या रहे?

- The government says that the summit attracted over **five lakh visitors**, surpassing the attendance of the **G20 summit in 2023**.



सरकार के अनुसार समिट में पाँच लाख से अधिक आगंतुक आए, जो 2023 के G20 समिट की उपस्थिति से अधिक था।

- The government also highlighted **\$250 billion in investment commitments**, as well as **\$20 billion for frontier deep tech research**.

सरकार ने 250 अरब डॉलर के निवेश प्रतिबद्धताओं और फ्रंटियर डीप टेक अनुसंधान के लिए 20 अरब डॉलर को भी प्रमुखता से बताया।

- The event hosted over **500 individual discussions**, with speakers from around the world. इस कार्यक्रम में दुनिया भर के वक्ताओं के साथ **500 से अधिक व्यक्तिगत चर्चाएँ** हुईं।
- During the summit, **India joined the U.S.-led Pax Silica initiative**, which seeks to build a network of like-minded countries opposed to **concentration of power in electronics manufacturing and critical minerals**.

समिट के दौरान भारत अमेरिकी नेतृत्व वाली पैक्स सिलिका पहल में शामिल हुआ, जिसका उद्देश्य इलेक्ट्रॉनिक्स निर्माण और महत्वपूर्ण खनिजों में शक्ति के केंद्रीकरण के विरोध में समान विचार वाले देशों का नेटवर्क बनाना है।

- India also achieved broad consensus among **88 countries and international organisations** for the **New Delhi Declaration on AI**, signed by the **U.S., China, France**, and several other key countries in AI development and deployment.

भारत ने 88 देशों और अंतरराष्ट्रीय संगठनों के बीच एआई पर नई दिल्ली घोषणा के लिए व्यापक सहमति भी प्राप्त की, जिस पर अमेरिका, चीन, फ्रांस सहित कई प्रमुख देशों ने हस्ताक्षर किए।

- The event saw the long-anticipated launch of **India's first domestically trained multi-billion parameter LLMs** by **Sarvam AI**.

इस कार्यक्रम में सरवम एआई द्वारा भारत के पहले स्वदेशी बहु-अरब पैरामीटर एलएलएम के लंबे समय से प्रतीक्षित लॉन्च को देखा गया।

- **Sarvam** is a **Bengaluru-based firm** that enjoys **millions of dollars in private equity investment** as well as **government support** in subsidised access to computing resources under the **IndiaAI Mission**.

सरवम एक बेंगलुरु स्थित कंपनी है जिसे मिलियन डॉलर के निजी इक्विटी निवेश और इंडियाएआई मिशन के तहत कंप्यूटिंग संसाधनों तक सस्ती वाली पहुँच के रूप में सरकारी समर्थन प्राप्त है।

- The firm says its models are **efficient**, and beat **comparable models at many benchmarks**. कंपनी का कहना है कि उसके मॉडल कुशल हैं और कई बेंचमार्क पर समान मॉडलों से बेहतर प्रदर्शन करते हैं।

- It has announced that its models will be **open source**, and after the summit, launched a **chatbot interface in beta** to interact with its LLMs.

कंपनी ने घोषणा की है कि उसके मॉडल ओपन सोर्स होंगे और समिट के बाद अपने एलएलएम के साथ बातचीत के लिए बीटा चैटबॉट इंटरफेस लॉन्च किया।

- The event was also plagued by a series of **setbacks** almost every day.

यह कार्यक्रम लगभग हर दिन कई अड़चनों से भी प्रभावित रहा।

- On the **opening day**, organisers were overwhelmed by an **unexpected number of participants**.

उद्घाटन दिवस पर आयोजक अप्रत्याशित प्रतिभागियों की संख्या से अभिभूत हो गए।

- **Security and logistics issues** abounded, with significant **traffic snarls** delaying even some speakers from making it to their discussions.

सुरक्षा और लॉजिस्टिक्स समस्याएँ उत्पन्न हुईं, और भारी ट्रैफिक जाम के कारण कुछ वक्ता अपनी चर्चाओं तक समय पर नहीं पहुँच सके।

- On the **second day**, an exhibitor, **Galgotias University**, passed off a **Chinese-made robodog** as their students' creation.

दूसरे दिन, प्रदर्शक गलगोटियास विश्वविद्यालय ने चीनी निर्मित रोबोडॉग को छात्रों की रचना बताकर प्रस्तुत किया।

- This caused **significant embarrassment** to the organisers, who ordered the university to **vacate the premises**.

इससे आयोजकों को काफी शर्मिंदगी हुई और उन्होंने विश्वविद्यालय को स्थान खाली करने का आदेश दिया।

- On **Friday**, a group of **Indian Youth Congress members** stormed the expo, revealing hidden T-shirts and chanting "**Modi is Compromised**," before being apprehended by the police.

शुक्रवार को भारतीय युवा कांग्रेस के सदस्यों के एक समूह ने एक्सपो में घुसकर "मोदी इज़ कम्प्रोमाइज़्ड" के नारे लगाए, जिसके बाद पुलिस ने उन्हें हिरासत में लिया।



- The **Delhi Police** has apprehended the protesters and is **investigating** the protest.
दिल्ली पुलिस ने प्रदर्शनकारियों को गिरफ्तार कर लिया है और जांच कर रही है।

What were the investment commitments?

निवेश प्रतिबद्धताएँ क्या थीं?

- **Reliance Industries Ltd.** announced commitments of **₹10 lakh crore in domestic AI**, slightly more than the **Adani Group**.
रिलायंस इंडस्ट्रीज लिमिटेड ने घरेलू एआई में ₹10 लाख करोड़ के निवेश की घोषणा की, जो अडानी समूह से थोड़ा अधिक है।
- **Google** provided details about its existing **\$15 billion investment in data centre and AI projects in India**, including a **subsea cable system connecting India and the U.S.**
गूगल ने भारत में डेटा सेंटर और एआई परियोजनाओं में \$15 अरब निवेश के बारे में जानकारी दी, जिसमें भारत और अमेरिका को जोड़ने वाली समुद्र के नीचे केबल प्रणाली शामिल है।
- The event also saw **high-profile pacts between OpenAI and the Tata Group**, and between **Anthropic and Infosys**.
कार्यक्रम में ओपनएआई और टाटा समूह तथा एंथ्रोपिक और इंफोसिस के बीच महत्वपूर्ण समझौते भी हुए।
- **OpenAI** said it would lease **100 megawatts of data centre capacity** from **Tata's HyperVault** and provide its **advanced models** to the firm's employees.
ओपनएआई ने कहा कि वह टाटा के हाइपरवॉल्ट से 100 मेगावाट डेटा सेंटर क्षमता लीज पर लेगा और अपने उन्नत मॉडल कंपनी के कर्मचारियों को उपलब्ध कराएगा।
- The pacts were notable due to the **stock price damage** both firms faced after **Anthropic's latest coding LLM** shocked investors.
ये समझौते इसलिए महत्वपूर्ण थे क्योंकि एंथ्रोपिक के नवीनतम कोडिंग एलएलएम के कारण दोनों कंपनियों के शेयर मूल्य प्रभावित हुए थे।
- **Yotta Data Services** announced **\$2 billion in data centre infrastructure build-out**, using **Nvidia GPUs**.
योट्टा डेटा सर्विसेज ने एनवीडिया जीपीयू के साथ डेटा सेंटर अवसंरचना में \$2 अरब निवेश की घोषणा की।

What does the New Delhi Declaration say?

नई दिल्ली घोषणा क्या कहती है?

- The declaration aligns with **India's multilateral priorities**, and most commitments are described as **"voluntary" and "non-binding."**
यह घोषणा भारत की बहुपक्षीय प्राथमिकताओं के अनुरूप है और अधिकांश प्रतिबद्धताओं को "स्वैच्छिक" और "गैर-बाध्यकारी" बताया गया है।
- It includes a charter for **"democratic diffusion" of AI**.
इसमें एआई के "लोकतांत्रिक प्रसार" के लिए एक चार्टर शामिल है।
- It proposes a **"Global AI Impact Commons"**, a database of **use cases** for countries.
यह "ग्लोबल एआई इम्पैक्ट कॉमन्स" का प्रस्ताव करता है, जो देशों के लिए उपयोग मामलों का डेटाबेस होगा।
- A **"Trusted AI Commons"** will serve as a **repository of tools, benchmarks, and best practices** for secure AI systems.
"ट्रस्टेड एआई कॉमन्स" सुरक्षित एआई सिस्टम के लिए उपकरणों, बेंचमार्क और सर्वोत्तम प्रथाओं का भंडार होगा।
- It proposes an **"International Network of AI for Science Institutions."**
यह "एआई फॉर साइंस संस्थानों का अंतरराष्ट्रीय नेटवर्क" प्रस्तावित करता है।
- It includes an **"AI for Social Empowerment Platform."**
इसमें "सामाजिक सशक्तिकरण के लिए एआई प्लेटफॉर्म" शामिल है।
- It proposes an **"AI Workforce Development Playbook and Reskilling Principles."**
यह "एआई कार्यबल विकास प्लेबुक और री-स्किलिंग सिद्धांत" प्रस्तावित करता है।
- It also includes **"Guiding Principles on Resilient and Efficient AI."**
इसमें "लचीले और कुशल एआई के मार्गदर्शक सिद्धांत" भी शामिल हैं।
- The government said the summit will **catalyse long-term international partnerships** and position **AI as a key driver of economic growth**.



सरकार ने कहा कि यह समिट दीर्घकालिक अंतरराष्ट्रीय साझेदारी को बढ़ावा देगा और एआई को आर्थिक विकास का प्रमुख चालक बनाएगा।

- There was **broad-based global consensus** on leveraging **AI for economic growth and social good**.
आर्थिक विकास और सामाजिक कल्याण के लिए एआई के उपयोग पर व्यापक वैश्विक सहमति बनी।

Why has NGT cleared the Nicobar project?

Why does the government insist that the project is of strategic importance? What will India achieve by establishing a major cargo transshipment hub? What will happen to the biodiversity of the Great Nicobar Island? What are the concerns? Can coral colonies be translocated?

GS III: S&T

MOB

Jacob Koshy

The story so far:

The National Green Tribunal (NGT) recently concluded a high-stakes legal battle over the 'Holistic Development of Great Nicobar Island', and ruled that all environment safeguards are in place for the Great Nicobar Island Project. This integrated project, estimated to cost ₹80,000-90,000 crore, has been at the centre of a debate between national interests and the preservation of one of the world's most sensitive ecosystems.

What is the Great Nicobar project?

The project is an integrated infrastructure development plan proposed by the Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO). It consists of four major components: an International Container Transshipment Terminal (ICTT), a 450 MVA gas and solar-based power plant, a large-scale township and area development, and an international airport. Building all of this would require diverting 130.75 square kilometres of forest land – roughly 18% of the total area of the Great Nicobar Island. It is projected to generate over 1.28 lakh jobs by the time it is fully implemented in 2052. However, the inevitable environmental impact of this project has

The island is a biodiversity hotspot, and the project faces several ecological challenges

prompted global outrage.

What is the history of the project?

