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THE HINDU NEWSPAPER

08 APRIL 2026

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Ancient reservoir unearthed on Elephanta

GS I: History
T.S. Subramanian

As we trudged through the scrub jungle on a hill on the Elephanta Island off the Mumbai coast on March 17, Abhijit Ambekar declared with a flourish, "We will show you the wonder-discovery of our excavation." Professor Abhijit Dandekar chipped in, "It is a show-stopper."

As we reached the trench, where several men and women were excavating the soil deep below, it was clear that it was a spectacular discovery. There it was: a series of steps leading to a reservoir below.

Dr. Ambekar, director of the current excavation and Superintending Archaeologist, Mumbai Circle of the Archaeological Survey of India (ASI), estimated the

stepped reservoir to be about 1,500 years old.

"It is a massive structure — about 14.7 metres long, and 6.7 metres and 10.8 metres wide, forming a T-shape. The excavation has reached a depth of five metres so far. We have exposed 20 steps. The steps are built with stone blocks, which are not from the island. They were ferried from the mainland," he said.

While rock-cut cisterns have been found earlier on the Elephanta Island, the discovery of this stepped reservoir was important because it was a carefully designed architecture for storing water, Dr. Ambekar said. "Although the island receives a large amount of rainfall from the monsoon, very little seeps into the



The stepped reservoir excavated by the Mumbai Circle of the ASI on Elephanta Island, off the Mumbai coast. ASI

soil because of the island's rocky nature, and the water runs off into the sea," he said.

The ASI's Mumbai Circle began the excavation here in November 2025. It has excavated 19 trenches, each measuring 10 metres x 10 metres.

The excavation has so far yielded a beautifully

built brick structure, which could be a dyeing vat for colouring textiles, a big storage pot, terracotta figurines, glass and stone bangles, beads made of carnelian and quartz and stone anchors. A total of about 3,000 amphorae sherds of Mediterranean origin and torpedo jar sherds from West Asia, in-

cluding Mesopotamia, have been unearthed. Amphorae and torpedo jars were used for storing wine, oil and fish sauce. Their potsherds showed the island's long-distance maritime contacts.

Importantly, 60 copper, lead and silver coins have so far been found in the excavations. Several copper coins have been identified as belonging to ruler Krishnaraja of the Kalachuri dynasty of the sixth century CE, said Dr. Abhijit Dandekar, Department of Ancient Indian History, Culture and Archaeology of Deccan College, Pune. The identification was made on the basis of the motif of a seated bull on the obverse and a temple symbol with the legend of Sri Krishnaraja on the reverse, he said.

09A. Ancient reservoir unearthed on Elephanta

एलिफेंटा पर प्राचीन जलाशय की खोज

- As we trudged through the scrub jungle on a hill on the **Elephanta Island off the Mumbai coast** on March 17, **Abhijit Ambekar** declared with a flourish, "We will show you the wonder-discovery of our excavation." जब हम 17 मार्च को **मुंबई टट** के पास स्थित **एलिफेंटा द्वीप** की एक पहाड़ी पर झाड़ियों वाले जंगल से गुजर रहे थे, तो **अभिजीत आंबेकर** ने उत्साह के साथ कहा, "हम आपको अपनी खुदाई की अद्भुत खोज दिखाएंगे।"
- Professor **Abhijit Dandekar** chipped in, "It is a show-stopper." प्रोफेसर **अभिजीत दांडेकर** ने कहा, "यह एक आकर्षण का केंद्र है।"
- As we reached the trench, where several men and women were excavating the soil deep below, it was clear that it was a spectacular discovery. जब हम उस खाई तक पहुँचे, जहाँ कई पुरुष और महिलाएँ गहराई में खुदाई कर रहे थे, तो यह स्पष्ट हो गया कि यह एक शानदार खोज है।
- There it was: a series of steps leading to a reservoir below. वहाँ एक संरचना थी: नीचे एक जलाशय तक जाने वाली सीढ़ियों की श्रृंखला।
- Dr. **Ambekar**, director of the current excavation and Superintending Archaeologist, **Mumbai Circle of the Archaeological Survey of India (ASI)**, estimated the **stepped reservoir to be about 1,500 years old**. डॉ. **आंबेकर**, वर्तमान खुदाई के निदेशक और **भारतीय पुरातत्व सर्वेक्षण (ASI)** के **मुंबई सर्कल** के अधीक्षक पुरातत्वविद् ने इस सीढ़ीदार जलाशय को लगभग **1,500 वर्ष पुराना** बताया।
- "It is a massive structure — about **14.7 metres long, and 6.7 metres and 10.8 metres wide, forming a T-shape**. "यह एक विशाल संरचना है — लगभग **14.7 मीटर लंबी, और 6.7 मीटर तथा 10.8 मीटर चौड़ी, जो टी-आकार बनाती है।"**
- The excavation has reached a depth of **five metres** so far. खुदाई अब तक **पाँच मीटर** की गहराई तक पहुँच चुकी है।
- We have exposed **20 steps**. हमने **20 सीढ़ियाँ** उजागर की हैं।
- The steps are built with stone blocks, which are not from the island. सीढ़ियाँ पत्थर के ब्लॉकों से बनी हैं, जो द्वीप के नहीं हैं।



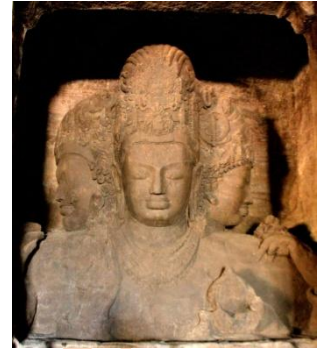
- They were ferried from the mainland," he said.
उन्हें मुख्य भूमि से लाया गया था," उन्होंने कहा।
- While **rock-cut cisterns** have been found earlier on the **Elephanta Island**, the discovery of this **stepped reservoir** was important because it was a carefully designed architecture for **storing water**, Dr. Ambekar said.
डॉ. आंबेकर ने कहा कि यद्यपि **एलिफेंटा द्वीप** पर पहले भी **शैल-कट जलाशय** मिले हैं, लेकिन यह सीढ़ीदार जलाशय महत्वपूर्ण है क्योंकि यह जल संचयन के लिए सावधानीपूर्वक डिजाइन की गई संरचना है।
- "Although the island receives a large amount of rainfall from the **monsoon**, very little seeps into the soil because of the island's rocky nature, and the water runs off into the sea," he said.
"हालांकि द्वीप पर **मानसून** के दौरान भारी वर्षा होती है, लेकिन इसकी चट्टानी प्रकृति के कारण बहुत कम पानी मिट्टी में समाता है और अधिकांश पानी समुद्र में बह जाता है," उन्होंने कहा।
- The **ASI's Mumbai Circle** began the excavation here in **November 2025**.
ASI के मुंबई सर्कल ने यहाँ खुदाई **नवंबर 2025** में शुरू की।
- It has excavated **19 trenches**, each measuring **10 metres x 10 metres**.
इसमें **19 खाइयाँ** खोदी गई हैं, जिनमें से प्रत्येक का आकार **10 मीटर x 10 मीटर** है।
- The excavation has so far yielded a beautifully built brick structure, which could be a **dyeing vat** for colouring textiles, a big storage pot, **terracotta figurines**, glass and stone bangles, beads made of **carnelian and quartz** and stone anchors.
अब तक की खुदाई में एक सुंदर ईंट संरचना मिली है, जो वस्त्र रंगने के लिए **रंगाई कुंड** हो सकती है, एक बड़ा भंडारण पात्र, **मृणमूर्ति**, कांच और पत्थर की चूड़ियाँ, **कार्नेलियन और क्वार्ट्ज** के मनके तथा पत्थर के लंगर मिले हैं।
- A total of about **3,000 amphorae sherds** of Mediterranean origin and **torpedo jar sherds** from **West Asia**, including **Mesopotamia**, have been unearthed.
कुल मिलाकर लगभग **3,000 एम्फोरा के टुकड़े** (भूमध्यसागरीय क्षेत्र से) और **टॉरपीडो जार के टुकड़े** पश्चिम एशिया, जिसमें **मेसोपोटामिया** शामिल है, से प्राप्त हुए हैं।
- **Amphorae and torpedo jars** were used for storing wine, oil and fish sauce.
एम्फोरा और टॉरपीडो जार का उपयोग शराब, तेल और मछली सॉस के भंडारण के लिए किया जाता था।
- Their potsherds showed the island's long-distance maritime contacts.
इनके बर्तनों के टुकड़े द्वीप के दूरस्थ समुद्री संपर्कों को दर्शाते हैं।
- Importantly, **60 copper, lead and silver coins** have so far been found in the excavations.
महत्वपूर्ण रूप से, खुदाई में अब तक **60 तांबे, सीसे और चांदी के सिक्के** मिले हैं।
- Several copper coins have been identified as belonging to ruler **Krishnaraja** of the **Kalachuri dynasty of the sixth century CE**, said Dr. Abhijit Dandekar.
डॉ. अभिजीत दांडेकर ने बताया कि कई तांबे के सिक्के **छठी शताब्दी CE** के **कलचुरी वंश** के शासक **कृष्णराज** के हैं।
- The identification was made on the basis of the motif of a **seated bull** on the obverse and a **temple symbol** with the legend of **Sri Krishnaraja** on the reverse, he said.
उन्होंने कहा कि पहचान सिक्के के अग्र भाग पर **बैठे हुए बैल** के चिन्ह और पश्च भाग पर **श्री कृष्णराज** के नाम के साथ **मंदिर के प्रतीक** के आधार पर की गई।





Elephanta Caves

- Elephanta Caves are a group of **rock-cut cave temples** located on **Elephanta Island (Gharapuri)** in Maharashtra, about **10 km from Mumbai** in the Arabian Sea.
- They are one of the finest examples of **early medieval Indian rock-cut architecture**, primarily **dedicated to Lord Shiva**.
- The caves were declared a **UNESCO World Heritage Site in 1987**, highlighting their global cultural and historical significance.



Location and Setting

- Elephanta Island lies in the **Mumbai Harbour** and was historically known as **Gharapuri**, meaning "city of caves".
- The name "Elephanta" was given by the **Portuguese in the 16th century** after discovering a large stone elephant statue near the island.
- The island consists of **two hillocks** separated by a narrow valley and surrounded by mangrove vegetation.

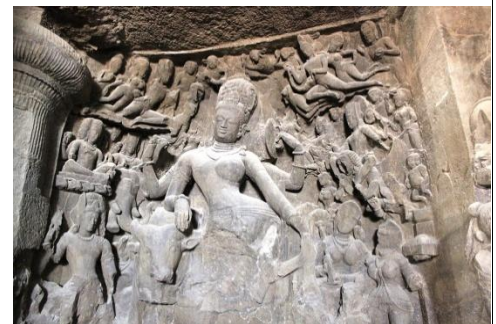
Historical Background

- The caves are believed to have been constructed between **the 5th and 7th centuries CE**.
- There is no clear inscriptional evidence regarding the exact builder, but most historians **attribute them to the Kalachuri dynasty** or possibly the **Konkan Mauryas**.
- During the medieval period, the island came under various rulers including the **Chalukyas and Rashtrakutas**.
- In the **16th century**, the Portuguese took control and caused some damage to the sculptures.



Architectural Features

- The Elephanta Caves are **rock-cut caves carved out of basalt rock**. There are **seven caves**, of which **Cave 1 (Great Cave)** is the most important.
- The main cave consists of a large **pillared hall (mandapa)** with symmetrical layout.
- It includes a **central shrine (garbhagriha)** housing a **Shiva Linga**.
- The caves display advanced knowledge of **rock-cut engineering and spatial planning**.



Sculptural Highlights

- The caves are famous for their **large-scale sculptural panels depicting various forms of Lord Shiva**.
- The most iconic sculpture is the **Trimurti (Maheshmurti)**. It is about **20 feet high** and represents three aspects of Shiva.
- The three faces symbolize **creation (Brahma), preservation (Vishnu), and destruction (Rudra/Shiva)**.
- Other important sculptures include **Nataraja (cosmic dancer)**.
- **Ardhanarishvara** (half male-half female form symbolizing unity of Shiva and Shakti).
- **Gangadhara** (descent of river Ganga).
- **Kalyanasundara** (marriage of Shiva and Parvati).