The project's regulatory journey began in May 2021 with a Stage-I forest clearance granted in October 2022, followed by environmental and Coastal Regulation Zone (CRZ) clearances on November 11, 2022. These clearances were challenged in a "first round" of litigation in 2022. On April 3, 2023, the NGT found "unanswered deficiencies" regarding coral conservation, the adequacy of environmental data, and zoning violations. The tribunal then formed a High-Powered Committee (HPC) to revisit these issues. The final order issued this month is the result of the "second round" of litigation, where the tribunal reviewed the HPC's findings and the government's subsequent actions.

Why is it a 'national necessity'?

The government maintains that the project is of extraordinary strategic, defence, and national importance. The Great Nicobar is located just 40 km from the Malacca Strait, a critical international shipping lane. The area is seen as a vital location to counter the "growing presence" of foreign powers in the Indian Ocean. By establishing a major cargo transshipment hub, India can participate more fully in the global maritime economy and save significant costs on cargo that is currently transhipped through foreign ports. A permanent, robust presence on the island is expected to curb the poaching of marine resources by foreign entities.

What about Nicobar's ecology?

The island is a biodiversity hotspot, and the project faces several ecological challenges. Initial surveys identified 20,668 coral colonies in the vicinity. While Island CRZ regulations prohibit the "destruction of corals", the project involves the translocation of 16,150 colonies to suitable recipient sites. The island is home to the Leatherback Sea Turtle, the Nicobar Megapode, and the Saltwater Crocodile. Critics argued that the construction would destroy nesting grounds in Galathea Bay. A major point of contention was whether the port layout overlapped with Island CRZ-IA areas, which are the most ecologically

sensitive zones (like mangroves and sand dunes) where heavy construction is strictly prohibited. Environmentalists argued that the Environmental Impact Assessment (EIA) was based on only one season of baseline data, which they claimed was insufficient for a project of this magnitude. Critics have also raised concerns that the environmental impact studies downplay the seismic risks of the region, which is located in a high-activity tectonic zone.

How will it affect the tribal populations?

The island is inhabited by the Shompen and Nicobari tribes. The NGT noted the following regarding tribal rights – the Expert Appraisal Committee (EAC), which advises the Centre on environmental clearances, found that the project is designed not to disturb or displace any tribal habitation. The tribunal stated that the habitat rights of the tribes would be protected under the Forest Rights Act, though as recently as last month some of the leaders of the tribal council said that they were being "coerced" to sign 'surrender' certificates noting that they have no objection to their lands being given to the government. ANIIDCO is required to provide funds to the A&N Tribal Welfare Department for the welfare and protection of the tribal groups.

What was the NGT's reasoning?

The tribunal ultimately upheld the environmental clearance, adopting a "balanced approach" that weighed environmental safeguards against national security. The NGT ruled that while EIA procedures are mandatory, they should not be used to adopt a "hyper-technical approach" that ignores ground realities and national security. It accepted the Zoological Survey of India's (ZSI) finding that no "major" coral reef exists in the direct work area of Galathea Bay, only "scattered" colonies. It ruled that translocation would effectively protect the colonies. Following a site visit by the National Centre for Sustainable Coastal Management (NCSCM), the tribunal accepted that no part of the port project fell within the prohibited ICRZ-IA zone. The tribunal also ruled that one-season data was sufficient because the islands are not classified as a "high erosion" stretch where multi-season data is mandatory.

With the NGT according legal clearance, the ANIIDCO can move ahead with project development. The Ministry of Ports, Shipping and Waterways is also expected to move on port development activities.



Ecological importance: A view of the Great Nicobar Biosphere reserve.

22F. Why has NGT cleared the Nicobar project? NGT ने निकोबार परियोजना को क्यों मंजूरी दी है?

The National Green Tribunal (NGT)
राष्ट्रीय हरित अधिकरण (NGT)

- The **National Green Tribunal (NGT)** recently concluded a **high-stakes legal battle** over the 'Holistic Development of Great Nicobar Island', and ruled that all **environment safeguards are in place** for the **Great Nicobar Island Project**.
राष्ट्रीय हरित अधिकरण (NGT) ने हाल ही में 'ग्रेट निकोबार द्वीप के समग्र विकास' पर एक महत्वपूर्ण कानूनी लड़ाई को समाप्त करते हुए निर्णय दिया कि ग्रेट निकोबार परियोजना के लिए सभी पर्यावरणीय सुरक्षा उपाय लागू हैं।
- This integrated project, estimated to cost **₹80,000-90,000 crore**, has been at the centre of a debate between **national interests** and the **preservation of one of the world's most**



sensitive ecosystems.

यह समेकित परियोजना, जिसकी अनुमानित लागत ₹80,000-90,000 करोड़ है, राष्ट्रीय हितों और दुनिया के सबसे संवेदनशील पारिस्थितिक तंत्रों में से एक के संरक्षण के बीच बहस का केंद्र रही है।

What is the Great Nicobar project? ग्रेट निकोबार परियोजना क्या है?

- The project is an **integrated infrastructure development plan** proposed by the **Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO)**. यह परियोजना अंडमान और निकोबार द्वीप समूह समेकित विकास निगम लिमिटेड (ANIIDCO) द्वारा प्रस्तावित एक समेकित अवसंरचना विकास योजना है।
- It consists of **four major components**: an **International Container Transshipment Terminal (ICTT)**, a **450 MVA gas and solar-based power plant**, a **large-scale township and area development**, and an **international airport**. इसमें चार प्रमुख घटक शामिल हैं: अंतरराष्ट्रीय कंटेनर ट्रांसशिपमेंट टर्मिनल (ICTT), 450 MVA गैस और सौर आधारित बिजली संयंत्र, बड़े पैमाने पर टाउनशिप और क्षेत्र विकास, तथा अंतरराष्ट्रीय हवाई अड्डा।
- Building all of this would require diverting **130.75 square kilometres of forest land — roughly 18% of the total area of the Great Nicobar Island**. इन सबके निर्माण के लिए **130.75 वर्ग किलोमीटर वन भूमि — लगभग 18% ग्रेट निकोबार द्वीप के कुल क्षेत्रफल का उपयोग करना होगा।**
- It is projected to generate over **1.28 lakh jobs** by the time it is fully implemented in **2052**. अनुमान है कि यह परियोजना 2052 तक पूरी तरह लागू होने पर **1.28 लाख से अधिक रोजगार** उत्पन्न करेगी।
- However, the inevitable **environmental impact** of this project has prompted **global outrage**. हालाँकि, इस परियोजना के अनिवार्य पर्यावरणीय प्रभाव ने वैश्विक चिंता को जन्म दिया है।

What is the history of the project? परियोजना का इतिहास क्या है?

- The project's regulatory journey began in **May 2021** with a **Stage-I forest clearance** granted in **October 2022**, followed by **environmental and Coastal Regulation Zone (CRZ) clearances on November 11, 2022**. परियोजना की नियामक प्रक्रिया मई 2021 में शुरू हुई, जब अक्टूबर 2022 में स्टेज-I वन स्वीकृति मिली, जिसके बाद 11 नवंबर 2022 को पर्यावरण और तटीय विनियमन क्षेत्र (CRZ) स्वीकृतियाँ दी गईं।
- These clearances were challenged in a **“first round” of litigation in 2022**. इन स्वीकृतियों को 2022 में मुकदमेबाजी के “पहले दौर” में चुनौती दी गई।
- On **April 3, 2023**, the **NGT** found **“unanswered deficiencies”** regarding **coral conservation**, the adequacy of **environmental data**, and **zoning violations**. 3 अप्रैल 2023 को NGT ने कोरल संरक्षण, पर्यावरणीय डेटा की पर्याप्तता, और ज़ोनिंग उल्लंघनों से संबंधित “अनुत्तरित कमियाँ” पाईं।
- The tribunal then formed a **High-Powered Committee (HPC)** to revisit these issues. इसके बाद न्यायाधिकरण ने इन मुद्दों की पुनः समीक्षा के लिए उच्च स्तरीय समिति (HPC) गठित की।
- The final order issued this month is the result of the **“second round” of litigation**, where the tribunal reviewed the **HPC's findings** and the government's **subsequent actions**. इस महीने जारी अंतिम आदेश मुकदमेबाजी के “दूसरे दौर” का परिणाम है, जिसमें न्यायाधिकरण ने HPC की रिपोर्ट और सरकार की आगामी कार्रवाइयों की समीक्षा की।

Why is it a ‘national necessity’? इसे ‘राष्ट्रीय आवश्यकता’ क्यों कहा जा रहा है?

- The government maintains that the project is of extraordinary **strategic, defence, and national importance**. सरकार का कहना है कि यह परियोजना अत्यंत रणनीतिक, रक्षा और राष्ट्रीय महत्व की है।
- The **Great Nicobar** is located just **40 km from the Malacca Strait**, a critical **international shipping lane**.



ग्रेट निकोबार मलक्का जलडमरूमध्य से केवल 40 किमी दूर स्थित है, जो एक महत्वपूर्ण अंतरराष्ट्रीय नौवहन मार्ग है।

- The area is seen as vital to counter the “growing presence” of foreign powers in the Indian Ocean.
इस क्षेत्र को हिंद महासागर में विदेशी शक्तियों की “बढ़ती उपस्थिति” का मुकाबला करने के लिए महत्वपूर्ण माना जाता है।
- By establishing a major cargo transshipment hub, India can participate more fully in the global maritime economy and save significant costs on cargo currently transhipped through foreign ports.
एक प्रमुख कार्गो ट्रांसशिपमेंट हब स्थापित कर भारत वैश्विक समुद्री अर्थव्यवस्था में अधिक प्रभावी भागीदारी कर सकता है और विदेशी बंदरगाहों के माध्यम से होने वाले कार्गो पर महत्वपूर्ण लागत बचत कर सकता है।
- A permanent, robust presence on the island is expected to curb the poaching of marine resources by foreign entities.
द्वीप पर स्थायी और मजबूत उपस्थिति से विदेशी संस्थाओं द्वारा समुद्री संसाधनों की अवैध दोहन को रोकने की उम्मीद है।

What about Nicobar's ecology?

निकोबार की पारिस्थितिकी के बारे में क्या?

- The island is a biodiversity hotspot, and the project faces several ecological challenges.
यह द्वीप एक जैव-विविधता हॉटस्पॉट है, और परियोजना कई पारिस्थितिक चुनौतियों का सामना करती है।
- Initial surveys identified 20,668 coral colonies in the vicinity.
प्रारंभिक सर्वेक्षणों में आसपास 20,668 कोरल कॉलोनियाँ पहचानी गईं।
- While Island CRZ regulations prohibit the “destruction of corals”, the project involves the translocation of 16,150 colonies to suitable recipient sites.
जहाँ Island CRZ नियम “कोरल के विनाश” पर प्रतिबंध लगाते हैं, वहीं परियोजना में 16,150 कॉलोनियों के स्थानांतरण का प्रावधान है।
- The island is home to the Leatherback Sea Turtle, the Nicobar Megapode, and the Saltwater Crocodile.
यह द्वीप लेदरबैक समुद्री कछुआ, निकोबार मेगापोड, और खारे पानी का मगरमच्छ का आवास है।
- Critics argued that the construction would destroy nesting grounds in Galathea Bay.
आलोचकों का तर्क है कि निर्माण कार्य गलाथिया बे के घोंसले बनाने वाले क्षेत्रों को नष्ट कर देगा।
- A major point of contention was whether the port layout overlapped with Island CRZ-IA areas, which are the most ecologically sensitive zones where heavy construction is strictly prohibited.
एक प्रमुख विवाद यह था कि क्या पोर्ट लेआउट Island CRZ-IA क्षेत्रों से ओवरलैप करता है, जो सबसे पर्यावरणीय रूप से संवेदनशील क्षेत्र हैं जहाँ भारी निर्माण सख्ती से प्रतिबंधित है।
- Environmentalists argued that the Environmental Impact Assessment (EIA) was based on only one season of baseline data, which they claimed was insufficient for a project of this magnitude.
पर्यावरणविदों ने तर्क दिया कि पर्यावरणीय प्रभाव आकलन (EIA) केवल एक मौसम के आधारभूत डेटा पर आधारित था, जो इस स्तर की परियोजना के लिए अपर्याप्त है।
- Critics have also raised concerns that the studies downplay the seismic risks of the region, which is located in a high-activity tectonic zone.
आलोचकों ने यह भी चिंता जताई कि अध्ययन क्षेत्र के भूकंपीय जोखिमों को कम करके आँकते हैं, जबकि यह उच्च गतिविधि वाले टेक्टोनिक क्षेत्र में स्थित है।

How will it affect the tribal populations?

यह जनजातीय आबादी को कैसे प्रभावित करेगा?

- The island is inhabited by the Shompen and Nicobari tribes.
यह द्वीप शोम्पेन और निकोबारी जनजातियों द्वारा आबाद है।
- The NGT noted that the Expert Appraisal Committee (EAC) found the project is designed not to disturb or displace any tribal habitation.



NGT ने उल्लेख किया कि विशेषज्ञ मूल्यांकन समिति (EAC) ने पाया कि परियोजना इस प्रकार बनाई गई है कि किसी भी जनजातीय बस्ती को न तो बाधित किया जाएगा और न विस्थापित।

- The tribunal stated that the **habitat rights of the tribes** would be protected under the **Forest Rights Act**.
न्यायाधिकरण ने कहा कि जनजातियों के आवास अधिकार वन अधिकार अधिनियम के तहत संरक्षित रहेंगे।
- However, some tribal leaders recently said they were being **“coerced” to sign ‘surrender’ certificates** stating they had no objection to their lands being given to the government.
हालाँकि, हाल ही में कुछ जनजातीय नेताओं ने कहा कि उन्हें **‘सरेंडर’ प्रमाणपत्रों पर हस्ताक्षर करने के लिए ‘मजबूर’ किया जा रहा है**, जिसमें उन्होंने अपनी भूमि सरकार को देने पर कोई आपत्ति नहीं जताई।
- ANIIDCO** is required to provide funds to the **A&N Tribal Welfare Department** for the **welfare and protection of tribal groups**.
ANIIDCO को **अंडमान एवं निकोबार जनजातीय कल्याण विभाग** को जनजातीय समूहों के कल्याण और संरक्षण के लिए धन उपलब्ध कराना होगा।

**What was the NGT’s reasoning?
NGT का तर्क क्या था?**

- The tribunal upheld the **environmental clearance**, adopting a **“balanced approach”** between **environmental safeguards and national security**.
न्यायाधिकरण ने पर्यावरणीय स्वीकृति को बरकरार रखा, और पर्यावरणीय सुरक्षा तथा राष्ट्रीय सुरक्षा के बीच **“संतुलित दृष्टिकोण”** अपनाया।
- The **NGT** ruled that while **EIA procedures are mandatory**, they should not be used to adopt a **“hyper-technical approach”** ignoring ground realities and national security.
NGT ने कहा कि यद्यपि **EIA प्रक्रियाएँ अनिवार्य हैं**, पर इन्हें **“अत्यधिक तकनीकी दृष्टिकोण”** अपनाने के लिए उपयोग नहीं किया जाना चाहिए जो वास्तविकता और राष्ट्रीय सुरक्षा की अनदेखी करे।
- It accepted the **Zoological Survey of India (ZSI)** finding that no **“major” coral reef** exists in the direct work area of **Galathea Bay**, only **“scattered” colonies**.
इसने **भारतीय प्राणी सर्वेक्षण (ZSI)** की इस रिपोर्ट को स्वीकार किया कि **गलाथिया बे** के प्रत्यक्ष कार्य क्षेत्र में कोई **“बड़ी” कोरल रीफ** नहीं है, केवल **“छितरी हुई” कॉलोनियाँ** हैं।
- It ruled that **translocation would effectively protect the colonies**.
इसने निर्णय दिया कि **स्थानांतरण से कॉलोनियों की प्रभावी सुरक्षा होगी**।
- After a site visit by the **National Centre for Sustainable Coastal Management (NCSCM)**, the tribunal accepted that no part of the port project fell within the **prohibited ICRZ-IA zone**.
राष्ट्रीय सतत तटीय प्रबंधन केंद्र (NCSCM) की साइट यात्रा के बाद न्यायाधिकरण ने स्वीकार किया कि परियोजना का कोई भाग **प्रतिबंधित ICRZ-IA क्षेत्र** में नहीं आता।
- The tribunal ruled that **one-season data was sufficient** because the islands are not classified as a **“high erosion” stretch**.
न्यायाधिकरण ने कहा कि **एक मौसम का डेटा पर्याप्त है** क्योंकि द्वीप **“उच्च क्षरण” क्षेत्र** के रूप में वर्गीकृत नहीं हैं।
- With the **NGT according legal clearance**, **ANIIDCO** can proceed with project development.
NGT द्वारा कानूनी स्वीकृति मिलने के बाद, **ANIIDCO** परियोजना विकास आगे बढ़ा सकता है।
- The **Ministry of Ports, Shipping and Waterways** is also expected to move on **port development activities**.
पोर्ट्स, शिपिंग और जलमार्ग मंत्रालय से भी **बंदरगाह विकास गतिविधियाँ** आगे बढ़ाने की अपेक्षा है।



Security dilemma

Anthropic

The Claude developer's push to be Washington's trusted AI partner while drawing red lines on surveillance now risks putting it at odds with the Pentagon

GS III: S&T
Vasudevan mukund

REUTERS

Anthropic has spent the last year trying to get into an awkward position: close enough to the U.S. national security apparatus to be treated as a frontier supplier but far enough to not get burnt. In one demonstration of this reputational yoga, it was revealed that the U.S. operation to abduct Venezuela President Nicolas Maduro on January 3 used Anthropic's AI model Claude.

More recently, Anthropic clashed with the Pentagon over safeguards to prevent fully autonomous weapons targeting and U.S. domestic surveillance. While Anthropic contended that these are non-negotiable limits, the Pentagon has held that commercial AI should be available for "all lawful purposes". Even more recently, the Pentagon has been considering designating Anthropic a "supply chain risk" – a tag that could pressure contractors to certify that they're not using Claude.

Why has Anthropic found itself in this bind?

In 2025, the company publicly embraced a larger defence footprint by announcing an agreement with the U.S. Department of Defence worth \$200 million. It was a sign that Anthropic wanted to be the lab to say 'yes' to national security while still operating within limits, and in the



process keep up a public reputation as a company that's part of the military machinery. Anthropic has also been trying to present itself as an enterprise productivity company rather than as only a lab with a chatbot. Its partnership with Infosys, for instance, will pair its models with a firm that already sells compliance and governance services to industries that are heavily regulated.

Two ambitions

The reason for its bind is that a company that can claim to operate safely in government contexts with stringent security expectations can also plausibly sell itself to banks, manufacturers, and telecom companies. That is, to governments, Anthropic says: "We will help democratic states maintain a technological advantage but we won't accept deployments like autonomous targeting or expansive domestic surveillance". As a result, it gets to say to enterprises: "We can operationalise frontier AI inside environ-

ments with strict compliance requirements".

Unfortunately, these two ambitions have since collided. Anthropic appears to believe that conceding on autonomous targeting and domestic surveillance would destroy the line it has tried to draw with other frontier labs and entrants that are also courting defence customers.

The Pentagon, however, seems to be signalling that its vendors' moral compunctions are beside the point, especially once the vendors are inside the defence supply chain.

The enterprise automation layer – i.e. the coding and agentic systems that allow Claude to be embedded directly within workflows rather than keep it as a chatbot that enterprises use in an ad hoc way – is still one of Anthropic's main focus areas. And the company has also been trying to pitch its models' safety features as an advantage because its logic seems to be, regulators and enterprises will prefer

these models even when competitors develop more powerful alternatives. But this also means that if Anthropic yields to the Pentagon's demand, it could lose its signature differentiation, whereas if it refuses, the Pentagon could make an example of it.

The fact is that while Anthropic can try to control how Claude is used, its control will weaken once Claude leaves the building. Anthropic can say "you may not use Claude for x" in the terms of service or train the model to refuse certain requests, but even then, large customers rarely use an AI model as a standalone chatbot. Instead, they access it through cloud platforms, embed it inside software tools like for data analysis and automation, and they adapt it for specific missions. In other words, customers can work around the terms of service and the question of Anthropic's complicity still lingers.

In this sense, Anthropic's recent decisions are probably coherent. It bet that a market nervous about AI – e.g. governments worried about adversaries or enterprises worried about liability – will pay a premium for a developer that can both deploy and restrain. And the dispute with the Pentagon is the first major demonstration of what it will cost Anthropic to do both at once.