- These sculptures reflect **high artistic excellence and religious symbolism**.

Religious and Cultural Significance

- The caves are dedicated primarily to **Shaivism**, a major sect of Hinduism.
- They reflect the rise of **Bhakti movement**, emphasizing personal devotion to a deity.
- The presence of both **Hindu and earlier Buddhist influences** indicates cultural continuity and syncretism.
- The caves served as a **religious centre, pilgrimage site, and possibly a monastic settlement**.

Art and Style

- The sculptures exhibit features of **Gupta and post-Gupta art traditions**, such as calm expressions and balanced proportions.
- There is emphasis on **spiritual symbolism rather than realism**.
- The carvings show **refinement, symmetry, and dynamic movement**, especially in Nataraja depiction.

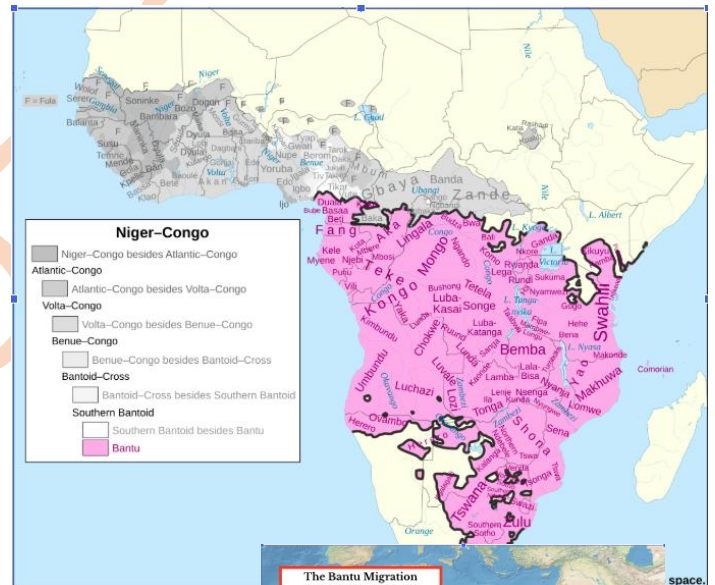
Decline and Damage

- During Portuguese rule, the caves suffered **significant damage**.
- Some sculptures were defaced and used for **target practice**.
- The elephant statue was relocated to **Jijamata Udyan (Mumbai)**.

09A. QUIZ

1. Bantu Languages (Ethnolinguistic Identity in Rwanda)

- The people of Rwanda primarily belong to the Bantu language family, one of the largest linguistic groups in Africa.
- Hutus, Tutsis, and Twa all speak Kinyarwanda, a Bantu language, highlighting shared cultural roots despite ethnic divisions.
- Bantu languages spread across sub-Saharan Africa through the Bantu migrations (1000 BCE–500 CE).
- Colonial powers later reinforced ethnic identities, despite linguistic unity.
- The shared language demonstrates that ethnic conflict in Rwanda was more politically constructed than linguistically distinct.
- Today, Kinyarwanda remains a unifying national language alongside English and French.



3. Colonial Rule: Germany and Belgium



- Rwanda was first colonised by Germany in the late 19th century as part of German East Africa.
- After World War I (1919), control shifted to Belgium under a League of Nations mandate.
- Belgian rule intensified ethnic divisions by issuing identity cards distinguishing Hutu and Tutsi populations.
- The Belgians favoured the Tutsi minority, giving them administrative advantages.
- This colonial policy institutionalised inequality and sowed seeds of future conflict.
- Rwanda gained independence in 1962, but colonial legacies deeply influenced its political instability

4. Rwandan Patriotic Front (RPF) and Civil War (1990)

- The Rwandan Patriotic Front (RPF) was formed by Tutsi exiles in Uganda in the late 1980s.
- It launched an invasion in 1990, marking the start of the Rwandan Civil War.
- The RPF aimed to secure the right of return for refugees and end ethnic discrimination.
- Under leadership including Paul Kagame, the RPF became a disciplined military force.
- It eventually defeated the Hutu-led government forces in 1994.
- The RPF's victory ended the genocide and established a new government focused on national reconciliation.

5. Role of Radio Rwanda in Hate Propaganda

- Radio Rwanda, a state-owned broadcaster, initially supported Radio Télévision Libre des Mille Collines (RTLM).
- RTLM became infamous for spreading hate propaganda against Tutsis during the early 1990s.
- It broadcast messages that dehumanised Tutsis and encouraged violence.
- Media played a crucial role in mobilising ordinary citizens for participation in the genocide.
- This highlights how communication tools can be misused for mass violence and psychological manipulation.
- Today, Rwanda enforces strict media regulations to prevent hate speech and ensure national unity.

6. Assassination Trigger: Presidents of Rwanda and Burundi

- On April 6, 1994, a plane carrying the Presidents of Rwanda (Juvénal Habyarimana) and Burundi (Cyprien Ntaryamira) was shot down.
- This event triggered the Rwandan genocide, one of the worst atrocities of the 20th century.
- Hutu extremists blamed the Tutsi-led RPF, though responsibility remains disputed.
- Within hours, a coordinated campaign of killings began across Rwanda.
- Approximately 800,000 people, mostly Tutsis, were killed in about 100 days.
- The assassination remains a key turning point in understanding the genocide's origins.

GS Paper 1: Geography		08 April 2026
TOPICS COVERED		
09A	Kyrgyz leader consolidates power in rocky Central Asian country किर्गिज़ नेता ने अशांत मध्य एशियाई देश में सत्ता मजबूत की	



Boat rescue



Rain impact: People attempt to salvage a damaged, partially capsized houseboat along the banks of the Jhelum River in Srinagar, Jammu and Kashmir, following rain on Wednesday. IIRAN NESSAR

Rain impact: People attempt to salvage a damaged, partially capsized houseboat along the banks of the Jhelum River in Srinagar, Jammu and Kashmir, following rain on Wednesday.

Jhelum River

- The **Jhelum River** is one of the major rivers of the **Indus River system**.
- It is also known in ancient texts as **Vitasta**.
- The river flows through **India (Jammu & Kashmir) and Pakistan** and is of great geographical, historical, and strategic

importance.

Origin and Course

- The Jhelum River **originates from the Verinag Spring at the foothills of the Pir Panjal range in Anantnag district of Jammu and Kashmir**.
- It flows through the **Kashmir Valley**, passing through important locations like **Srinagar**.
- The river flows through **Wular Lake**, which is one of the largest freshwater lakes in India.
- After flowing through the valley, it enters **Pakistan-administered Kashmir** and then into **Punjab (Pakistan)**.
- Finally, it joins the **Chenab River** near **Trimmu** in Pakistan.

Drainage and Tributaries

- The Jhelum is a **snow-fed and rain-fed river**, receiving water from glaciers and precipitation.
- **Major tributaries include:**
- **Lidder River**
- **Sind River**
- **Kishanganga River (Neelum River in Pakistan)**

Physical Features and Characteristics

- The river flows through a **deep and narrow valley in its upper course**.
- It forms **meanders and floodplains** in the Kashmir Valley.
- It plays a crucial role in **drainage of the Kashmir basin**.
- The river is prone to **flooding**, especially in the Kashmir Valley, as seen during the **2014 floods in Jammu & Kashmir**.



Kyrgyz leader consolidates power in rocky Central Asian country

GS I: Geography

Agence France-Presse
BISHKEK

Kyrgyzstan President Sadyr Japarov has spent months sidelining opponents, removing his key ally and cementing his grip on power in the historically volatile Central Asian state ahead of elections next year.

The mountainous republic of some seven million is an exception in Central Asia due to its rocky past and for being the most open and democratic nation in a region dominated by autocratic leaders.

Mr. Japarov's crackdown has changed that.

"What is happening is undoubtedly one of the most crucial turning points in Sadyr Japarov's presidency," Emil Dzhuraev, a professor at the OSCE Aca-



While accused of embezzling millions of dollars from the oil sector, Kamchybek Tashiev has not been charged yet. AFP

demy in Bishkek, told AFP.

The most recent – and significant – development was the sacking of Mr. Japarov's security chief and long-time ally Kamchybek Tashiev in February.

The two had ruled in tandem with Mr. Japarov handling the economy and foreign policy, while Mr. Tashiev oversaw the ar-

rests of foes and critical journalists. They also represented different regional allegiances – something Mr. Japarov said he now wants to "eradicate".

Split by vast mountain ranges, Kyrgyzstan has long had a wealthier, secular north, represented by Mr. Japarov, and the less affluent south, where Mr.

Tashiev was dominant. The arrangement had worked well for Mr. Japarov until his shock move, with Mr. Tashiev accused of embezzling millions of dollars from the oil sector.

He has not been formally charged.

Mr. Japarov said removing his ally was necessary to prevent a "rift" in society. He therefore has no rivals ahead of presidential elections scheduled for January.

"The space for opposition around Japarov has been reduced to a minimum: after the purges of recent years and the concentration of the security apparatus in the hands of the president," said Daniil Kislov, editor-in-chief of *Fergana*, one of the region's few independent media outlets, told AFP.

09A. Kyrgyz leader consolidates power in rocky Central Asian country

किर्गिज़ नेता ने अशांत मध्य एशियाई देश में सत्ता मजबूत की

- Kyrgyz leader consolidates power in rocky Central Asian country.
किर्गिज़ नेता ने मध्य एशिया के अशांत देश में सत्ता मजबूत की।
- Kyrgyzstan President Sadyr Japarov has spent months sidelining opponents, removing his key ally and cementing his grip on power in the historically volatile Central Asian state ahead of elections next year.
किर्गिज़स्तान के राष्ट्रपति Sadyr Japarov ने महीनों तक विपक्ष को किनारे किया, अपने प्रमुख सहयोगी को हटाया और अगले वर्ष के चुनावों से पहले अपनी सत्ता पर पकड़ मजबूत की।
- The mountainous republic of some seven million is an exception in Central Asia due to its rocky past and for being the most open and democratic nation in a region dominated by autocratic leaders.
लगभग 70 लाख आबादी वाला यह पर्वतीय गणराज्य अपने अशांत इतिहास और लोकतांत्रिक व्यवस्था के कारण मध्य एशिया में एक अपवाद रहा है, जहां अधिकांश देशों में तानाशाही नेतृत्व है।
- Mr. Japarov's crackdown has changed that.
जापारोव की कार्रवाई ने इस स्थिति को बदल दिया है।
- "What is happening is undoubtedly one of the most crucial turning points in Sadyr Japarov's presidency," Emil Dzhuraev, a professor at the OSCE Academy in Bishkek, told AFP.
Emil Dzhuraev ने कहा, "जो हो रहा है वह Sadyr Japarov के शासन का एक महत्वपूर्ण मोड़ है।"
- The most recent — and significant — development was the sacking of Mr. Japarov's security chief and long-time ally Kamchybek Tashiev in February.
सबसे हालिया और महत्वपूर्ण घटना फरवरी में उनके सुरक्षा प्रमुख और लंबे समय के सहयोगी Kamchybek Tashiev की बर्खास्तगी थी।