22F. Security dilemma सुरक्षा दुविधा

- Anthropic
एंथ्रोपिक
- The Claude developer's push to be Washington's trusted AI partner while drawing red lines on surveillance now risks putting it at odds with the Pentagon



Claude डेवलपर का प्रयास वॉशिंगटन का विश्वसनीय AI भागीदार बनने का, जबकि निगरानी पर लाल रेखाएँ खींचते हुए, अब उसे पेंटागन के साथ टकराव के जोखिम में डाल रहा है

Anthropic and U.S. National Security एंथ्रोपिक और अमेरिकी राष्ट्रीय सुरक्षा

- Anthropic has spent the **last year** trying to get into an awkward position: close enough to the **U.S. national security apparatus** to be treated as a **frontier supplier** but far enough to not get burnt.
एंथ्रोपिक ने **पिछले वर्ष** एक कठिन स्थिति बनाने की कोशिश की: **अमेरिकी राष्ट्रीय सुरक्षा तंत्र** के इतना करीब कि उसे **फ्रंटियर सप्लायर** माना जाए, लेकिन इतना दूर कि उसे नुकसान न हो।
- In one demonstration of this reputational yoga, it was revealed that the **U.S. operation to abduct Venezuela President Nicolas Maduro** on **January 3** used Anthropic's **AI model Claude**.
इस प्रतिष्ठा संतुलन के एक उदाहरण में खुलासा हुआ कि **3 जनवरी** को **वेनेजुएला के राष्ट्रपति निकोलस मादुरो का अपहरण करने के अमेरिकी ऑपरेशन** में एंथ्रोपिक के **AI मॉडल क्लाउड** का उपयोग हुआ।
- More recently, Anthropic clashed with the **Pentagon** over safeguards to prevent **fully autonomous weapons targeting** and **U.S. domestic surveillance**.
हाल ही में, एंथ्रोपिक का **पेंटागन** से टकराव हुआ क्योंकि वह **पूरी तरह स्वायत्त हथियार लक्ष्यीकरण और अमेरिकी घरेलू निगरानी** को रोकने के लिए सुरक्षा उपाय चाहता था।
- While Anthropic contended that these are **non-negotiable limits**, the Pentagon has held that commercial AI should be available for **"all lawful purposes"**.
जहाँ एंथ्रोपिक ने कहा कि ये **असमझौतायोग्य सीमाएँ** हैं, वहीं पेंटागन का मानना है कि वाणिज्यिक AI **"सभी कानूनी उद्देश्यों"** के लिए उपलब्ध होना चाहिए।
- Even more recently, the Pentagon has been considering designating Anthropic a **"supply chain risk"** — a tag that could pressure contractors to certify that they're not using **Claude**.
और हाल ही में, पेंटागन एंथ्रोपिक को **"सप्लाय चैन जोखिम"** घोषित करने पर विचार कर रहा है — ऐसा टैग जो ठेकेदारों पर दबाव डाल सकता है कि वे प्रमाणित करें कि वे **क्लाउड** का उपयोग नहीं कर रहे हैं।
- Why has Anthropic found itself in this **bind**?
एंथ्रोपिक खुद को इस **दुविधा** में क्यों पाता है?
- In **2025**, the company publicly embraced a larger **defence footprint** by announcing an agreement with the **U.S. Department of Defence** worth **\$200 million**.
2025 में कंपनी ने सार्वजनिक रूप से बड़ा **रक्षा विस्तार** अपनाया और **अमेरिकी रक्षा विभाग** के साथ **200 मिलियन डॉलर** का समझौता घोषित किया।
- It was a sign that Anthropic wanted to be the lab to say **'yes' to national security** while still operating within limits, and in the process keep up a public reputation as a company that's part of the **military machinery**.
यह संकेत था कि एंथ्रोपिक **राष्ट्रीय सुरक्षा को 'हाँ'** कहना चाहता था लेकिन सीमाओं के भीतर रहते हुए, और साथ ही **सैन्य तंत्र** का हिस्सा होने की सार्वजनिक छवि बनाए रखना चाहता था।
- Anthropic has also been trying to present itself as an **enterprise productivity company** rather than as only a lab with a **chatbot**.
एंथ्रोपिक खुद को केवल **चैटबॉट** वाली लैब के बजाय एक **एंटरप्राइज उत्पादकता कंपनी** के रूप में प्रस्तुत करने की कोशिश कर रहा है।
- Its partnership with **Infosys**, for instance, will pair its models with a firm that already sells **compliance and governance services** to industries that are **heavily regulated**.
उदाहरण के लिए, **इन्फोसिस** के साथ इसकी साझेदारी उसके मॉडलों को ऐसी कंपनी के साथ जोड़ेगी जो पहले से ही **अनुपालन और शासन सेवाएँ** उन उद्योगों को बेचती है जो **कड़े रूप से विनियमित** हैं।

Two ambitions दो महत्वाकांक्षाएँ

- The reason for its bind is that a company that can claim to operate safely in **government contexts with stringent security expectations** can also plausibly sell itself to **banks, manufacturers, and telecom companies**.
इसकी दुविधा का कारण यह है कि जो कंपनी **कड़े सुरक्षा अपेक्षाओं वाले सरकारी संदर्भों** में सुरक्षित रूप से



काम करने का दावा कर सकती है, वह स्वयं को **बैंकों, निर्माताओं और दूरसंचार कंपनियों** को भी विश्वसनीय रूप से बेच सकती है।

- That is, to governments, Anthropic says: “We will help **democratic states maintain a technological advantage** but we won’t accept deployments like **autonomous targeting** or expansive **domestic surveillance**”.
अर्थात्, सरकारों से एंथ्रोपिक कहता है: “हम **लोकतांत्रिक राज्यों को तकनीकी बढ़त बनाए रखने** में मदद करेंगे, लेकिन **स्वायत्त लक्ष्यीकरण** या व्यापक **घरेलू निगरानी** जैसे उपयोग स्वीकार नहीं करेंगे।”
- As a result, it gets to say to enterprises: “We can operationalise **frontier AI** inside environments with **strict compliance requirements**”.
परिणामस्वरूप, यह उद्यमों से कह सकता है: “हम **फ्रंटियर AI** को **कड़े अनुपालन आवश्यकताओं** वाले वातावरण में संचालित कर सकते हैं।”
- Unfortunately, these **two ambitions** have since collided.
दुर्भाग्य से, ये **दो महत्वाकांक्षाएँ** अब टकरा गई हैं।
- Anthropic appears to believe that conceding on **autonomous targeting and domestic surveillance** would destroy the line it has tried to draw with other **frontier labs** and entrants that are also courting **defence customers**.
एंथ्रोपिक का मानना है कि **स्वायत्त लक्ष्यीकरण और घरेलू निगरानी** पर समझौता करने से वह रेखा मिट जाएगी जिसे उसने अन्य **फ्रंटियर लैब्स** और **रक्षा ग्राहकों** को आकर्षित करने वाले नए प्रवेशकों से अलग दिखाने के लिए खींचा है।
- The **Pentagon**, however, seems to be signalling that its vendors’ moral compunctions are beside the point, especially once the vendors are inside the **defence supply chain**.
हालाँकि, **पेंटागन** संकेत दे रहा है कि उसके विक्रेताओं की नैतिक आपत्तियाँ महत्वहीन हैं, विशेषकर जब वे **रक्षा आपूर्ति श्रृंखला** के भीतर आ जाते हैं।
- The **enterprise automation layer** — i.e. the coding and **agentic systems** that allow **Claude** to be embedded directly within workflows rather than keep it as a chatbot — is still one of Anthropic’s main focus areas.
एंटरप्राइज ऑटोमेशन लेयर — अर्थात् कोडिंग और **एजेंटिक सिस्टम्स** जो **क्लाउड** को चैटबॉट के बजाय सीधे कार्यप्रवाह में एकीकृत करते हैं — अभी भी एंथ्रोपिक का मुख्य फोकस क्षेत्र है।
- The company has also been trying to pitch its models’ **safety features** as an advantage because its logic seems to be, **regulators and enterprises** will prefer these models even when competitors develop more powerful alternatives.
कंपनी अपने मॉडलों की **सुरक्षा विशेषताओं** को भी लाभ के रूप में प्रस्तुत कर रही है क्योंकि उसका तर्क है कि **नियामक और उद्यम** इन मॉडलों को प्राथमिकता देंगे, भले ही प्रतिस्पर्धी अधिक शक्तिशाली विकल्प विकसित करें।
- But this also means that if Anthropic yields to the **Pentagon’s demand**, it could lose its signature **differentiation**, whereas if it refuses, the Pentagon could make an example of it.
लेकिन इसका अर्थ यह भी है कि यदि एंथ्रोपिक **पेंटागन की मांग** मान लेता है, तो वह अपनी विशिष्ट **भिन्नता** खो सकता है, और यदि इंकार करता है तो पेंटागन उसे उदाहरण बना सकता है।
- The fact is that while Anthropic can try to control how **Claude** is used, its control will weaken once Claude leaves the building.
तथ्य यह है कि एंथ्रोपिक यह नियंत्रित करने की कोशिश कर सकता है कि **क्लाउड** का उपयोग कैसे हो, लेकिन एक बार क्लॉड बाहर चला जाए तो उसका नियंत्रण कमजोर पड़ जाएगा।
- Anthropic can say “you may not use Claude for x” in the **terms of service** or train the model to refuse certain requests, but even then, large customers rarely use an AI model as a standalone chatbot.
एंथ्रोपिक **सेवा शर्तों** में कह सकता है “आप क्लॉड का उपयोग x के लिए नहीं कर सकते” या मॉडल को कुछ अनुरोध अस्वीकार करने के लिए प्रशिक्षित कर सकता है, लेकिन बड़े ग्राहक AI मॉडल को अकेले चैटबॉट के रूप में कम ही उपयोग करते हैं।
- Instead, they access it through **cloud platforms**, embed it inside **software tools** for data analysis and automation, and adapt it for **specific missions**.
इसके बजाय, वे इसे **क्लाउड प्लेटफॉर्म** के माध्यम से उपयोग करते हैं, **सॉफ्टवेयर टूल्स** में डेटा विश्लेषण और स्वचालन के लिए एकीकृत करते हैं, और इसे **विशिष्ट मिशनों** के लिए अनुकूलित करते हैं।
- In other words, customers can work around the **terms of service** and the question of Anthropic’s **complicity** still lingers.



दूसरे शब्दों में, ग्राहक सेवा शर्तों को दरकिनार कर सकते हैं और एंथ्रोपिक की सहभागिता का प्रश्न बना रहता है।

- In this sense, Anthropic's recent decisions are probably coherent. इस अर्थ में, एंथ्रोपिक के हालिया निर्णय संभवतः सुसंगत हैं।
- It bet that a market nervous about AI — governments worried about **adversaries** or enterprises worried about **liability** — will pay a premium for a developer that can both deploy and restrain. उसने दांव लगाया कि AI को लेकर चिंतित बाजार — विरोधियों को लेकर चिंतित सरकारें या दायित्व को लेकर चिंतित उद्यम — ऐसे डेवलपर को प्रीमियम देंगे जो तैनात भी कर सके और सीमित भी कर सके।
- And the dispute with the **Pentagon** is the first major demonstration of what it will cost Anthropic to do both at once. और **पेंटागन** के साथ विवाद इस बात का पहला बड़ा उदाहरण है कि दोनों काम एक साथ करने की एंथ्रोपिक को क्या कीमत चुकानी पड़ेगी।

The curious case of the star that may have swallowed itself

CS III: S&T
Vasudevan Mukunth

When a sufficiently massive star runs out of fuel, its core collapses and triggers a supernova, a dramatic explosion that scatters the star's outer layers into space. But scientists have long suspected that sometimes, the explosion fails and instead of a supernova, the star just disappears.

In a recent paper in *Science*, astronomers have reported observational evidence of such a star in the Andromeda Galaxy,

dubbed M31-2014-DS1.

The star was a supergiant about 100,000 times brighter than the sun. In 2014, it brightened in infrared light, suggesting dust was forming around the star. Then, from 2017, the star's brightness dropped by more than 10,000 times over five years until, in 2023, optical telescopes couldn't see it.

The researchers, led by Kishalay De from Columbia University, analysed years of archival data as well as made new observations us-

ing some of the world's most powerful telescopes, measuring the star's brightness in different wavelengths. They also built computer models of how stars evolve and die to help them understand the star's properties.

All the evidence indicated a failed supernova. When the star's core collapsed, it should have sent a powerful shockwave through the star's outer layers, blasting them into space. However, the wave may not have been power-

ful enough, causing most of the star's material to fall back to the collapsing core.

As a result, the star would have 'swallowed itself', leaving behind a black hole.

The infrared brightening in 2014 was likely caused by the small amount of material that was ejected; this material would have subsequently cooled and formed dust, which would have glowed with infrared light before eventually dispersing.

The researchers also

found similarities with another candidate named NGC 6946-BH1, which vanished from optical telescopes' view in 2009, suggesting 'failed supernovae' may not be as rare as astronomers once believed. At the same time, the researchers wrote in their paper, the relationship between a star's mass and how it dies may also be less predictable than first thought.

'Will keep studying'

This said, a separate group

led by Emma Beasor of Liverpool John Moores University argued in early January that the observations don't exactly match a failed supernova, including that the erstwhile star's infrared brightness didn't fade as expected. Instead, this group suggested the data could also be explained by two stars colliding and merging.

At present, Dr. De said in a podcast, the team will keep studying the star to learn more.

22F. The curious case of the star that may have swallowed itself उस तारे का जिज्ञासापूर्ण मामला जिसने संभवतः स्वयं को निगल लिया

Failed supernova विफल सुपरनोवा

- When a sufficiently massive star runs out of fuel, its core collapses and triggers a **supernova**, a dramatic explosion that scatters the star's outer layers into space. जब पर्याप्त विशाल तारा ईंधन खत्म कर देता है, तो उसका कोर ढह जाता है और **सुपरनोवा** उत्पन्न करता है, एक विस्फोट जो तारे की बाहरी परतों को अंतरिक्ष में फैला देता है।
- But scientists have long suspected that sometimes, the explosion **fails** and instead of a supernova, the star just **disappears**. लेकिन वैज्ञानिक लंबे समय से संदेह करते रहे हैं कि कभी-कभी यह विस्फोट **विफल** हो जाता है और सुपरनोवा के बजाय तारा **गायब** हो जाता है।
- In a recent paper in *Science*, astronomers reported observational evidence of such a star in the **Andromeda Galaxy**, dubbed **M31-2014-DS1**. हाल ही में *Science* पत्रिका में, खगोलविदों ने **एंड्रोमेडा गैलेक्सी** में ऐसे तारे के प्रमाण बताए, जिसे **M31-2014-DS1** नाम दिया गया।
- The star was a **supergiant** about **100,000 times brighter than the sun**. यह तारा एक **सुपरजायंट** था जो **सूर्य से लगभग 100,000 गुना अधिक चमकीला** था।
- In **2014**, it brightened in **infrared light**, suggesting dust was forming around the star. **2014** में यह **इन्फ्रारेड प्रकाश** में चमका, जिससे संकेत मिला कि तारे के आसपास धूल बन रही थी।
- Then, from **2017**, the star's brightness dropped by more than **10,000 times** over **five years**, until in **2023** optical telescopes couldn't see it.



फिर 2017 से तारे की चमक 10,000 गुना से अधिक घट गई और पाँच वर्षों में 2023 तक ऑप्टिकल टेलीस्कोप इसे नहीं देख सके।

- The researchers, led by **Kishalay De** from **Columbia University**, analysed years of archival data and made new observations using powerful telescopes.
कोलंबिया विश्वविद्यालय के **किशालय डे** के नेतृत्व में शोधकर्ताओं ने वर्षों के डेटा का विश्लेषण किया और शक्तिशाली टेलीस्कोप से नए अवलोकन किए।
- They measured the star's brightness at different wavelengths and built **computer models** of how stars evolve and die.
उन्होंने अलग-अलग तरंगदैर्घ्य पर तारे की चमक मापी और तारों के विकास और मृत्यु के **कंप्यूटर मॉडल** बनाए।
- All the evidence indicated a **failed supernova**.
सभी प्रमाण **विफल सुपरनोवा** की ओर संकेत करते हैं।
- When the star's core collapsed, it should have sent a powerful **shockwave** through the outer layers, blasting them into space.
जब तारे का कोर ढहा, तो उसे बाहरी परतों में शक्तिशाली **शॉकवेव** भेजनी चाहिए थी जो उन्हें अंतरिक्ष में उड़ा देती।
- However, the wave may not have been powerful enough, causing most of the material to fall back to the collapsing core.
लेकिन यह तरंग पर्याप्त शक्तिशाली नहीं थी, जिससे अधिकांश पदार्थ वापस कोर में गिर गया।
- As a result, the star would have '**swallowed itself**', leaving behind a **black hole**.
परिणामस्वरूप तारे ने '**खुद को निगल लिया**' और पीछे एक **ब्लैक होल** छोड़ दिया।
- The **infrared brightening in 2014** was likely caused by the small amount of material ejected, which cooled and formed dust.
2014 में इन्फ्रारेड चमक संभवतः निकले हुए थोड़े पदार्थ के कारण हुई, जो ठंडा होकर धूल बना।
- This dust glowed in infrared light before eventually dispersing.
यह धूल इन्फ्रारेड प्रकाश में चमकी और बाद में फैल गई।
- Researchers found similarities with another candidate **NGC 6946-BH1**, which vanished from optical telescopes in **2009**.
शोधकर्ताओं ने एक अन्य उम्मीदवार **NGC 6946-BH1** से समानता पाई, जो **2009** में ऑप्टिकल टेलीस्कोप से गायब हो गया था।
- This suggests **failed supernovae may not be rare** and the link between a star's mass and how it dies may be **less predictable**.
यह संकेत देता है कि **विफल सुपरनोवा दुर्लभ नहीं हो सकते** और तारे के द्रव्यमान तथा उसकी मृत्यु के बीच संबंध **कम पूर्वानुमेय** हो सकता है।

'Will keep studying' 'अध्ययन जारी रहेगा'

- A separate group led by **Emma Beasor** of **Liverpool John Moores University** argued the observations do not exactly match a failed supernova.
लिवरपूल जॉन मूर विश्वविद्यालय की **एम्मा बीसोर** के नेतृत्व वाले समूह ने कहा कि अवलोकन पूरी तरह विफल सुपरनोवा से मेल नहीं खाते।
- They noted the star's **infrared brightness didn't fade as expected**.
उन्होंने कहा कि तारे की **इन्फ्रारेड चमक अपेक्षा अनुसार कम नहीं हुई**।
- Instead, they suggested the data could be explained by **two stars colliding and merging**.
उन्होंने सुझाव दिया कि डेटा **दो तारों के टकराने और विलय** से भी समझाया जा सकता है।
- At present, **Dr. De** said the team will **keep studying the star** to learn more.
वर्तमान में **डॉ. डे** ने कहा कि टीम **तारे का अध्ययन जारी रखेगी** ताकि और जानकारी मिल सके।



New Kashmir wheat varieties to solve crop cycle issue

Wheat is sown in October and typically harvested in early summer; in Kashmir, however, the timing is critical: farmers need to vacate their fields by May-June to transplant paddy; if wheat stays in the field, the rice-wheat rotation breaks down

GS III: S&T

Hirra Azmat

Scientists at the Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir (SKUAST-K) have developed two wheat varieties that could help farmers harvest on time and boost the region's total food grain production.

"One of the major challenges with earlier wheat varieties was that most of the planting material came from sub-tropical regions such as Haryana and Delhi," Asif Bashir Shikari, professor of genetics and plant breeding at SKUAST-K, said. "In Kashmir's climatic conditions, these varieties tended to mature late, often around June or July."

Wheat, a rabi crop, is sown in October and typically harvested in early summer. In Kashmir, however, where rice is the dominant kharif crop, farmers need to vacate their fields by May-June to transplant paddy. When wheat stays in the field until June, the rice-wheat rotation, a mainstay of food security and livelihoods, breaks down. "Although those varieties were high-yielding, they affected the cropping cycle," Dr. Shikari explained. "That is why plant breeders in Kashmir prioritised developing early-maturing wheat varieties that could be harvested by end May."

After nearly a decade of breeding and testing, researchers at SKUAST-K developed Shalimar Wheat-4 (SW-4), which matures by

Timely harvest

New wheat varieties are suited for mid-altitude regions up to about 1,850 m

Both varieties are broadly similar to earlier wheat types in agronomic traits and cold tolerance.
SPECIAL ARRANGEMENT

- SKUAST-Kashmir scientists have bred two early-maturing wheat varieties mindful of Kashmir's rice, wheat cropping calendar

- High-yielding wheat brought from subtropical regions matured too late in Kashmir, delaying the transplantation of paddy

- Of the new varieties, SW-4 matures by late May while SW-3 matures in early June

- The new varieties aim to keep the yields



competitive while prioritising a timely harvest for farmers

- Researchers used conventional cross-breeding, pedigree selection, and multi-site trials over nearly a decade to develop the varieties

- Both varieties resist yellow rust fungal disease and yield reliable quantities of fodder, improving farmers' ability to manage risk

the last week of May, and the Shalimar Wheat-3 (SW-3), which matures in the first week of June. Both varieties are broadly similar to earlier wheat types in agronomic traits and cold tolerance. But they stand out for their early maturity, a trait that has often come with trade-offs.

"There is a negative correlation between maturity duration and yield," Dr. Shikari said. "Breeders sometimes accept this trade-off because timely maturity is more critical for cropping systems."

The varieties were developed using conventional breeding techniques, including cross-breeding and selection. Scientists generated thousands of progenies from hundreds of crosses and screened thousands of pedigree lines before identifying a promising candidate that matured early.

for identifying a promising candidate that matured early.

"First, we spent years selecting the best plants in the lab and research fields; this is called pedigree selection. Then we tested the wheat for 2-3 years at different university research stations to see how it performs in different environmental conditions," Shabir Hussain Wani, assistant professor of genetics and plant breeding at SKUAST-K, who developed SW-3, said. "After that, we tried it in real farmers' fields for about two years with help from the Agriculture Department. In total, it takes about 9 to 10 years to complete the entire process of testing and validation."

Another important trait is resistance to yellow rust,

a fungal disease that leads to stunting and lower yield and which prevails in Kashmir's climate. "Yellow rust has been a recurring problem for farmers here," Dr. Wani said. "Resistance reduces risk, especially in years with favourable conditions for disease outbreaks."

The new varieties are suited for mid-altitude regions up to about 1,850 m. Researchers expect the varieties to benefit farmers in regions such as Gurez, where wheat is often grown for fodder, with grain as an additional benefit. "SW-3 is also biofortified with iron and zinc content of more than 40 ppm, protein content of 12%, is disease-resistant, and with a potential productivity of up to 38 quintals per hectare," Dr. Wani said.

In October 2025, SKUAST-K introduced SW-3 to farmers in the Gurez valley near the Line of Control. According to official data, 70 quintals of SW-3 seeds plus a scientific package of practices were distributed among 700 farmers. The programme was aimed to extend modern agricultural technologies to isolated villages, where farmers often use traditional seed systems and have limited access to scientific innovation.

"If this wheat matures by May, we can prepare the fields for paddy on time. Even if the yield is similar, the timing itself is a big benefit for us," Abdul Hamid, a 52-year-old in Kulgam, explained. "Also this will resolve our problem of growing fodder shortage. We grow wheat both for its grain and fodder. The stalks ... are essential fodder. We dry and store them for the harsh winter."