- The two had ruled in tandem with Mr. Japarov handling the economy and foreign policy, while Mr. Tashiev oversaw the arrests of foes and critical journalists.
दोनों मिलकर शासन कर रहे थे, जहां **जापारोव** अर्थव्यवस्था और **विदेश नीति** संभालते थे, जबकि **ताशीव** विरोधियों और पत्रकारों की **गिरफ्तारी** देखते थे।
- They also represented different regional allegiances — something Mr. Japarov said he now wants to “eradicate”.
वे अलग-अलग **क्षेत्रीय समर्थन** का प्रतिनिधित्व करते थे, जिसे जापारोव अब समाप्त करना चाहते हैं।
- Split by vast mountain ranges, Kyrgyzstan has long had a wealthier, secular north, represented by Mr. Japarov, and the less affluent south, where Mr. Tashiev was dominant.
किर्गिज़स्तान में लंबे समय से **उत्तर (समृद्ध)** और **दक्षिण (कम विकसित)** का विभाजन रहा है, जहां उत्तर का प्रतिनिधित्व जापारोव और दक्षिण का ताशीव करते थे।
- The arrangement had worked well for Mr. Japarov until his shock move, with Mr. Tashiev accused of embezzling millions of dollars from the oil sector.
यह व्यवस्था तब तक अच्छी चली जब तक जापारोव ने अचानक कदम उठाया और **ताशीव पर तेल क्षेत्र से करोड़ों डॉलर गबन** का आरोप लगा।
- He has not been formally charged.
हालांकि, उन पर औपचारिक रूप से **मामला दर्ज नहीं** किया गया है।
- Mr. Japarov said removing his ally was necessary to prevent a “rift” in society.
जापारोव ने कहा कि अपने सहयोगी को हटाना **समाज में विभाजन** रोकने के लिए जरूरी था।
- He therefore has no rivals ahead of presidential elections scheduled for January.
इसलिए जनवरी में होने वाले **राष्ट्रपति चुनाव** से पहले उनका कोई **प्रतिद्वंद्वी नहीं** है।
- “The space for opposition around Japarov has been reduced to a minimum: after the purges of recent years and the concentration of the security apparatus in the hands of the president,” said Daniil Kislov, editor-in-chief of Fergana, one of the region’s few independent media outlets, told AFP.
Daniil Kislov ने कहा, “हाल के वर्षों की **सफाई कार्रवाई** और **सुरक्षा तंत्र का केंद्रीकरण** के बाद जापारोव के आसपास **विपक्ष की जगह बहुत कम रह गई है।**”

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TOPICS COVERED		
09A	Meeting between the EC and Trinamool delegation ends on acrimonious note चुनाव आयोग और तृणमूल प्रतिनिधिमंडल की बैठक विवादपूर्ण माहौल में समाप्त	
09A	Logic may not be the right tool to examine belief systems: SC आस्था प्रणालियों की जांच के लिए तर्क सही साधन नहीं हो सकता: सुप्रीम कोर्ट	
09A	After 13 years, HC grants bail to Saradha scam accused Sen 13 साल बाद, हाईकोर्ट ने सारधा घोटाले के आरोपी सेन को जमानत दी	



Meeting between the EC and Trinamool delegation ends on acrimonious note

GS II: Polity

The Hindu Bureau
NEW DELHI

A meeting between the Trinamool Congress and the full bench of the Election Commission ended on an acrimonious note on Wednesday, with each side accusing the other of inappropriate behaviour.

While the Trinamool delegation, comprising its **Rajya Sabha leader Derek O'Brien**, deputy leader **Sagarika Ghose**, and **Saket Gokhale** and **Menaka Guruswamy**, MPs, alleged that Chief Election Commissioner (CEC) **Gyanesh Kumar** asked them to "get lost", poll body sources said the Commission had asked Mr. O'Brien not to raise his voice.

"Derek O'Brien shouted at the Election Commission and asked CEC not to speak. The CEC requested Mr. Derek O'Brien to maintain decorum of the Commission room. Shouting and indecent behaviour is not appropriate," the source said.

The Commission later posted on X that its "straight-talk to Trinamool Congress" was that "this time, the elections in West Bengal would surely be: fear-free, violence-free, intimidation-free, inducement-free and without any chappa [rigging], booth jamming and source jamming."

The Trinamool delegation met the Commission a day after it emerged that 90 lakh voters had been deleted from the electoral roll in West Bengal following the adjudication process of the Special Intensive Revision (SIR).

Mr. O'Brien told the me-



Gyanesh Kumar with Election Commissioners S.S. Sandhu and Vivek Joshi at the meeting with a Trinamool delegation. PTI

dia that the delegation handed over nine letters written by West Bengal Chief Minister Mamata Banerjee to the CEC, which have not been acknowledged.

"We asked the CEC how he can ensure the conduct of free and fair elections when such tainted officers are being appointed in Bengal. To this, his answer was 'get lost'. We told the CEC we would not listen to him because he does not allow his colleagues to speak. We have attended eight or nine meetings like this, where none other than the CEC speaks," he said.

Mr. O'Brien said that one of the Trinamool leaders present 'congratulated' Mr. Kumar on being the first CEC in history to have notices seeking his removal submitted in Parliament.

Many Trinamool leaders took to X to reject the poll body's claims of inappropriate behaviour by the delegation.

Ms. Ghose called the poll panel's claim a "blatant lie", and said "none of this was said to the four-member delegation".

"Two lines were said to us by the Chief Election

Commissioner 'Vanish' Kumar. The first line: where is your authorised signatory. And the second most shameful two words: 'get lost'," Ms. Ghose said.

Mr. Gokhale, in a post on X, accused the Commission of singling out one political party.

Later in the day, civil society activists **Yogendra Yadav**, **Prashant Bhushan** and others attacked the SIR in West Bengal, accusing the Commission of "deliberately" targeting Muslim voters.

Mr. Yadav gave a detailed presentation and said the ongoing SIR was a "special impediment removal" exercise. "It is not intensive, it is intensively targeted. It is not revision, it is rewriting."

Illustrating his point, he gave the example of Nandigram, where he said, 25% of the voters are Muslims. "95% of deletions here were Muslims voters," he said.

The maximum number of voters has been deleted from **Murshidabad**, **Malda** and **Uttar Dinajpur** districts, which are predominantly Muslim in composition. Mr. Yadav said the next group to be targeted are women.

+ 09A. Meeting between the EC and Trinamool delegation ends on acrimonious note

चुनाव आयोग और तृणमूल प्रतिनिधिमंडल की बैठक विवादपूर्ण माहौल में समाप्त

• A meeting between the Trinamool Congress and the full bench of the Election Commission ended on an acrimonious note on Wednesday, with each side accusing the other of inappropriate behaviour.

तृणमूल कांग्रेस और चुनाव आयोग की पूर्ण पीठ के बीच बैठक बुधवार को विवादपूर्ण माहौल में समाप्त हुई, जिसमें दोनों पक्षों ने एक-दूसरे पर अनुचित व्यवहार का आरोप लगाया।

• While the Trinamool delegation, comprising its **Rajya Sabha leader Derek O'Brien**, deputy leader **Sagarika Ghose**, and **Saket Gokhale** and **Menaka Guruswamy**, MPs, alleged that Chief Election Commissioner (CEC) **Gyanesh Kumar** asked them to "get lost", poll body sources said the Commission had asked Mr. O'Brien not to raise his voice.

जहां तृणमूल प्रतिनिधिमंडल, जिसमें राज्यसभा नेता **डैरेक ओ'ब्रायन**, उपनेता **सागरिका घोष**, और सांसद **साकेत गोखले** और **मेनका गुरुस्वामी** शामिल थे, ने आरोप लगाया कि **मुख्य चुनाव आयुक्त (CEC) ज्ञानेश कुमार** ने उन्हें "दफा हो जाओ" कहा, वहीं आयोग के सूत्रों ने कहा कि श्री ओ'ब्रायन से आवाज न उठाने को कहा गया था।

• "Derek O'Brien shouted at the Election Commission and asked CEC not to speak.

"डैरेक ओ'ब्रायन ने चुनाव आयोग पर चिल्लाया और CEC से न बोलने को कहा।

• The CEC requested Mr. Derek O'Brien to maintain decorum of the Commission room.

CEC ने श्री डैरेक ओ'ब्रायन से आयोग कक्ष की

मर्यादा बनाए रखने का अनुरोध किया।

• Shouting and indecent behaviour is not appropriate," the source said. चिल्लाना और अशोभनीय व्यवहार उचित नहीं है," स्रोत ने कहा।

• The Commission later posted on X that its "straight-talk to Trinamool Congress" was that "this time, the elections in West Bengal would surely be: fear-free, violence-free, intimidation-free, inducement-free and without any chappa [rigging], booth jamming and source jamming."

आयोग ने बाद में X पर कहा कि उसका "तृणमूल कांग्रेस से सीधा संदेश" यह था कि इस बार पश्चिम बंगाल में चुनाव भयमुक्त, हिंसामुक्त, धमकीमुक्त, प्रलोभनमुक्त होंगे और चप्पा (रिगिंग), बूथ जैमिंग और स्रोत जैमिंग नहीं होगी।

• The Trinamool delegation met the Commission a day after it emerged that 90 lakh voters had been deleted from the electoral roll in West Bengal following the adjudication process of the Special Intensive Revision (SIR).



तृणमूल प्रतिनिधिमंडल ने आयोग से उस दिन मुलाकात की जब यह सामने आया कि विशेष गहन पुनरीक्षण (SIR) प्रक्रिया के बाद पश्चिम बंगाल में 90 लाख मतदाताओं के नाम मतदाता सूची से हटा दिए गए।

- Mr. O'Brien told the media that the delegation handed over **nine letters** written by West Bengal Chief Minister **Mamata Banerjee** to the CEC, which have not been acknowledged. श्री ओ'ब्रायन ने मीडिया से कहा कि प्रतिनिधिमंडल ने पश्चिम बंगाल की मुख्यमंत्री ममता बनर्जी द्वारा लिखे गए नौ पत्र CEC को सौंपे, जिन्हें स्वीकार नहीं किया गया।
- "We asked the CEC how he can ensure the conduct of **free and fair elections** when such **tainted officers** are being appointed in Bengal. "हमने CEC से पूछा कि जब ऐसे **दागी अधिकारी** बंगाल में नियुक्त किए जा रहे हैं तो वे **निष्पक्ष और स्वतंत्र चुनाव** कैसे सुनिश्चित कर सकते हैं।
- To this, his answer was '**get lost**'. इस पर उनका जवाब '**दफा हो जाओ**' था।
- We told the CEC we would not listen to him because he does not allow his colleagues to speak. हमने CEC से कहा कि हम उनकी बात नहीं सुनेंगे क्योंकि वे अपने सहयोगियों को बोलने नहीं देते।
- We have attended eight or nine meetings like this, where none other than the CEC speaks," he said. हमने ऐसी आठ-नौ बैठकों में भाग लिया है, जहां केवल CEC ही बोलते हैं," उन्होंने कहा।
- Mr. O'Brien said that one of the Trinamool leaders present '**congratulated**' Mr. Kumar on being the first CEC in history to have notices seeking his **removal** submitted in **Parliament**. श्री ओ'ब्रायन ने कहा कि उपस्थित एक तृणमूल नेता ने श्री कुमार को इतिहास के पहले CEC बनने पर '**बधाई**' दी, जिनके **हटाने** के लिए **संसद** में नोटिस दिए गए हैं।
- Many Trinamool leaders took to X to reject the poll body's claims of **inappropriate behaviour** by the delegation. कई तृणमूल नेताओं ने X पर जाकर प्रतिनिधिमंडल के **अनुचित व्यवहार** के आरोपों को खारिज किया।
- Ms. Ghose called the poll panel's claim a "**blatant lie**", and said "none of this was said to the four-member delegation". सुश्री घोष ने आयोग के दावे को "**स्पष्ट झूठ**" बताया और कहा कि "चार सदस्यीय प्रतिनिधिमंडल से ऐसा कुछ नहीं कहा गया।"
- "Two lines were said to us by the Chief Election Commissioner '**Vanish**' Kumar. "मुख्य चुनाव आयुक्त '**वैनिश**' कुमार ने हमसे दो बातें कही।
- The first line: where is your **authorised signatory**. पहली बात: आपका **अधिकृत हस्ताक्षरकर्ता** कहाँ है।
- And the second most shameful two words: '**get lost**,'" Ms. Ghose said. और दूसरी सबसे शर्मनाक दो शब्द: '**दफा हो जाओ**,'" सुश्री घोष ने कहा।
- Mr. Gokhale, in a post on X, accused the Commission of singling out one **political party**. श्री गोखले ने X पर पोस्ट में आयोग पर एक **राजनीतिक दल** को निशाना बनाने का आरोप लगाया।
- Later in the day, **civil society activists Yogendra Yadav, Prashant Bhushan** and others attacked the **SIR** in West Bengal, accusing the Commission of "**deliberately**" targeting **Muslim voters**. दिन में बाद में, **सिविल सोसायटी कार्यकर्ताओं योगेंद्र यादव, प्रशांत भूषण** और अन्य ने पश्चिम बंगाल में **SIR** की आलोचना करते हुए आयोग पर **जानबूझकर मुस्लिम मतदाताओं** को निशाना बनाने का आरोप लगाया।
- Mr. Yadav gave a detailed presentation and said the ongoing **SIR** was a "**special impediment removal**" exercise. श्री यादव ने विस्तृत प्रस्तुति देते हुए कहा कि चल रहा **SIR** एक "**विशेष बाधा हटाने**" का अभ्यास है।
- "It is not intensive, it is **intensively targeted**. "यह गहन नहीं है, बल्कि **गहराई से लक्षित** है।
- It is not revision, it is **rewriting**." यह पुनरीक्षण नहीं है, बल्कि **पुनर्लेखन** है।"
- Illustrating his point, he gave the example of **Nandigram**, where he said, **25%** of the voters are Muslims. अपनी बात स्पष्ट करते हुए उन्होंने **नंदीग्राम** का उदाहरण दिया, जहां **25%** मतदाता **मुस्लिम** हैं।
- "**95% of deletions** here were **Muslim voters**," he said. "यहां **95%** हटाए गए नाम **मुस्लिम मतदाताओं** के थे," उन्होंने कहा।