Shabir Ahmad, a 34-year-old farmer in Gurez who grows wheat primarily for fodder, said the new varieties could offer more security: "In Gurez, cold and disease are always a problem. Yellow rust has damaged crops in the past. If these varieties resist rust and mature early, it will be safer for us. We mainly need fodder for livestock and grain is a bonus. But timely harvest means we can plan our fodder supply better and avoid losses from unexpected weather."

(Hirra Azmat is a Kashmir-based journalist who writes on science, health, and environment)

22F. New Kashmir wheat varieties to solve crop cycle issue

फसल चक्र समस्या को हल करने के लिए कश्मीर की नई गेहूं किस्में

- Scientists at the **Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir (SKUAST-K)** have developed two wheat varieties that could help farmers harvest on time and boost the region's total food grain production.

शेर-ए-कश्मीर कृषि विज्ञान एवं प्रौद्योगिकी विश्वविद्यालय, कश्मीर (SKUAST-K) के वैज्ञानिकों ने गेहूं की दो किस्में विकसित की हैं जो किसानों को समय पर कटाई करने और क्षेत्र के कुल खाद्यान्न उत्पादन को बढ़ाने में मदद कर सकती हैं।



- “One of the major challenges with earlier wheat varieties was that most of the planting material came from sub-tropical regions such as **Haryana and Delhi**,” **Asif Bashir Shikari**, professor of genetics and plant breeding at **SKUAST-K**, said.
“पहले की गेहूं किस्मों के साथ एक प्रमुख चुनौती यह थी कि अधिकांश रोपण सामग्री उप-उष्णकटिबंधीय क्षेत्रों जैसे **हरियाणा और दिल्ली** से आती थी,” **SKUAST-K** में आनुवंशिकी और पादप प्रजनन के प्रोफेसर **आसिफ बशीर शिकारी** ने कहा।
- “In Kashmir’s climatic conditions, these varieties tended to mature late, often around **June or July**.”
“कश्मीर की जलवायु परिस्थितियों में, ये किस्में देर से पकती थीं, अक्सर **जून या जुलाई** के आसपास।”
- Wheat, a **rabi crop**, is sown in **October** and typically harvested in early summer.
गेहूं, एक **रबी फसल**, **अक्टूबर** में बोई जाती है और सामान्यतः प्रारंभिक ग्रीष्म में काटी जाती है।
- In Kashmir, however, where rice is the dominant **kharif crop**, farmers need to vacate their fields by **May-June** to transplant paddy.
हालाँकि कश्मीर में, जहाँ चावल प्रमुख **खरीफ फसल** है, किसानों को धान की रोपाई के लिए अपने खेत **मई-जून** तक खाली करने होते हैं।
- When wheat stays in the field until **June**, the rice-wheat rotation, a mainstay of food security and livelihoods, breaks down.
जब गेहूं **जून** तक खेत में रहता है, तो चावल-गेहूं फसल चक्र, जो खाद्य सुरक्षा और आजीविका का आधार है, बाधित हो जाता है।
- “Although those varieties were high-yielding, they affected the cropping cycle,” **Dr. Shikari** explained.
“हालाँकि वे किस्में उच्च उत्पादक थीं, लेकिन उन्होंने फसल चक्र को प्रभावित किया,” **डॉ. शिकारी** ने समझाया।
- “That is why plant breeders in Kashmir prioritised developing early-maturing wheat varieties that could be harvested by end **May**.”
“इसीलिए कश्मीर में पादप प्रजनकों ने ऐसी शीघ्र पकने वाली गेहूं किस्में विकसित करने को प्राथमिकता दी जिन्हें **मई** के अंत तक काटा जा सके।”
- After nearly a decade of breeding and testing, researchers at **SKUAST-K** developed **Shalimar Wheat-4 (SW-4)**, which matures by the last week of **May**, and **Shalimar Wheat-3 (SW-3)**, which matures in the first week of **June**.
लगभग एक दशक के प्रजनन और परीक्षण के बाद, **SKUAST-K** के शोधकर्ताओं ने **शालीमार व्हीट-4 (SW-4)** विकसित किया, जो **मई** के अंतिम सप्ताह तक पक जाता है, और **शालीमार व्हीट-3 (SW-3)**, जो **जून** के पहले सप्ताह में पकता है।
- Both varieties are broadly similar to earlier wheat types in agronomic traits and cold tolerance. दोनों किस्में कृषि गुणों और शीत सहनशीलता में पहले की गेहूं किस्मों के समान हैं।
- But they stand out for their early maturity, a trait that has often come with trade-offs. लेकिन वे अपनी शीघ्र परिपक्वता के लिए अलग पहचान रखती हैं, एक गुण जो अक्सर समझौतों के साथ आता है।
- “There is a negative correlation between maturity duration and yield,” **Dr. Shikari** said.
“परिपक्वता अवधि और उपज के बीच नकारात्मक संबंध होता है,” **डॉ. शिकारी** ने कहा।
- “Breeders sometimes accept this trade-off because timely maturity is more critical for cropping systems.”
“प्रजनक कभी-कभी इस समझौते को स्वीकार करते हैं क्योंकि समय पर परिपक्वता फसल प्रणालियों के लिए अधिक महत्वपूर्ण होती है।”
- The varieties were developed using conventional breeding techniques, including cross-breeding and selection.
इन किस्मों को पारंपरिक प्रजनन तकनीकों, जिनमें संकरण और चयन शामिल हैं, का उपयोग करके विकसित किया गया।
- Scientists generated thousands of progenies from hundreds of crosses and screened thousands of pedigree lines before identifying a promising candidate that matured early. वैज्ञानिकों ने सैकड़ों संकरणों से हजारों संततियाँ उत्पन्न कीं और हजारों वंशावली पंक्तियों की जांच की, तब जाकर एक ऐसी आशाजनक किस्म की पहचान की जो जल्दी पकती थी।

Development and Testing Process विकास और परीक्षण प्रक्रिया



- First, we spent years selecting the best plants in the lab and research fields; this is called **pedigree selection**.
पहले, हमने प्रयोगशाला और अनुसंधान खेतों में सर्वश्रेष्ठ पौधों का चयन करने में वर्षों बिताए; इसे **पेडिग्री चयन** कहा जाता है।
- Then we tested the wheat for **2-3 years** at different university research stations to see how it performs in different environmental conditions,” **Shabir Hussain Wani**, assistant professor of genetics and plant breeding at **SKUAST-K**, who developed **SW-3**, said.
फिर हमने गेहूं का **2-3 वर्षों** तक विभिन्न विश्वविद्यालय अनुसंधान स्टेशनों पर परीक्षण किया ताकि यह देखा जा सके कि यह विभिन्न पर्यावरणीय परिस्थितियों में कैसा प्रदर्शन करता है,” **SKUAST-K** में आनुवंशिकी और पादप प्रजनन के सहायक प्रोफेसर और **SW-3** के विकासकर्ता **शबीर हुसैन वानी** ने कहा।
- “After that, we tried it in real farmers’ fields for about **two years** with help from the **Agriculture Department**.
“इसके बाद, हमने इसे वास्तविक किसानों के खेतों में लगभग **दो वर्षों** तक **कृषि विभाग** की मदद से आजमाया।
- In total, it takes about **9 to 10 years** to complete the entire process of testing and validation.”
कुल मिलाकर, परीक्षण और सत्यापन की पूरी प्रक्रिया को पूरा करने में लगभग **9 से 10 वर्ष** लगते हैं।”
- Another important trait is resistance to **yellow rust**, a fungal disease that leads to stunting and lower yield and which prevails in Kashmir’s climate.
एक अन्य महत्वपूर्ण गुण **येलो रस्ट** के प्रति प्रतिरोध है, यह एक फफूंद रोग है जो वृद्धि अवरोध और कम उपज का कारण बनता है और कश्मीर की जलवायु में प्रचलित है।
- “Yellow rust has been a recurring problem for farmers here,” **Dr. Wani** said.
“येलो रस्ट यहाँ किसानों के लिए बार-बार आने वाली समस्या रही है,” **डॉ. वानी** ने कहा।
- “Resistance reduces risk, especially in years with favourable conditions for disease outbreaks.”
“प्रतिरोध जोखिम को कम करता है, विशेषकर उन वर्षों में जब रोग फैलने के लिए अनुकूल परिस्थितियाँ होती हैं।”

Suitability and Nutritional Traits उपयुक्तता और पोषण संबंधी गुण

- The new varieties are suited for **mid-altitude regions up to about 1,850 m**.
नई किस्में **लगभग 1,850 मीटर तक की मध्यम ऊँचाई वाले क्षेत्रों** के लिए उपयुक्त हैं।
- Researchers expect the varieties to benefit farmers in regions such as **Gurez**, where wheat is often grown for fodder, with grain as an additional benefit.
शोधकर्ताओं को उम्मीद है कि ये किस्में **गुरेज** जैसे क्षेत्रों के किसानों को लाभ पहुँचाएँगी, जहाँ गेहूं अक्सर चारे के लिए उगाया जाता है और दाना अतिरिक्त लाभ होता है।
- “**SW-3** is also biofortified with **iron and zinc content of more than 40 ppm, protein content of 12 %**, is disease-resistant, and with a potential productivity of up to **38 quintals per hectare**,” **Dr. Wani** said.
“**SW-3** को **40 ppm से अधिक आयरन और जिंक, 12 % प्रोटीन**, रोग प्रतिरोधक क्षमता और **38 क्विंटल प्रति हेक्टेयर तक संभावित उत्पादकता** के साथ बायोफोर्टिफाइड किया गया है,” **डॉ. वानी** ने कहा।

Introduction in Gurez Valley गुरेज घाटी में परिचय

- In **October 2025**, **SKUAST-K** introduced **SW-3** to farmers in the **Gurez valley** near the **Line of Control**.
अक्टूबर 2025 में, **SKUAST-K** ने **लाइन ऑफ कंट्रोल** के पास **गुरेज घाटी** के किसानों को **SW-3** प्रदान किया।
- According to official data, **70 quintals** of **SW-3** seeds plus a scientific package of practices were distributed among **700 farmers**.
आधिकारिक आंकड़ों के अनुसार, **70 क्विंटल SW-3** बीज और एक वैज्ञानिक पैकेज **700 किसानों** में वितरित किया गया।
- The programme was aimed to extend modern agricultural technologies to isolated villages, where farmers often use traditional seed systems and have limited access to scientific innovation.