- The maximum number of voters has been deleted from **Murshidabad, Malda and Uttar Dinajpur districts**, which are predominantly **Muslim** in composition.
सबसे अधिक मतदाता **मुर्शिदाबाद, मालदा और उत्तर दिनाजपुर जिलों** से हटाए गए हैं, जहां **मुस्लिम आबादी** अधिक है।
- Mr. Yadav said the next group to be targeted are **women**.
श्री यादव ने कहा कि अगला निशाना बनने वाला समूह **महिलाएं** हैं।

Logic may not be the right tool to examine belief systems: SC

CS II: Polity
Krishna Das Rajagopal
NEW DELHI

The Supreme Court on Wednesday said courts cannot hollow out religion in the name of reform, and that logic may not be the right tool to examine faith and belief systems.

The remarks from the nine-judge Bench headed by Chief Justice of India Surya Kant came during the second day of hearing a reference triggered by a 2018 judgment upholding menstruating women's right to enter and worship at the Sabarimala shrine in Kerala. Justice B.V. Nagarathna said "in the name of social reform, a religion cannot lose its identity", echoing the Centre's stand that the core of a religious faith cannot be sacrificed citing reform.

Solicitor-General Tushar Mehta, for the Centre, submitted that reform must come from within the religion. "If I believe in something and it is not against public order, morality or health, there cannot be a judicial review based on rationality and science," Mr. Mehta said.

"The concept of logic cannot be applied to religion," Justice M.M. Sundresh observed.

Mr. Mehta read out senior advocate Nani Palkhivala's arguments quoted in the judgment in *Seshammal versus State of Tamil Nadu* that "under the pretext of social reform, the State cannot reform a religion out of existence". The 1972 case had dealt with Tamil Nadu law which end-

'No devotee of Ayyappa would have come to SC'

Justice B.V. Nagarathna said a devotee of Lord Ayyappa would not have filed the writ petition in 2006 challenging the exclusion of menstruating women from the Lord Ayyappa temple in Kerala. "If a non-devotee, a person who is not concerned with the temple, challenges it, can this court entertain that writ petition?" Justice Nagarathna asked.

ed the hereditary right of succession to the office of Archakas.

The Centre argued that the court had gone wrong in restricting the right to religious freedom to only "essential religious practices". Hinduism, he said, for example, was not a 'one-creator-one-book' faith, but was host to a plurality of beliefs. It would be impossible for courts to apply a strait-jacket approach to distinguish between core beliefs or practices and mere superstition.

"What is 'superstition' to one section of the public may be a matter of fundamental religious belief to another... Something superstitious for me may be a religious practice for Nagaland," Mr. Mehta said.

Chief Justice Kant said the term 'essential' was not there in the Constitution and was a judicial creation. Mr. Mehta said the courts cannot become theological censors to decide whether a religious practice was superstition or not.

09A. Logic may not be the right tool to examine belief systems: SC

आस्था प्रणालियों की जांच के लिए तर्क सही साधन नहीं हो सकता: सुप्रीम कोर्ट

• The **Supreme Court** on Wednesday said courts cannot hollow out religion in the name of **reform**, and that logic may not be the right tool to examine **faith** and belief systems.

बुधवार को **सुप्रीम कोर्ट** ने कहा कि अदालतें **सुधार** के नाम पर धर्म को खोखला नहीं कर सकतीं और **आस्था** व विश्वास प्रणालियों की जांच के लिए तर्क सही साधन नहीं हो सकता।

• The remarks from the nine-judge Bench headed by **Chief Justice of India Surya Kant** came during the second day of hearing a reference triggered by a 2018 judgment upholding menstruating women's right to enter and worship at the **Sabarimala shrine in Kerala**.

भारत के मुख्य न्यायाधीश सूर्यकांत की अध्यक्षता वाली नौ-न्यायाधीशों की पीठ की ये टिप्पणियां 2018 के उस फैसले से जुड़े मामले की सुनवाई के दूसरे दिन आईं, जिसमें **केरल के सबरीमला मंदिर** में मासिक धर्म वाली महिलाओं के प्रवेश और पूजा के अधिकार को बरकरार रखा गया था।

• **Justice B.V. Nagarathna** said "in the name of social reform, a religion cannot lose its identity", echoing the Centre's stand that **the core of a religious faith cannot be sacrificed citing reform**.

न्यायमूर्ति **बी.वी. नागरत्ना** ने कहा, "सामाजिक सुधार के नाम पर कोई धर्म अपनी पहचान नहीं खो सकता", जो केंद्र के इस रुख को दर्शाता है कि सुधार के नाम पर किसी धार्मिक आस्था के मूल को त्यागा नहीं जा सकता।

• Solicitor-General **Tushar Mehta**, for the Centre, submitted that reform must come from within the religion.

केंद्र की ओर से सॉलिसिटर जनरल **तुषार मेहता** ने कहा कि सुधार धर्म के भीतर से ही आना चाहिए।

• "If I believe in something and it is not against public order, morality or health, there cannot be a judicial review based on **rationality and science**," Mr. Mehta said.

श्री मेहता ने कहा, "यदि मैं किसी चीज़ में विश्वास करता हूँ और वह सार्वजनिक व्यवस्था, नैतिकता या स्वास्थ्य के खिलाफ नहीं है, तो तर्क और विज्ञान के आधार

पर उसका न्यायिक पुनरावलोकन नहीं हो सकता।"

• "The concept of **logic** cannot be applied to religion," Justice **M.M. Sundresh** observed.
न्यायमूर्ति **एम.एम. सुंदरेश** ने कहा, "तर्क की अवधारणा धर्म पर लागू नहीं की जा सकती।"

• Mr. Mehta read out senior advocate **Nani Palkhivala's** arguments quoted in the judgment in **Seshammal versus State of Tamil Nadu** that "under the pretext of social reform, the State cannot reform a religion out of existence".

श्री मेहता ने वरिष्ठ अधिवक्ता **नानी पालखीवाला** के तर्क पढ़े, जो **शेषम्मल बनाम तमिलनाडु राज्य** मामले के निर्णय में उद्धृत हैं कि "सामाजिक सुधार के बहाने राज्य किसी धर्म को समाप्त नहीं कर सकता।"

• The 1972 case had dealt with **Tamil Nadu** law which ended the hereditary right of succession to the ope of **Archakas**.



1972 का यह मामला **तमिलनाडु** के उस कानून से जुड़ा था जिसने **अर्चकों** के पद पर वंशानुगत अधिकार समाप्त कर दिया था।

- The Centre argued that the court had gone wrong in restricting the right to **religious freedom** to only “essential religious practices”.
केंद्र ने तर्क दिया कि अदालत ने **धार्मिक स्वतंत्रता** के अधिकार को केवल “आवश्यक धार्मिक प्रथाओं” तक सीमित करके गलती की।
- **Hinduism**, he said, for example, was not a ‘one-creator-one-book’ faith, but was host to a plurality of beliefs.
उन्होंने कहा कि **हिंदू धर्म** ‘एक सृजनकर्ता-एक ग्रंथ’ वाला धर्म नहीं है, बल्कि इसमें अनेक प्रकार की मान्यताएँ हैं।

After 13 years, HC grants bail to Saradha scam accused Sen

GS II: Polity

Press Trust of India
KOLKATA

The Calcutta High Court on Wednesday granted conditional bail to multi-crore Saradha ponzi scam accused Sudipta Sen in the last two of the over 300 criminal cases against him, paving the way for his release from jail after 13 years.

The court observed that the right to a speedy trial is inalienable under Article 21 of the Constitution, which guarantees the fundamental right to protection of life and personal liberty.

A Division Bench of the High Court granted bail to Mr. Sen in two cases filed at the Barasat police station in North 24 Parganas district of West Bengal.

“When an individual is detained for 13 years, a period nearly doubles the maximum sentence for the offences charged, the detention shifts from preventive to punitive,” the Division Bench comprising Justices Rajarshi Bhargava and Uday Kumar observed.

The court noted that Mr. Sen has been granted bail in 387 out of 389 cases, including all CBI matters, without any report of obstructive conduct. “To deny bail now, in the face of a ‘stalemate’ admitted by the State, would be to sanction an indefinite life sentence without conviction,” the Bench said.

The court directed that Mr. Sen be released upon furnishing a bond of



Sudipta Sen. FILE PHOTO

₹5,000 with two sureties of like amount each, one of whom must be local.

The Saradha group, headed by Mr. Sen, allegedly defrauded lakhs of people through a number of ponzi schemes. He was arrested in April 2013 after financial misappropriations to the tune of hundreds of crores of rupees were unravelled.

The Division Bench directed that in view of the magnitude of the financial scam, Mr. Sen must surrender his passport to the trial court, if not already in the custody of any other agency.

Prohibiting him from leaving West Bengal without the prior written permission of the High Court, the Division Bench directed Mr. Sen to provide his residential address to the officer in charge of Barasat police station and not to change his place of stay without prior intimation.

Along with Mr. Sen, his close associate Debjani Mukherjee was also arrested 13 years ago. She has already been granted bail in the cases against her.

It would be impossible for courts to apply a strait-jacket approach to distinguish between core beliefs or practices and mere superstition.

अदालतों के लिए यह असंभव होगा कि वे कठोर दृष्टिकोण अपनाकर मूल आस्थाओं और मात्र अंधविश्वास के बीच अंतर करें।

“What is **superstition** to one section of the public may be a matter of fundamental religious belief to another... Something superstitious for me may be a religious practice for **Nagaland**,” Mr. Mehta said.

श्री मेहता ने कहा, “जो एक वर्ग के लिए **अंधविश्वास** है, वह दूसरे के लिए मूल धार्मिक विश्वास हो सकता है... जो मेरे लिए अंधविश्वास है, वह **नागालैंड** के लिए धार्मिक प्रथा हो सकती है।”

Chief Justice Kant said the term ‘**essential**’ was not there in the Constitution and was a judicial creation.

मुख्य न्यायाधीश कांत ने कहा कि ‘**आवश्यक**’ शब्द संविधान में नहीं है और यह न्यायिक व्याख्या का परिणाम है।

Mr. Mehta said the courts cannot become **theological censors** to decide whether a religious practice was superstition or not.

श्री मेहता ने कहा कि अदालतें यह तय करने के लिए **धार्मिक सेंसर** नहीं बन सकतीं कि कोई प्रथा अंधविश्वास है या नहीं।

09A. After 13 years, HC grants bail to Saradha scam accused Sen

13 साल बाद, हाईकोर्ट ने सारधा घोटाले के आरोपी सेन को जमानत दी



- The **Calcutta High Court** on Wednesday granted conditional **bail** to multi-crore **Saradha ponzi scam** accused **Sudipta Sen** in the last two of the over 300 criminal cases against him, paving the way for his release from jail after 13 years.
कलकत्ता हाईकोर्ट ने बुधवार को बहु-करोड़ सारधा पोंजी घोटाले के आरोपी सुदीप्त सेन को उनके खिलाफ दर्ज 300 से अधिक आपराधिक मामलों में से अंतिम दो मामलों में सशर्त जमानत दे दी, जिससे 13 साल बाद उनकी जेल से रिहाई का रास्ता साफ हो गया।
- The court observed that the right to a **speedy trial** is inalienable under **Article 21** of the Constitution, which guarantees the fundamental right to protection of life and personal liberty. अदालत ने कहा कि त्वरित सुनवाई का अधिकार संविधान के अनुच्छेद 21 के तहत अविच्छिन्न है, जो जीवन और व्यक्तिगत स्वतंत्रता की सुरक्षा का मौलिक अधिकार देता है।
- A **Division Bench** of the High Court granted bail to Mr. Sen in two cases filed at the **Barasat police station** in **North 24 Parganas district** of **West Bengal**.
हाईकोर्ट की डिवीजन बेंच ने पश्चिम बंगाल के उत्तर 24 परगना जिले के बरासात थाने में दर्ज दो मामलों में श्री सेन को जमानत दी।
- "When an individual is detained for 13 years, a period nearly doubles the maximum sentence for the offences charged, the detention shifts from preventive to punitive," the Division Bench comprising Justices **Rajarshi Bharadwaj** and **Uday Kumar** observed.
न्यायमूर्ति राजर्षि भारद्वाज और उदय कुमार की डिवीजन बेंच ने कहा, "जब किसी व्यक्ति को 13 वर्षों तक हिरासत में रखा जाता है, जो आरोपित अपराधों की अधिकतम सजा से लगभग दोगुना है, तो यह हिरासत निवारक से दंडात्मक हो जाती है।"
- The court noted that Mr. Sen has been granted bail in 387 out of 389 cases, including all **CBI** matters, without any report of obstructive conduct.
अदालत ने कहा कि श्री सेन को 389 में से 387 मामलों में, जिनमें सभी सीबीआई मामले शामिल हैं, जमानत मिल चुकी है और उनके द्वारा किसी बाधा डालने की रिपोर्ट नहीं है।
- "To deny bail now, in the face of a 'stalemate' admitted by the State, would be to sanction an indefinite life sentence without conviction," the Bench said.
बेंच ने कहा, "अब जमानत से इनकार करना, जबकि राज्य ने 'गतिरोध' स्वीकार किया है, बिना दोष सिद्धि के अनिश्चितकालीन आजीवन कारावास देने जैसा होगा।"
- The court directed that Mr. Sen be released upon furnishing a bond of ₹5,000 with two sureties of like amount each, one of whom must be local.
अदालत ने निर्देश दिया कि श्री सेन को ₹5,000 के बांड और समान राशि के दो जमानतदारों (जिनमें से एक स्थानीय होना चाहिए) के साथ रिहा किया जाए।
- The **Saradha group**, headed by Mr. Sen, allegedly defrauded lakhs of people through a number of **ponzi schemes**.
श्री सेन के नेतृत्व वाला सारधा समूह कथित रूप से कई पोंजी योजनाओं के जरिए लाखों लोगों से धोखाधड़ी करता था।
- He was arrested in April 2013 after financial misappropriations to the tune of hundreds of crores of rupees were unravelled.
उन्हें अप्रैल 2013 में सैकड़ों करोड़ रुपये के वित्तीय घोटाले सामने आने के बाद गिरफ्तार किया गया था।
- The Division Bench directed that in view of the magnitude of the financial scam, Mr. Sen must surrender his **passport** to the trial court, if not already in the custody of any other agency.
डिवीजन बेंच ने निर्देश दिया कि वित्तीय घोटाले की गंभीरता को देखते हुए श्री सेन को अपना पासपोर्ट ट्रायल कोर्ट में जमा करना होगा, यदि वह पहले से किसी अन्य एजेंसी के पास न हो।
- Prohibiting him from leaving **West Bengal** without the prior written permission of the High Court, the Division Bench directed Mr. Sen to provide his residential address to the officer in charge of Barasat police station and not to change his place of stay without prior intimation.
डिवीजन बेंच ने उन्हें पश्चिम बंगाल छोड़ने से पहले हाईकोर्ट की लिखित अनुमति लेना अनिवार्य किया और निर्देश दिया कि वह अपना आवासीय पता बरासात थाने के प्रभारी अधिकारी को दें तथा बिना सूचना दिए निवास स्थान न बदलें।
- Along with Mr. Sen, his close associate **Debjani Mukherjee** was also arrested 13 years ago.
श्री सेन के साथ उनकी करीबी सहयोगी देबजानी मुखर्जी को भी 13 वर्ष पहले गिरफ्तार किया गया था।
- She has already been granted bail in the cases against her.
उन्हें पहले ही उनके खिलाफ मामलों में जमानत मिल चुकी है।



GS Paper II: Governance		08 April 2026
TOPICS COVERED		
09A	'Soil Sakhis': the women boosting crop yields in Maharashtra's drought-hit districts	
	'मिट्टी सखियाँ': महाराष्ट्र के सूखा-प्रभावित जिलों में फसल उत्पादन बढ़ाने वाली महिलाएं	
09A	Jan Vishwas 2.0 is all about trust-based compliance	
	जन विश्वास 2.0 विश्वास-आधारित अनुपालन के बारे में है	

'Soil Sakhis': the women boosting crop yields in Maharashtra's drought-hit districts

GS II: Governance
Vineeta Deshpande Pantoni
MUMBAI

An initiative aimed at helping farmers increase crop yields by enhancing soil health in five drought-prone districts of western Maharashtra - Satara, Sangli, Solapur, Kolhapur, and Pune - is empowering women from marginalised families in the State.

The project started in 2023 to train women to become 'Soil Sakhis' is part of the Mann Deshi Foundation's Agriculture and Climate Action Programme.

The women work throughout the year, travelling to the State's hinterland to collect soil samples. So far, Soil Sakhis have reached out to 2,394 farmers across nine drought-prone talukas in the five districts. They earn ₹8,000 to ₹10,000 per

month, excluding petrol allowance. About ₹400 to ₹900 is charged to conduct soil tests at laboratories.

Behind this initiative is Chetna Gala Sinha, president of the Mann Deshi Foundation, who started the first rural women's bank in the country. "We were already catering to farmers. We wanted to show there is much more to offer in a drought-prone area. Farmers should not lose hope. So, apart from water, we decided to work on soil, crop, and market. For soil, who better than a woman to understand it? Just like a mother understands what her baby wants, a woman intuitively understands what the malnourished soil wants. Through Soil Sakhis, women farmers are gaining access to something they have long been denied -

scientific information about their soil," she said.

'Actionable reports'
On the project's impact on women farmers, Karan Sinha, founder of the Mann Deshi Centre for Climate Resilient Agriculture, said, "Women once identified as 'farmers' wives' are participating in training programmes, hosting scientists on their farms, creating bio-inputs and negotiating better prices in the market. The project is linked with soil testing labs. Farmers get immediate, actionable reports."

As per a study conducted on the programme, the intervention of Soil Sakhis has led to total reduction of 988.37 tonnes of CO₂e (carbon dioxide equivalent) emissions. This was calculated based on the observed decrease in fertiliz-



Soil Sakhis in a field in Maharashtra's Satara. SPECIAL ARRANGEMENT

er use from January 2024 to December 2025.

Devaki Ahvale, 26, is among nine Soil Sakhis trained by the Mann Deshi Foundation so far. A mother of three from Lingewadi in Atpadi taluka of Sangli district, she works with about 30 farmers from the surrounding villages on a daily basis. Coming from an agrarian family, her

knowledge about farming helped her when she was trained as a Soil Sakhi.

Sheetal Kale, 36, lost her husband in 2020 and had to look after her two small children in a joint agricultural family in the drought-prone Man-Khatav region in Satara district. In 2023, she joined the training programme to become a Soil Sakhi. "Now I know more

about agriculture than my brother. Even my in-laws ask me for guidance when it comes to crops," she said, beaming with pride. She travels about 80 km every day to meet farmers.

For Varsha Khandekar, becoming a Soil Sakhi was a moment of fulfilment. "This job gives me the knowledge to help farmers. These farmers have now become our extended family. When we hold awareness campaigns in villages, we bring about a change in people's mindsets that the same drought-hit region will lead to their prosperity," she said.

Ms. Khandekar and Ms. Kale are now training the next batch of Soil Sakhis.

'Turning point'
Archana Amar Babar, who owns a five-acre mango orchard in Satara's Devapur,

calls Soil Sakhis her saviours. In 2015, when she had planted Keshar mango saplings, only half of them survived. For eight years, her saplings used to either die soon, grow erratically, or give less yield.

In 2023, Ms. Khandekar came to her doorstep to spread awareness about soil testing and the test revealed a high level of limestone in the orchard. "That was a turning point for us. We used organic farming techniques to overcome the problem. The shelf life of the fruit improved," Ms. Babar said, adding that within two years, the yield has grown by 40%.

Acknowledging the contribution of Soil Sakhis in changing the fortunes of orchard farmers, Dr. Rajiv Marathe, director of the Indian Council of Agricultural Research's National Re-

search Centre on Pomegranate, Solapur, said they are guiding farmers and playing the role of community agronomists. "The Soil Sakhi project has significantly helped pomegranate farmers in this drought-prone region."

'Remarkable impact'
The initiative has boosted the yield of mango growers too, said Dr. Bhagwanrao Kapase, vice president of the Maha Kesar Amba Bagayatdar Sangha. "This project has had a remarkable impact on the mango industry in drought-prone areas like Satara. Through soil testing and scientific field guidance, farmers have become more aware about the importance of matching mango varieties with specific soil types and understanding soil health before plantation," he said.

09A. 'Soil Sakhis': the women boosting crop yields in Maharashtra's drought-hit districts

'मिट्टी सखियाँ': महाराष्ट्र के सूखा-प्रभावित जिलों में फसल उत्पादन बढ़ाने वाली महिलाएं

- An initiative aimed at helping farmers increase **crop yields** by enhancing **soil health** in five **drought-prone districts** of western Maharashtra – **Satara, Sangli, Solapur, Kolhapur, and Pune** – is empowering women from **marginalised families** in the State.

पश्चिमी महाराष्ट्र के पांच सूखा-प्रभावित जिलों – सतारा, सांगली, सोलापुर, कोल्हापुर और पुणे – में मिट्टी की सेहत सुधारकर फसल उत्पादन बढ़ाने के उद्देश्य से शुरू की गई पहल राज्य की हाशिए पर रहने वाली महिलाओं को सशक्त बना रही है।

- The project started in 2023 to train women to become 'Soil Sakhis' is part of the Mann Deshi Foundation's Agriculture and Climate Action Programme.

यह परियोजना 2023 में महिलाओं को 'मिट्टी सखी' बनाने के प्रशिक्षण के लिए शुरू की गई, जो मान देशी फाउंडेशन के कृषि और जलवायु कार्य कार्यक्रम का हिस्सा है।

- The women work throughout the year, travelling to the State's hinterland to collect soil samples.

ये महिलाएं पूरे वर्ष काम करती हैं और राज्य के दूरदराज क्षेत्रों में जाकर मिट्टी के नमूने एकत्र करती हैं।

- Soil Sakhis have reached out to 2,394 farmers across nine drought-prone talukas in the five districts.

अब तक, मिट्टी सखियाँ पांच जिलों के नौ सूखा-प्रभावित तालुकों में 2,394 किसानों तक पहुंच चुकी हैं।

- They earn ₹8,000 to ₹10,000 per month, excluding petrol allowance.

वे प्रति माह ₹8,000 से ₹10,000 कमाती हैं, जिसमें पेट्रोल भत्ता शामिल नहीं है।

- About ₹400 to ₹900 is charged to conduct soil tests at laboratories.