इस कार्यक्रम का उद्देश्य दूरस्थ गाँवों तक आधुनिक कृषि तकनीक पहुँचाना था, जहाँ किसान अक्सर पारंपरिक बीज प्रणालियों का उपयोग करते हैं और वैज्ञानिक नवाचार तक सीमित पहुँच रखते हैं।

Farmers' Views किसानों के विचार

- “If this wheat matures by **May**, we can prepare the fields for paddy on time.
“यदि यह गेहूँ **मई** तक पक जाता है, तो हम समय पर धान के लिए खेत तैयार कर सकते हैं।
- Even if the yield is similar, the timing itself is a big benefit for us,” **Abdul Hamid**, a **52-year-old** in **Kulgam**, explained.
भले ही उपज समान हो, समय पर पकना ही हमारे लिए बड़ा लाभ है,” **कुलगाम के 52 वर्षीय अब्दुल हमीद** ने कहा।
- “Also this will resolve our problem of growing fodder shortage.
“यह हमारे चारे की कमी की समस्या भी हल करेगा।
- We grow wheat both for its grain and fodder.
हम गेहूँ को दाने और चारे दोनों के लिए उगाते हैं।
- The stalks ... are essential fodder.
तने ... आवश्यक चारा हैं।
- We dry and store them for the harsh winter.”
हम उन्हें कठोर सर्दियों के लिए सुखाकर संग्रहित करते हैं।”
- **Shabir Ahmad**, a **34-year-old** farmer in **Gurez** who grows wheat primarily for fodder, said the new varieties could offer more security.
गुरेज के 34 वर्षीय किसान शबीर अहमद, जो मुख्यतः चारे के लिए गेहूँ उगाते हैं, ने कहा कि नई किस्में अधिक सुरक्षा दे सकती हैं।
- “In Gurez, cold and disease are always a problem.
“गुरेज में ठंड और रोग हमेशा समस्या रहते हैं।
- Yellow rust has damaged crops in the past.
येलो रस्ट ने अतीत में फसलों को नुकसान पहुँचाया है।
- If these varieties resist rust and mature early, it will be safer for us.
यदि ये किस्में रस्ट का प्रतिरोध करती हैं और जल्दी पकती हैं, तो यह हमारे लिए सुरक्षित होगा।
- We mainly need fodder for livestock and grain is a bonus.
हमें मुख्यतः पशुधन के लिए चारा चाहिए और दाना अतिरिक्त लाभ है।
- But timely harvest means we can plan our fodder supply better and avoid losses from unexpected weather.”
लेकिन समय पर कटाई का अर्थ है कि हम अपने चारे की आपूर्ति बेहतर योजना बना सकते हैं और अप्रत्याशित मौसम से होने वाले नुकसान से बच सकते हैं।”



GS III: S&T

Scientists find bouba-kiki effect in three-day chicks

Humans often match “bouba” with round shapes and “kiki” with spiky ones. Researchers raised baby chicks, then played the sounds while showing them the two shapes. Three-day-old chicks chose the round shapes more often when they heard “bouba” and spiky shapes more often when they heard “kiki”. The study concluded brains may come pre-wired to connect sounds and shapes and this ability may be shared across species, supporting the idea that the link starts from perception.

to connect **sounds and shapes** and this ability may be **shared across species**, supporting the idea that the link starts from **perception**.

अध्ययन ने निष्कर्ष निकाला कि मस्तिष्क संभवतः पहले से जुड़ा हुआ (pre-wired) होता है ताकि वह ध्वनियों और आकृतियों को जोड़ सके और यह क्षमता विभिन्न प्रजातियों में साझा हो सकती है, जो इस विचार का समर्थन करती है कि यह संबंध धारणा (perception) से शुरू होता है।

22F. Scientists find bouba-kiki effect in three-day chicks वैज्ञानिकों ने तीन दिन के चूजों में बूबा-किकी प्रभाव पाया

Bouba-Kiki Effect Study बूबा-किकी प्रभाव अध्ययन

• Humans often match “bouba” with round shapes and “kiki” with spiky ones.

मनुष्य अक्सर “bouba” को गोल आकृतियों से और “kiki” को नुकीली आकृतियों से जोड़ते हैं।

• Researchers raised baby chicks, then played the sounds while showing them the two shapes.

शोधकर्ताओं ने चूजों को पाला, फिर उन्हें दो आकृतियाँ दिखाते हुए ध्वनियाँ सुनाई।

• Three-day-old chicks chose the round shapes more often when they heard “bouba” and spiky shapes more often when they heard “kiki”.

तीन दिन के चूजों ने “bouba” सुनने पर अधिक बार गोल आकृतियाँ चुनीं और “kiki” सुनने पर अधिक बार नुकीली आकृतियाँ चुनीं।

• The study concluded brains may come pre-wired

The biology of belief, optimism, and good health

GS III: S&T



SPEAKING OF SCIENCE
D. Balasubramanian

Helen Keller, the American author and activist who was deaf and blind, became an international symbol of human potential. She wrote, “Optimism is the faith that leads to achievement. Nothing can be done without hope and confidence.”

Optimism can be defined as maintaining positive expectations for the future. It is a human trait that has also been associated with better health and a higher quality of life. Optimism shapes how we look ahead and functions as a modulator that amplifies positive possibilities and filters out negative projections. The Israeli-British

neuroscientist Tali Sharot has estimated that about 80% of humans are optimists but that the optimism levels of most people can be best described as “mild”.

It can be argued that optimism represents a biased view of reality. Why would evolution favour a trait that presents you with a bias instead of a perfectly objective view? The consensus among researchers is that optimism is highly adaptive, meaning it increases an organism's chances of survival.

Imagine a human as she lived several thousand years ago. She is in a cave and there is a drought going on. If she were to calculate the probability of successfully finding food – a rabbit perhaps, or a bush with edible fruit on it – she would in all likelihood not go out at all. Lethargy, which conserves energy,



People who score better for optimism have been shown to have healthier hearts. PABLO GUERRERO/JUNSPASH

would be the rational choice. But optimism could encourage her to persist. By overestimating the probability of finding a some food out there, she could be more likely to make an effort. This bias gives her an incentive to exert effort, which itself increases the probability of success.

However, there are limits to how optimistic you

can be and still make gains. What seems to work best is a general, positive outlook, known as dispositional optimism. In response to a negative outcome in real life, a pessimist may say “I knew it” whereas optimists may resort to the conviction that “tomorrow is another day”. This resilience is maintained through an ‘optimism bias’ (Nature, vol. 450, 102,

2007) characterised by an asymmetric processing of information in the brain: good news is given disproportionate significance and bad news is given less weightage.

One area at the front and centre of the brain, called the rostral anterior cingulate cortex (rACC), is highly active when optimists envision positive future events. High neuronal activity in this region seems to facilitate the encoding of favourable possibilities. Conversely, the rACC's diminished response to negative information seems to make sure setbacks have less influence on the individual's long-term expectations.

The Revised Life Orientation Test is a brief test used to measure whether a person is disposed towards optimism. It presents 10 statements that one has to rate on a five-point scale

(from ‘strongly disagree’ to ‘strongly agree’). Statements include “In uncertain times, I usually expect the best” and “If something can go wrong for me, it will”.

People who score better for optimism have been shown to have healthier hearts. In ageing individuals, dispositional optimism is known to be neuroprotective, shielding the brain from the ravages of time. High levels of the brain-derived neurotrophic factor (BDNF) enhance resilience in ageing (Aging and Disease, 16, 1813, 2024). Even as some neurons are being lost to age, BDNF helps surviving neurons rewire more effectively, allowing one's senses to stay sharp and the mind to remain perceptive.

(The article was written in collaboration with Sushil Chandani, who works in molecular modelling.)

22F. The biology of belief, optimism, and good health विश्वास, आशावाद और अच्छे स्वास्थ्य का जैव-विज्ञान



Helen Keller and Optimism हेलेन केलर और आशावाद

- **Helen Keller**, the American author and activist who was deaf and blind, became an international symbol of human potential.
हेलेन केलर, अमेरिकी लेखिका और सामाजिक कार्यकर्ता, जो बहरी और अंधी थीं, मानव क्षमता का एक अंतरराष्ट्रीय प्रतीक बन गईं।
- She wrote, “**Optimism is the faith that leads to achievement. Nothing can be done without hope and confidence.**”
उन्होंने लिखा, “**आशावाद वह विश्वास है जो उपलब्धि की ओर ले जाता है। आशा और आत्मविश्वास के बिना कुछ भी नहीं किया जा सकता।**”
- Optimism can be defined as maintaining positive expectations for the future.
आशावाद को भविष्य के लिए सकारात्मक अपेक्षाएँ बनाए रखने के रूप में परिभाषित किया जा सकता है।
- It is a human trait that has also been associated with better health and a higher quality of life.
यह एक मानवीय गुण है जिसे बेहतर स्वास्थ्य और उच्च जीवन गुणवत्ता से भी जोड़ा गया है।
- Optimism shapes how we look ahead and functions as a modulator that amplifies positive possibilities and filters out negative projections.
आशावाद यह निर्धारित करता है कि हम भविष्य को कैसे देखते हैं और एक नियंत्रक के रूप में कार्य करता है जो सकारात्मक संभावनाओं को बढ़ाता है और नकारात्मक अनुमानों को छोट देता है।
- The Israeli-British neuroscientist **Tali Sharot** has estimated that about **80%** of humans are optimists but that the optimism levels of most people can be best described as “mild”.
इजरायली-ब्रिटिश न्यूरोसाइंटिस्ट **ताली शारोट** ने अनुमान लगाया है कि लगभग **80%** मनुष्य आशावादी हैं, लेकिन अधिकांश लोगों का आशावाद स्तर “मध्यम” कहा जा सकता है।
- It can be argued that optimism represents a biased view of reality.
यह तर्क दिया जा सकता है कि आशावाद वास्तविकता का एक पक्षपाती दृष्टिकोण प्रस्तुत करता है।
- Why would evolution favour a trait that presents you with a bias instead of a perfectly objective view?
विकासवाद ऐसे गुण को क्यों प्राथमिकता देगा जो पूर्णतः वस्तुनिष्ठ दृष्टिकोण के बजाय पक्षपात प्रस्तुत करता है?
- The consensus among researchers is that optimism is highly adaptive, meaning it increases an organism’s chances of survival.
शोधकर्ताओं के बीच सहमति है कि आशावाद अत्यधिक अनुकूलनशील है, अर्थात् यह किसी जीव के जीवित रहने की संभावना बढ़ाता है।
- Imagine a human as she lived several thousand years ago.
कल्पना कीजिए एक मानव की जो कई हजार वर्ष पहले जीवित थी।
- She is in a cave and there is a drought going on.
वह एक गुफा में है और सूखा पड़ा हुआ है।
- If she were to calculate the probability of successfully finding food — a rabbit perhaps, or a bush with edible fruit on it — she would in all likelihood not go out at all.
यदि वह भोजन पाने की संभावना की गणना करे — शायद एक खरगोश या खाने योग्य फल वाला झाड़ी — तो संभवतः वह बाहर ही न जाए।
- Lethargy, which conserves energy, would be the rational choice.
सुस्ती, जो ऊर्जा बचाती है, तर्कसंगत विकल्प होगा।
- But optimism could encourage her to persist.
लेकिन आशावाद उसे प्रयास जारी रखने के लिए प्रेरित कर सकता है।
- By overestimating the probability of finding some food out there, she could be more likely to make an effort.
भोजन मिलने की संभावना को अधिक आँककर, वह प्रयास करने की अधिक संभावना रखेगी।
- This bias gives her an incentive to exert effort, which itself increases the probability of success.
यह पक्षपात उसे प्रयास करने की प्रेरणा देता है, जो स्वयं सफलता की संभावना बढ़ाता है।
- However, there are limits to how optimistic you can be and still make gains.
हालाँकि, इस बात की सीमाएँ हैं कि आप कितने आशावादी हो सकते हैं और फिर भी लाभ प्राप्त कर सकते हैं।
- What seems to work best is a general, positive outlook, known as dispositional optimism.
जो सबसे अच्छा काम करता है वह एक सामान्य, सकारात्मक दृष्टिकोण है, जिसे स्वभावगत आशावाद कहा जाता है।