प्रयोगशालाओं में मिट्टी परीक्षण के लिए लगभग ₹400 से ₹900 शुल्क लिया जाता है।



- Behind this initiative is **Chetna Gala Sinha**, president of the **Mann Deshi Foundation**, who started the first **rural women's bank** in the country.
इस पहल के पीछे **चेतना गाला सिन्हा** हैं, जो **मान देशी फाउंडेशन** की अध्यक्ष हैं और जिन्होंने देश का पहला **ग्रामीण महिला बैंक** शुरू किया।
- "We were already catering to farmers.
"हम पहले से ही किसानों की सेवा कर रहे थे।
- We wanted to show there is much more to offer in a **drought-prone area**.
हम यह दिखाना चाहते थे कि **सूखा-प्रभावित क्षेत्र** में भी बहुत कुछ किया जा सकता है।
- Farmers should not lose hope.
किसानों को उम्मीद नहीं खोनी चाहिए।
- So, **apart from water**, we decided to work on **soil, crop, and market**.
इसलिए **पानी** के अलावा हमने **मिट्टी, फसल और बाजार** पर काम करने का निर्णय लिया।
- For soil, who better than a **woman** to understand it?
मिट्टी को समझने के लिए **महिला** से बेहतर कौन हो सकता है?
- Just like a mother understands what her baby wants, a woman intuitively understands what the **malnourished soil** wants.
जैसे एक मां अपने बच्चे की जरूरत समझती है, वैसे ही एक महिला **कमजोर मिट्टी** की जरूरत को सहज रूप से समझती है।
- Through Soil Sakhis, women farmers are gaining access to something they have long been denied – **scientific information** about their soil," she said.
मिट्टी सखियों के माध्यम से महिला किसानों को वह चीज मिल रही है जिससे वे लंबे समय से वंचित थीं – अपनी मिट्टी के बारे में **वैज्ञानिक जानकारी**," उन्होंने कहा।

'Actionable reports' 'कार्यान्वयन योग्य रिपोर्ट'

- On the project's impact on women farmers, **Karan Sinha**, founder of the **Mann Deshi Centre for Climate Resilient Agriculture**, said, "**Women once identified as 'farmers' wives' are participating in training programmes, hosting scientists on their farms, creating bio-inputs and negotiating better prices in the market.**
परियोजना के प्रभाव पर **करण सिन्हा**, जो **मान देशी सेंटर फॉर क्लाइमेट रेजिलिएंट एग्रीकल्चर** के संस्थापक हैं, ने कहा, "जो महिलाएं पहले **किसानों की पत्नियां** के रूप में पहचानी जाती थीं, अब वे **प्रशिक्षण कार्यक्रमों** में भाग ले रही हैं, अपने खेतों पर **वैज्ञानिकों** को आमंत्रित कर रही हैं, **जैव-इनपुट** तैयार कर रही हैं और बाजार में बेहतर कीमत के लिए बातचीत कर रही हैं।
- The project is linked with **soil testing labs**.
यह परियोजना **मिट्टी परीक्षण प्रयोगशालाओं** से जुड़ी हुई है।
- Farmers get immediate, **actionable reports**."
किसानों को तुरंत **कार्यान्वयन योग्य रिपोर्ट** मिलती है।"
- As per a study conducted on the programme, the intervention of **Soil Sakhis has led to total reduction of 988.37 tonnes of CO2e emissions**.
कार्यक्रम पर किए गए एक अध्ययन के अनुसार, मिट्टी सखियों के हस्तक्षेप से कुल **988.37 टन CO2e उत्सर्जन** में कमी आई है।
- This was calculated based on the observed decrease in **fertilizer use** from January 2024 to December 2025.
यह जनवरी 2024 से दिसंबर 2025 तक **उर्वरक उपयोग** में देखी गई कमी के आधार पर गणना की गई।
- **Devaki Aivale**, 26, is among nine Soil Sakhis trained by the Mann Deshi Foundation so far.
देवकी आइवले, 26 वर्ष, अब तक मान देशी फाउंडेशन द्वारा प्रशिक्षित नौ मिट्टी सखियों में से एक हैं।
- A mother of three from **Lingewadi** in **Atpadi taluka** of **Sangli district**, she works with about **30 farmers** from the surrounding villages on a daily basis.
सांगली जिले के अटपाडी तालुका के लिंगेवाडी की रहने वाली तीन बच्चों की मां, वह रोजाना आसपास के गांवों के लगभग **30 किसानों** के साथ काम करती हैं।
- Coming from an **agrarian family**, her knowledge about farming helped her when she was trained as a Soil Sakhi.
कृषि परिवार से होने के कारण खेती का ज्ञान उन्हें मिट्टी सखी बनने के प्रशिक्षण में सहायक रहा।



- **Sheetal Kale**, 36, lost her husband in **2020** and had to look after her two small children in a joint **agricultural family** in the drought-prone **Man-Khatav region** in **Satara district**.
शीतल काले, 36 वर्ष, ने **2020** में अपने पति को खो दिया और उन्हें **सतारा जिले** के सूखा-प्रभावित **मन-खटाव क्षेत्र** में संयुक्त **कृषि परिवार** में अपने दो छोटे बच्चों की देखभाल करनी पड़ी।
- In **2023**, she joined the training programme to become a Soil Sakhi.
2023 में उन्होंने मिट्टी सखी बनने के लिए प्रशिक्षण कार्यक्रम में भाग लिया।
- "Now I know more about **agriculture** than my brother."
"अब मुझे अपने भाई से ज्यादा **कृषि** का ज्ञान है।
- Even my in-laws ask me for guidance when it comes to **crops**," she said, beaming with pride.
यहां तक कि मेरे ससुराल वाले भी **फसल** के मामले में मुझसे सलाह लेते हैं," उन्होंने गर्व से कहा।
- She travels about **80 km** every day to meet farmers.
वह हर दिन किसानों से मिलने के लिए लगभग **80 किमी** यात्रा करती हैं।
- For **Varsha Khandekar**, becoming a Soil Sakhi was a moment of **fulfilment**.
वर्षा खांडेकर के लिए मिट्टी सखी बनना एक **संतोष का क्षण** था।
- "This job gives me the **knowledge** to help farmers."
"यह काम मुझे किसानों की मदद के लिए **ज्ञान** देता है।
- These farmers have now become our **extended family**.
ये किसान अब हमारे **विस्तारित परिवार** बन गए हैं।
- When we hold **awareness campaigns** in villages, we bring about a change in people's mindsets that the same drought-hit region will lead to their **prosperity**," she said.
जब हम गांवों में **जागरूकता अभियान** चलाते हैं, तो लोगों की सोच में बदलाव लाते हैं कि यही सूखा-प्रभावित क्षेत्र उनकी **समृद्धि** का कारण बनेगा," उन्होंने कहा।
- Ms. Khandekar and Ms. Kale are now training the next batch of **Soil Sakhis**.
सुश्री खांडेकर और सुश्री काले अब अगली पीढ़ी की **मिट्टी सखियों** को प्रशिक्षण दे रही हैं।

'Turning point' 'टर्निंग पॉइंट'

- **Archana Amar Babar**, who owns a **five-acre mango orchard** in **Devapur** in Satara, calls Soil Sakhis her **saviours**.
अर्चना अमर बाबर, जो **सतारा** के **देवापुर** में **पांच एकड़ आम के बाग** की मालिक हैं, मिट्टी सखियों को अपना **रक्षक** मानती हैं।
- In **2015**, when she had planted **Keshar mango** saplings, only half of them survived.
2015 में जब उन्होंने **केसर आम** के पौधे लगाए, तो उनमें से केवल आधे ही बचे।
- For eight years, her saplings used to either die soon, grow erratically, or give less yield.
आठ वर्षों तक उनके पौधे या तो जल्दी मर जाते थे, अनियमित रूप से बढ़ते थे या कम उत्पादन देते थे।
- In **2023**, Ms. Khandekar came to her doorstep to spread awareness about **soil testing** and the test revealed a high level of **limestone** in the orchard.
2023 में सुश्री खांडेकर उनके घर आईं और **मिट्टी परीक्षण** के बारे में जागरूकता फैलाई, जिसमें बाग में **चूना पत्थर** की अधिक मात्रा पाई गई।
- "That was a **turning point** for us."
"यह हमारे लिए एक **टर्निंग पॉइंट** था।
- We used **organic farming techniques** to overcome the problem.
हमने समस्या से निपटने के लिए **जैविक खेती तकनीकों** का उपयोग किया।
- The **shelf life** of the fruit improved," Ms. Babar said, adding that within two years, the **yield** has grown by **40%**.
फल की **शेल्फ लाइफ** में सुधार हुआ," सुश्री बाबर ने कहा और जोड़ा कि दो वर्षों में **उत्पादन** में **40%** की वृद्धि हुई।
- Acknowledging the contribution of Soil Sakhis in changing the fortunes of orchard farmers, Dr. **Rajiv Marathe**, director of the **ICAR's National Research Centre on Pomegranate, Solapur**, said they are guiding farmers and playing the role of **community agronomists**.
बागवान किसानों की स्थिति बदलने में मिट्टी सखियों के योगदान को स्वीकार करते हुए, **ICAR के राष्ट्रीय अनार अनुसंधान केंद्र, सोलापुर** के निदेशक डॉ. **राजीव मराठे** ने कहा कि वे किसानों का मार्गदर्शन कर रही हैं और **सामुदायिक कृषि विशेषज्ञ** की भूमिका निभा रही हैं।



- “The Soil Sakhi project has significantly helped **pomegranate farmers** in this drought-prone region.”
“मिट्टी सखी परियोजना ने इस सूखा-प्रभावित क्षेत्र में **अनार किसानों** की काफी मदद की है।”

‘Remarkable impact’ ‘उल्लेखनीय प्रभाव’

- The initiative has boosted the **yield of mango growers** too, said Dr. **Bhagawanrao Kapase**, vice president of the **Maha Kesar Amba Bagayatdar Sangha**.
इस पहल ने **आम उत्पादकों की उपज** भी बढ़ाई है, यह **महा केसर अंबा बागायतदार संघ** के उपाध्यक्ष डॉ. **भगवानराव कापसे** ने कहा।
- “This project has had a **remarkable impact** on the mango industry in drought-prone areas like **Satara**.
“इस परियोजना का **उल्लेखनीय प्रभाव सतारा** जैसे सूखा-प्रभावित क्षेत्रों में आम उद्योग पर पड़ा है।
- Through **soil testing** and **scientific field guidance**, farmers have become more aware about the importance of matching mango varieties with specific **soil types** and understanding **soil health** before plantation,” he said.
मिट्टी परीक्षण और वैज्ञानिक क्षेत्रीय मार्गदर्शन के माध्यम से किसान अब विभिन्न आम किस्मों को विशेष **मिट्टी के प्रकार** से मिलाने और रोपण से पहले **मिट्टी की सेहत** को समझने के महत्व के प्रति अधिक जागरूक हो गए हैं,” उन्होंने कहा।

Jan Vishwas 2.0 is all about trust-based compliance

GS II: Governance

GS III: Economy

The passage of the Jan Vishwas (Amendment of Provisions) Bill, 2026 by Parliament reflects a conscious and forward-looking policy choice by the Government of India to recalibrate the balance between enforcement and facilitation, and to embed trust as a central pillar of the regulatory framework. The reform signals a clear departure from over-reliance on criminal sanctions toward a more proportionate, predictable, and facilitative approach to compliance.

In recent years, the decriminalisation of minor business-related offences has emerged as a core element of India's reform agenda. The underlying objective has been consistent: to rationalise compliance requirements, enhance ease of doing business and foster a regulatory culture that promotes voluntary compliance rather than fear-driven adherence. Excessive criminalisation of technical and procedural lapses had created compliance anxiety, discouraged entrepreneurship, and diverted administrative and judicial resources from more serious violations.

A journey of reform

This reform journey began with the Jan Vishwas (Amendment of Provisions) Act, 2023, which decriminalised minor offences by amending 183 provisions across 42 Central Acts administered by 19 Ministries and Departments. By replacing criminal penalties for technical and procedural non-compliances with civil penalties or administrative measures, it significantly reduced the compliance burden on businesses and citizens, improving both ease of doing business and ease of living.

Building on this foundation, the 2026 Bill, commonly referred to as the Jan Vishwas 2.0, represents a decisive scale-up of this reform effort. The Bill proposes amendments to 784 provisions across 79 Central Acts administered by 23 Ministries and Departments, including the decriminalisation of 717 provisions. It also rationalises the statute book by removing obsolete and redundant offences, thereby



Chandrajit Banerjee

Director General,
The Confederation of
Indian Industry (CII)

Driven by clarity and proportionality, Jan Vishwas 2.0 will help shift Indian businesses toward a trust-based compliance culture

strengthening the coherence and credibility of India's overall regulatory architecture.

Extensive engagement between government, industry bodies, experts and other stakeholders has helped identify provisions where criminal liability was disproportionate to the nature of the offence. Such sustained dialogue has been critical in ensuring that regulatory objectives are preserved even as enforcement mechanisms are made more facilitative. Going forward, continued consultation will remain essential to keep regulation aligned with evolving economic realities.

A process of engagement

The Confederation of Indian Industry (CII) has shaped this reform agenda through sustained, evidence-based policymaker engagement. Industry representations consistently highlighted a large number of statutory offences related to minor and procedural lapses – delays in filings, documentation gaps or clerical errors – that did not warrant criminal prosecution. The CII has emphasised that decriminalisation of such offences strengthens compliance rather than diluting enforcement.

The CII's advocacy has gone beyond decriminalisation alone. A persistent industry recommendation has been to move away from court-imposed 'fines' toward a system of regulatory 'penalties' administered by executive authorities, with clear rules, proportionality, and time-bound resolution. The CII has also stressed the need for the retrospective application of decriminalisation reforms, covering cases currently pending in criminal courts. The Jan Vishwas 2.0 seems to address these long-standing concerns very well.

At a broader level, the Jan Vishwas 2.0 reflects a fundamental shift in regulatory philosophy, from criminalisation to trust, proportionality and economic efficiency. It recognises that most technical or procedural violations occur without *mala fide* intent and are better resolved through civil or administrative mechanisms. The reform explicitly retains stringent enforcement for

serious offences where public interest, safety, environmental protection or national priorities are involved. The amendments span key sectors such as exports, textiles, the environment, and transport, and introduce graded enforcement mechanisms, including warnings and lower penalties for first-time or minor violations. Such measures should reduce regulatory uncertainty and boost confidence, especially for micro, small and medium enterprises (MSME) facing high compliance burdens.

Reduces 'court congestion'

These reforms could significantly help India's overburdened judiciary. With nearly 50 million cases pending in courts – many for minor procedural or technical violations – shifting such matters out of criminal courts can reduce congestion and improve efficiency. Government indications, post the passing of the Bill in Parliament, suggest many pending minor cases may be reviewed for closure under the revised framework.

The Bill also advances trust-based regulation by introducing tools such as improvement notices and proportionate penalties for first-time contraventions. This approach recognises the reality that most businesses and citizens act in good faith and comply more effectively in a regulatory environment that is clear, predictable and fair.

The success of the Jan Vishwas 2.0 will depend on effective implementation. Strengthening institutional capacity for administrative adjudication, ensuring uniform enforcement practices, and issuing clear guidance to regulated entities will be critical to realising the full benefits of the reform for industry and citizens.

By decisively moving towards a trust-based, proportionate and growth-oriented framework, the Jan Vishwas 2.0 has the potential to create a more predictable, transparent and investor-friendly environment. Ultimately, the reform reinforces a simple yet powerful principle: compliance works best when driven by clarity, proportionality, and – above all – trust.

09A. Jan Vishwas 2.0 is all about trust-based compliance जन विश्वास 2.0 विश्वास-आधारित अनुपालन के बारे में है

- The passage of the Jan Vishwas (Amendment of Provisions) Bill, 2026 by Parliament reflects a conscious and forward-looking policy choice by the Government of India to recalibrate the balance between enforcement and facilitation, and to embed trust as a



central pillar of the regulatory framework.

संसद (Parliament) द्वारा जन विश्वास (संशोधन प्रावधान) विधेयक, 2026 (Jan Vishwas Bill, 2026) का पारित होना भारत सरकार (Government of India) की एक सोच-समझकर की गई और दूरदर्शी नीति (policy choice) को दर्शाता है, जिसका उद्देश्य प्रवर्तन और सुगमता (enforcement and facilitation) के बीच संतुलन स्थापित करना और विश्वास (trust) को नियामक ढांचे (regulatory framework) का केंद्रीय स्तंभ बनाना है।

- The reform signals a clear departure from over-reliance on **criminal sanctions** toward a more **proportionate, predictable, and facilitative approach** to compliance.
यह सुधार **आपराधिक दंड (criminal sanctions)** पर अत्यधिक निर्भरता से हटकर अधिक **अनुपातिक (proportionate), पूर्वानुमेय (predictable)** और **सुगम (facilitative approach)** अनुपालन प्रणाली की ओर स्पष्ट बदलाव को दर्शाता है।
- In recent years, the **decriminalisation of minor business-related offences** has emerged as a core element of India's **reform agenda**.
हाल के वर्षों में **छोटे व्यावसायिक अपराधों के अपराधमुक्तिकरण (decriminalisation of minor offences)** को भारत के **सुधार एजेंडा (reform agenda)** का एक प्रमुख तत्व माना गया है।
- The underlying objective has been consistent: to rationalise **compliance requirements**, enhance **ease of doing business** and foster a regulatory culture that promotes **voluntary compliance** rather than **fear-driven adherence**.
इसका मुख्य उद्देश्य रहा है: **अनुपालन आवश्यकताओं (compliance requirements)** को तर्कसंगत बनाना, **व्यवसाय करने में आसानी (ease of doing business)** को बढ़ाना और ऐसी नियामक संस्कृति विकसित करना जो **स्वैच्छिक अनुपालन (voluntary compliance)** को बढ़ावा दे, न कि **भय-आधारित पालन (fear-driven adherence)** को।
- Excessive criminalisation of **technical and procedural lapses** had created **compliance anxiety**, discouraged **entrepreneurship**, and diverted **administrative and judicial resources** from more serious violations.
तकनीकी और प्रक्रियात्मक त्रुटियों (technical and procedural lapses) के अत्यधिक अपराधीकरण ने **अनुपालन चिंता (compliance anxiety)** पैदा की, **उद्यमिता (entrepreneurship)** को हतोत्साहित किया और **प्रशासनिक एवं न्यायिक संसाधनों (administrative and judicial resources)** को गंभीर अपराधों से हटा दिया।
- **A journey of reform — सुधार की यात्रा**
- This reform journey began with the **Jan Vishwas (Amendment of Provisions) Act, 2023**, which decriminalised minor offences by amending **183 provisions across 42 Central Acts** administered by **19 Ministries and Departments**.
यह सुधार यात्रा **जन विश्वास अधिनियम, 2023 (Jan Vishwas Act, 2023)** से शुरू हुई, जिसमें **42 केंद्रीय कानूनों (Central Acts)** के **183 प्रावधानों (provisions)** में संशोधन कर छोटे अपराधों को अपराधमुक्त किया गया, जिन्हें **19 मंत्रालयों (Ministries)** द्वारा संचालित किया जाता है।
- By replacing **criminal penalties** for technical and procedural non-compliances with **civil penalties** or **administrative measures**, it significantly reduced the **compliance burden** on businesses and citizens, improving both **ease of doing business** and **ease of living**.
तकनीकी और प्रक्रियात्मक अनुपालन में कमी के लिए **आपराधिक दंड (criminal penalties)** को **नागरिक दंड (civil penalties)** या **प्रशासनिक उपायों (administrative measures)** से बदलकर इसने व्यवसायों और नागरिकों पर **अनुपालन भार (compliance burden)** को काफी कम किया, जिससे **व्यवसाय करने में आसानी (ease of doing business)** और **जीवन की सहजता (ease of living)** में सुधार हुआ।
- Building on this foundation, the **2026 Bill**, commonly referred to as the **Jan Vishwas 2.0**, represents a decisive **scale-up of this reform effort**.
इसी आधार पर, **2026 का विधेयक (Jan Vishwas 2.0)** इस सुधार प्रयास के **विस्तार (scale-up)** का प्रतिनिधित्व करता है।
- The Bill proposes amendments to **784 provisions across 79 Central Acts** administered by **23 Ministries and Departments**, including the decriminalisation of **717 provisions**.
यह विधेयक **79 केंद्रीय कानूनों (Central Acts)** के **784 प्रावधानों (provisions)** में संशोधन का प्रस्ताव करता है, जिन्हें **23 मंत्रालयों (Ministries)** द्वारा संचालित किया जाता है, जिसमें **717 प्रावधानों (provisions)** का अपराधमुक्तिकरण शामिल है।
- It also rationalises the **statute book** by removing **obsolete and redundant offences**, thereby strengthening the **coherence and credibility** of India's overall **regulatory architecture**.
यह **पुराने और अप्रासंगिक अपराधों (obsolete and redundant offences)** को हटाकर **कानूनी ढांचे**



(statute book) को तर्कसंगत बनाता है और भारत के नियामक ढांचे (regulatory architecture) की विश्वसनीयता और सुसंगतता (coherence and credibility) को मजबूत करता है।

- Extensive engagement between **government, industry bodies, experts** and other **stakeholders** has helped identify provisions where **criminal liability** was disproportionate to the nature of the offence.

सरकार (government), उद्योग निकायों (industry bodies), विशेषज्ञों (experts) और अन्य हितधारकों (stakeholders) के बीच व्यापक संवाद ने ऐसे प्रावधानों की पहचान करने में मदद की जहाँ **आपराधिक दायित्व (criminal liability)** अपराध की प्रकृति के अनुपात में नहीं था।

- Such sustained dialogue has been critical in ensuring that **regulatory objectives** are preserved even as **enforcement mechanisms** are made more facilitative.
इस तरह का निरंतर संवाद यह सुनिश्चित करने में महत्वपूर्ण रहा है कि **नियामक उद्देश्यों (regulatory objectives)** को बनाए रखते हुए **प्रवर्तन तंत्र (enforcement mechanisms)** को अधिक सुगम बनाया जाए।
- Going forward, continued **consultation** will remain essential to keep regulation aligned with evolving **economic realities**.
आगे भी निरंतर **परामर्श (consultation)** आवश्यक रहेगा ताकि नियमों को बदलती **आर्थिक वास्तविकताओं (economic realities)** के अनुरूप रखा जा सके।

A process of engagement — सहभागिता की प्रक्रिया

- The **Confederation of Indian Industry (CII)** has shaped this reform agenda through sustained, **evidence-based policymaker engagement**.
भारतीय उद्योग परिषद (CII) ने इस सुधार एजेंडा को निरंतर **साक्ष्य-आधारित नीति संवाद (evidence-based policymaker engagement)** के माध्यम से आकार दिया है।
- Industry representations consistently highlighted a large number of **statutory offences** related to minor and procedural lapses — delays in filings, documentation gaps or clerical errors — that did not warrant **criminal prosecution**.
उद्योग प्रतिनिधित्व ने लगातार ऐसे कई **वैधानिक अपराधों (statutory offences)** को उजागर किया जो छोटे और प्रक्रियात्मक दोषों — जैसे फाइलिंग में देरी, दस्तावेज़ी कमी या लिपिकीय त्रुटियाँ — से जुड़े थे और जिनके लिए **आपराधिक मुकदमा (criminal prosecution)** उचित नहीं था।
- The **CII** has emphasised that **decriminalisation** of such offences strengthens **compliance** rather than diluting enforcement.
CII ने इस बात पर जोर दिया है कि ऐसे अपराधों का **अपराधमुक्तिकरण (decriminalisation)** **अनुपालन (compliance)** को मजबूत करता है, न कि प्रवर्तन को कमजोर।
- The **CII's advocacy** has gone beyond decriminalisation alone.
CII की वकालत (advocacy) केवल अपराधमुक्तिकरण तक सीमित नहीं रही है।
- A persistent industry recommendation has been to move away from court-imposed '**finer**' toward a system of regulatory '**penalties**' administered by **executive authorities**, with clear rules, **proportionality**, and **time-bound resolution**.
उद्योग की एक प्रमुख सिफारिश यह रही है कि न्यायालय द्वारा लगाए गए **जुर्माने (fines)** से हटकर **प्रशासनिक अधिकारियों (executive authorities)** द्वारा संचालित **दंड (penalties)** प्रणाली अपनाई जाए, जिसमें स्पष्ट नियम, **अनुपातिकता (proportionality)** और **समयबद्ध समाधान (time-bound resolution)** हो।
- The **CII** has also stressed the need for the **retrospective application** of decriminalisation reforms, covering cases currently pending in **criminal courts**.
CII ने यह भी जोर दिया है कि अपराधमुक्तिकरण सुधारों को **पूर्व प्रभाव (retrospective application)** के साथ लागू किया जाए, जिससे वर्तमान में **आपराधिक न्यायालयों (criminal courts)** में लंबित मामलों को भी शामिल किया जा सके।
- The **Jan Vishwas 2.0** seems to address these long-standing concerns very well.
जन विश्वास 2.0 (Jan Vishwas 2.0) इन दीर्घकालिक चिंताओं को अच्छी तरह संबोधित करता प्रतीत होता है।
- At a broader level, the **Jan Vishwas 2.0** reflects a fundamental shift in **regulatory philosophy**, from **criminalisation** to **trust, proportionality and economic efficiency**.
वृहद स्तर पर, **जन विश्वास 2.0** **नियामक दर्शन (regulatory philosophy)** में एक मूलभूत परिवर्तन को