- In response to a negative outcome in real life, a pessimist may say “I knew it” whereas optimists may resort to the conviction that “tomorrow is another day”.
वास्तविक जीवन में नकारात्मक परिणाम पर, निराशावादी कह सकता है “मुझे पता था”, जबकि आशावादी यह विश्वास रख सकता है कि “कल एक नया दिन है”।
- This resilience is maintained through an ‘optimism bias’ (**Nature, vol. 450, 102, 2007**) characterised by an asymmetric processing of information in the brain.
यह लचीलापन ‘optimism bias’ (**Nature, vol. 450, 102, 2007**) के माध्यम से बनाए रखा जाता है, जो मस्तिष्क में जानकारी के असममित प्रसंस्करण द्वारा चिह्नित है।
- Good news is given disproportionate significance and bad news is given less weightage.
अच्छी खबर को असमान रूप से अधिक महत्व दिया जाता है और बुरी खबर को कम महत्व दिया जाता है।

Brain Basis of Optimism and Health

आशावाद का मस्तिष्कीय आधार और स्वास्थ्य

- One area at the front and centre of the brain, called the **rostral anterior cingulate cortex (rACC)**, is highly active when optimists envision **positive future events**.
मस्तिष्क के सामने और केंद्र में स्थित एक क्षेत्र, जिसे **रोस्ट्रल एंटीरियर सिंगुलेट कॉर्टेक्स (rACC)** कहा जाता है, तब अत्यधिक सक्रिय होता है जब आशावादी **सकारात्मक भविष्य की घटनाओं** की कल्पना करते हैं।
- High neuronal activity in this region seems to facilitate the encoding of **favourable possibilities**.
इस क्षेत्र में उच्च न्यूरॉन गतिविधि **अनुकूल संभावनाओं** के संकेतन को सुगम बनाती प्रतीत होती है।
- Conversely, the **rACC’s diminished response to negative information** seems to make sure setbacks have less influence on the individual’s long-term expectations.
इसके विपरीत, **नकारात्मक जानकारी पर rACC की कम प्रतिक्रिया** यह सुनिश्चित करती है कि असफलताओं का व्यक्ति की दीर्घकालिक अपेक्षाओं पर कम प्रभाव पड़े।
- The **Revised Life Orientation Test** is a brief test used to measure whether a person is disposed towards **optimism**.
Revised Life Orientation Test एक संक्षिप्त परीक्षण है जिसका उपयोग यह मापने के लिए किया जाता है कि कोई व्यक्ति **आशावाद** की ओर झुकाव रखता है या नहीं।
- It presents **10 statements** that one has to rate on a **five-point scale** (from ‘strongly disagree’ to ‘strongly agree’).
इसमें **10 कथन** प्रस्तुत किए जाते हैं जिन्हें **पाँच-बिंदु पैमाने** (पूरी तरह असहमत से पूरी तरह सहमत तक) पर आँकना होता है।
- Statements include “**In uncertain times, I usually expect the best**” and “**If something can go wrong for me, it will**”.
इन कथनों में शामिल हैं “**अनिश्चित समय में, मैं आमतौर पर सबसे अच्छे की उम्मीद करता हूँ**” और “**यदि मेरे लिए कुछ गलत हो सकता है, तो वह होगा**”।
- People who score better for **optimism** have been shown to have **healthier hearts**.
जो लोग **आशावाद** में अधिक अंक प्राप्त करते हैं, उनमें **हृदय अधिक स्वस्थ** पाया गया है।
- In aging individuals, **dispositional optimism** is known to be **neuroprotective**, shielding the brain from the ravages of time.
वृद्ध व्यक्तियों में **स्वभावगत आशावाद** को **न्यूरोप्रोटेक्टिव** माना जाता है, जो मस्तिष्क को समय के प्रभाव से बचाता है।
- High levels of the **brain-derived neurotrophic factor (BDNF)** enhance resilience in ageing (**Aging and Disease, 16, 1813, 2024**).
Brain-derived neurotrophic factor (BDNF) के उच्च स्तर वृद्धावस्था में लचीलापन बढ़ाते हैं (**Aging and Disease, 16, 1813, 2024**)।
- Even as some neurons are being lost to age, **BDNF** helps surviving neurons rewire more effectively, allowing one’s senses to stay sharp and the mind to remain perceptive.
भले ही उम्र के साथ कुछ न्यूरॉन नष्ट हो रहे हों, **BDNF** जीवित न्यूरॉनों को अधिक प्रभावी ढंग से पुनर्संयोजित करने में मदद करता है, जिससे इंद्रियाँ तेज और मन सजग बना रहता है।



Question Corner

On the bright side

Why do shrubs like hibiscus flower/fruit profusely only on the sunlit side?

- Gayatri Chandrashekar

GS III: S&T

Shrubs and trees often flower and fruit more on the sunlit side because the planet's energy budget on that side is different. Sunlit leaves capture more usable light so they photosynthesise more and make more sugars and starch. Buds and young fruits need that carbon supply to form and grow. On the shaded side, on the other hand, the leaves make less carbon so the buds stay vegetative, the flowers abort more often, and small fruits drop more easily.

Well-lit leaves also produce stronger 'signals' that encourage the buds nearby to make flowers. Likewise, the plant interprets the way shade changes the quality of light as crowding and tries to extend shoots and leaves so that they get more light, over its own reproduction. Temperature helps this process but isn't the full picture. It warms buds and increases the speed of development, yet also dries leaves and raises the planet's demand for water. If the plant can't supply enough water, it closes its stomata and the rate of photosynthesis drops.

Readers may send their questions / answers to science@thehindu.co.in

अधिक आसानी से गिर जाते हैं।

- Well-lit leaves also produce stronger 'signals' that encourage the buds nearby to make flowers. अच्छी रोशनी वाली पत्तियाँ अधिक मजबूत 'संकेत' उत्पन्न करती हैं जो पास की कलियों को फूल बनाने के लिए प्रेरित करते हैं।
- Likewise, the plant interprets the way shade changes the quality of light as crowding and tries to extend shoots and leaves so that they get more light, over its own reproduction. इसी तरह, पौधा छाया द्वारा प्रकाश की गुणवत्ता में बदलाव को भीड़ के रूप में समझता है और अपनी प्रजनन प्रक्रिया से पहले अधिक प्रकाश पाने के लिए टहनियाँ और पत्तियाँ बढ़ाने की कोशिश करता है।
- Temperature helps this process but isn't the full picture. It warms buds and increases the speed of development, yet also dries leaves and raises the plant's demand for water. तापमान इस प्रक्रिया में मदद करता है लेकिन पूरी कहानी नहीं है। यह कलियों को गर्म करता है और विकास की गति बढ़ाता है, फिर भी पत्तियों को सुखाता है और पौधे की पानी की मांग बढ़ाता है।
- If the plant can't supply enough water, it closes its stomata and the rate of photosynthesis drops. यदि पौधा पर्याप्त पानी नहीं दे पाता, तो वह अपने स्टोमाटा बंद कर देता है और प्रकाश संश्लेषण की दर घट जाती है।

22F. Why do shrubs like hibiscus flower/fruit profusely only on the sunlit side?

गुड़हल जैसे झाड़ियाँ धूप वाली तरफ ही अधिक फूल/फल क्यों देती हैं?

- Gayatri Chandrashekar

- गायत्री चंद्रशेखर

Shrubs and trees often flower and fruit more on the sunlit side because the planet's energy budget on that side is different.

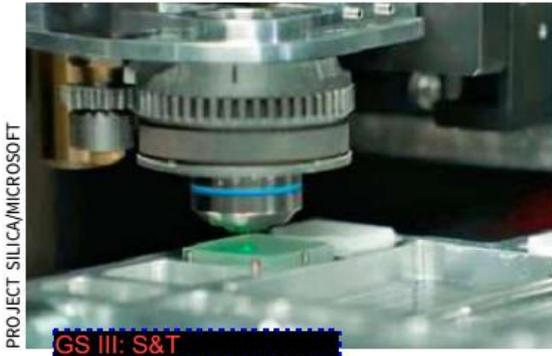
झाड़ियाँ और पेड़ अक्सर धूप वाली तरफ अधिक फूल और फल देते हैं क्योंकि उस तरफ पौधे का ऊर्जा बजट अलग होता है।

Sunlit leaves capture more usable light so they photosynthesise more and make more sugars and starch. Buds and young fruits need that carbon supply to form and grow.

धूप वाली पत्तियाँ अधिक उपयोगी प्रकाश पकड़ती हैं इसलिए वे अधिक प्रकाश संश्लेषण करती हैं और अधिक शर्करा व स्टार्च बनाती हैं। कलियों और युवा फलों को बनने और बढ़ने के लिए उस कार्बन आपूर्ति की आवश्यकता होती है।

On the shaded side, on the other hand, the leaves make less carbon so the buds stay vegetative, the flowers abort more often, and small fruits drop more easily.

दूसरी ओर छाया वाली तरफ, पत्तियाँ कम कार्बन बनाती हैं इसलिए कलियाँ वनस्पतिक ही रहती हैं, फूल अधिक बार झड़ जाते हैं, और छोटे फल



Laser pulses turn glass into super-dense data store

Microsoft researchers have found a way to store data inside a 2-mm-thick glass plate by firing short laser pulses to create 3D pixels in hundreds of layers. Each pixel could be made to represent more than one bit, and the team found a 120 mm x 120 mm plate could hold 4.8 TB. A borosilicate glass version was also projected to be stable for 10 millennia. The team could 'read' the data using microscopes and machine-learning.

प्लेट में 4.8 TB डेटा संग्रहीत किया जा सकता है।

- A **borosilicate glass** version was also projected to be **stable for 10 millennia**. बोरोसिलिकेट कांच का संस्करण भी 10 सहस्राब्दियों तक स्थिर रहने का अनुमान है।
- The team could '**read**' the data using **microscopes** and **machine-learning**. टीम माइक्रोस्कोप और मशीन-लर्निंग का उपयोग करके डेटा को 'पढ़' सकती है।

22F. Laser pulses turn glass into super-dense data store लेज़र पल्स कांच को अति-सघन डेटा भंडारण में बदल देते हैं

Microsoft glass data storage
माइक्रोसॉफ्ट ग्लास डेटा स्टोरेज

- Microsoft researchers have found a way to **store data** inside a **2-mm-thick glass plate** by firing **short laser pulses** to create **3D pixels** in **hundreds of layers**.

माइक्रोसॉफ्ट के शोधकर्ताओं ने डेटा संग्रहीत करने का एक तरीका खोजा है जिसमें 2-मिमी मोटी कांच की प्लेट के अंदर छोटे लेज़र पल्स चलाकर सैकड़ों परतों में 3D पिक्सेल बनाए जाते हैं।

- Each pixel could be made to represent **more than one bit**, and the team found a **120 mm x 120 mm plate** could hold **4.8 TB**.

प्रत्येक पिक्सेल को एक से अधिक बिट दर्शाने के लिए बनाया जा सकता है, और टीम ने पाया कि 120 मिमी x 120 मिमी