दर्शाता है — अपराधीकरण (criminalisation) से हटकर विश्वास (trust), अनुपातिकता (proportionality) और आर्थिक दक्षता (economic efficiency) की ओर।

- It recognises that most **technical or procedural violations** occur without **mala fide intent** and are better resolved through **civil or administrative mechanisms**.
यह स्वीकार करता है कि अधिकांश तकनीकी या प्रक्रियात्मक उल्लंघन (technical or procedural violations) बिना किसी दुर्भावना (mala fide intent) के होते हैं और इन्हें नागरिक या प्रशासनिक तंत्र (civil or administrative mechanisms) के माध्यम से बेहतर ढंग से सुलझाया जा सकता है।
- The reform explicitly retains **stringent enforcement** for serious offences where **public interest, safety, environmental protection** or **national priorities** are involved.
यह सुधार स्पष्ट रूप से गंभीर अपराधों के लिए कठोर प्रवर्तन (stringent enforcement) बनाए रखता है, जहाँ जनहित (public interest), सुरक्षा (safety), पर्यावरण संरक्षण (environmental protection) या राष्ट्रीय प्राथमिकताएँ (national priorities) शामिल हैं।
- The amendments span key sectors such as **exports, textiles, the environment, and transport**, and introduce **graded enforcement mechanisms**, including warnings and lower penalties for **first-time or minor violations**.
ये संशोधन निर्यात (exports), कपड़ा (textiles), पर्यावरण (environment) और परिवहन (transport) जैसे प्रमुख क्षेत्रों में लागू होते हैं और स्तरीय प्रवर्तन प्रणाली (graded enforcement mechanisms) प्रस्तुत करते हैं, जिसमें पहली बार या छोटे उल्लंघनों के लिए चेतावनी और कम दंड शामिल हैं।
- Such measures should reduce **regulatory uncertainty** and boost **confidence**, especially for **MSMEs** facing high compliance burdens.
ऐसे उपाय नियामक अनिश्चितता (regulatory uncertainty) को कम करेंगे और विशेष रूप से MSMEs के लिए विश्वास (confidence) बढ़ाएंगे, जो उच्च अनुपालन भार का सामना कर रहे हैं।
- **Reduces 'court congestion' — न्यायालयीय भीड़ में कमी**
- These reforms could significantly help India's **overburdened judiciary**.
ये सुधार भारत की अत्यधिक बोझिल न्यायपालिका (overburdened judiciary) की काफी मदद कर सकते हैं।
- With nearly **50 million cases pending** in courts — many for minor procedural or technical violations — shifting such matters out of **criminal courts** can reduce congestion and improve efficiency.
न्यायालयों में लगभग 5 करोड़ लंबित मामले (50 million cases) हैं — जिनमें कई छोटे प्रक्रियात्मक या तकनीकी उल्लंघन हैं — ऐसे मामलों को आपराधिक न्यायालयों (criminal courts) से बाहर ले जाने से भीड़ कम होगी और दक्षता बढ़ेगी।
- Government indications, post the passing of the Bill in **Parliament**, suggest many pending minor cases may be reviewed for closure under the revised framework.
संसद (Parliament) में विधेयक पारित होने के बाद सरकारी संकेत बताते हैं कि कई छोटे लंबित मामलों की समीक्षा कर उन्हें नए ढांचे के तहत समाप्त किया जा सकता है।
- The Bill also advances **trust-based regulation** by introducing tools such as **improvement notices** and **proportionate penalties** for first-time contraventions.
यह विधेयक विश्वास-आधारित विनियमन (trust-based regulation) को भी आगे बढ़ाता है, जिसमें सुधार नोटिस (improvement notices) और पहली बार उल्लंघन पर अनुपातिक दंड (proportionate penalties) जैसे उपाय शामिल हैं।
- This approach recognises the reality that most businesses and citizens act in **good faith** and comply more effectively in a regulatory environment that is **clear, predictable and fair**.
यह दृष्टिकोण स्वीकार करता है कि अधिकांश व्यवसाय और नागरिक सद्भावना (good faith) में कार्य करते हैं और एक स्पष्ट, पूर्वानुमेय और निष्पक्ष (clear, predictable and fair) वातावरण में बेहतर अनुपालन करते हैं।
- The success of the **Jan Vishwas 2.0** will depend on effective **implementation**.
जन विश्वास 2.0 की सफलता प्रभावी कार्यान्वयन (implementation) पर निर्भर करेगी।
- Strengthening **institutional capacity** for administrative adjudication, ensuring **uniform enforcement practices**, and issuing clear guidance to regulated entities will be critical.
संस्थागत क्षमता (institutional capacity) को मजबूत करना, **समान प्रवर्तन (uniform enforcement)** सुनिश्चित करना और स्पष्ट दिशा-निर्देश जारी करना अत्यंत महत्वपूर्ण होगा।
- By decisively moving towards a **trust-based, proportionate and growth-oriented framework**, the **Jan Vishwas 2.0** has the potential to create a more **predictable, transparent and investor-friendly environment**.



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विश्वास-आधारित (trust-based), अनुपातिक (proportionate) और विकासोन्मुख (growth-oriented framework) ढांचे की ओर बढ़कर **जन विश्वास 2.0** एक अधिक पूर्वानुमेय, पारदर्शी और निवेशक-अनुकूल वातावरण (predictable, transparent and investor-friendly environment) बनाने की क्षमता रखता है।

- Ultimately, the reform reinforces a simple yet powerful principle: **compliance** works best when driven by **clarity**, **proportionality**, and — above all — **trust**.
अंततः यह सुधार एक सरल लेकिन शक्तिशाली सिद्धांत को मजबूत करता है: **अनुपालन (compliance)** सबसे अच्छा तब काम करता है जब वह **स्पष्टता (clarity)**, **अनुपातिकता (proportionality)** और सबसे बढ़कर **विश्वास (trust)** द्वारा संचालित हो।

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India to engage new govt. of Bangladesh constructively: MEA

Relations will not be 'held hostage' to one issue, say Bangladeshi sources privy to the discussion, referring to the issue of former PM Sheikh Hasina's presence in India; both sides agree to explore proposals for deepening the partnership

GS II: IR

Kallol Bhattacharjee
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NEW DELHI

India will engage the 'new government' of Bangladesh and the two sides will 'deepen' bilateral ties, said the Ministry of External Affairs (MEA) on Wednesday after External Affairs Minister S. Jaishankar hosted Bangladesh Foreign Minister Khalilur Rahman and Prime Minister Tarique Rahman's Foreign Affairs Adviser Humayun Kobir in New Delhi.

Following the talks, the Ministry of Foreign Affairs (MoFA) of Bangladesh said Mr. Khalilur Rahman conveyed Dhaka's desire to conduct foreign policy in accordance with the principle of "Bangladesh First" and called for the extradition of former Prime Minister Sheikh Hasina.

However, sources in the Bangladesh side privy to the discussion told *The Hindu* that broader bilateral relations would not be "held hostage" by Ms. Hasina's presence in India.

"The External Affairs Minister reiterated India's desire to engage constructively with the new government and further strengthen bilateral ties. The two sides agreed to explore proposals for deepening the partnership through the relevant bilateral mechanisms," the MEA said in a statement after the two teams wrapped up their



Foreign Minister S. Jaishankar and his Bangladeshi counterpart, Khalilur Rahman, during a meeting in New Delhi on Wednesday. AP

meeting. An MEA statement said the two sides agreed on "follow-on official meetings" that were expected to take place at an early date.

Mr. Jaishankar said the two sides "discussed strengthening our bilateral relation in its various facets" and discussed regional and global developments. "Agreed to remain in close touch," he said.

Security concerns

During the talks in Delhi, the delegation is understood to have allayed security concerns for India, saying Bangladesh would not allow its soil to be used against Indian interests, nor would the new government seek security pacts with other countries, including the U.S., China or

Pakistan. Bangladesh's Foreign Ministry said Mr. Khalilur Rahman "thanked" the Indian government for "apprehending the suspected killers" of young Islamist leader Osman Hadi and "reiterated" Dhaka's request for extradition of Ms. Hasina and former Home Minister Asaduzzaman Khan Kamal, both of whom were given death sentence by the ICT in Dhaka.

However, Bangladeshi sources privy to the discussion said Dhaka did not want relations to be "held hostage" to the issue of Ms. Hasina's presence in India but they would seek assurances that her public statements would be curtailed, and she would not be allowed to "use Indian territory" for political pur-

poses. They also raised their disappointment over the cancellation of IPL contract for Mustafizur Rahman, popular cricketer of Bangladesh, over India's concerns regarding rights of minority communities from the T20 World Cup in January. Bangladeshi officials indicated that they will work to keep sporting ties on track and cited that the Bangladesh Cricket Board has decided to invite the Indian team to play a test series later this year.

Mr. Khalilur Rahman, who arrived here on Tuesday, is the first high-level dignitary to be welcomed here for a bilateral engagement from Bangladesh since the fall of Ms. Hasina's government on August 5, 2024. He visited India in November 2025 while serv-

ing the interim government led by Muhammed Yunus as the National Security Adviser of Bangladesh.

Visa issues

According to the MoFA of Bangladesh, the Indian side has given indication that issuance of Indian visas that has remained slow for more than one and half years will be addressed soon. "During the discussions, Mr. Jaishankar said Indian visas to Bangladeshis, particularly medical and business visas, would be eased in the coming weeks," said the MoFA in a press note.

Following the meeting, the guests met Minister for Petroleum and Natural Gas Hardeep Singh Puri and conveyed Dhaka's appreciation for the March 10 supply of 5,000 metric tonnes of high speed diesel.

According to the MoFA, they further "requested to increase the volume of supply of diesel and fertilizers. Mr. Puri indicated that the Government of India will consider the request readily and favourably."

Mr. Khalilur Rahman will leave on Thursday for Mauritius where he will participate in the Indian Ocean Conference being organised by the India Foundation, Ministry of External Affairs and the Government of Mauritius.

09A. India to engage new govt. of Bangladesh constructively: MEA

भारत बांग्लादेश की नई सरकार के साथ रचनात्मक रूप से जुड़ाव करेगा: विदेश मंत्रालय (MEA)

- Relations will not be 'held hostage' to one issue, say Bangladeshi sources privy to the discussion, referring to the issue of former PM **Sheikh Hasina's** presence in India. संबंधों को किसी एक मुद्दे का 'बंधक' नहीं बनाया जाएगा, चर्चा से जुड़े बांग्लादेशी सूत्रों ने कहा, यह पूर्व प्रधानमंत्री **शेख हसीना** की भारत में उपस्थिति के मुद्दे का संदर्भ था।
- Both sides agree to explore proposals for deepening the partnership. दोनों पक्ष साझेदारी को गहरा करने के प्रस्तावों की खोज पर सहमत हुए।
- India will engage the 'new government' of Bangladesh and the two sides will 'deepen' bilateral ties, said the **Ministry of External Affairs (MEA)** on Wednesday after **External Affairs Minister S. Jaishankar** hosted **Bangladesh Foreign Minister Khalilur Rahman** and



Prime Minister **Tarique Rahman's** Foreign Affairs Adviser **Humayun Kobir** in **New Delhi**.
भारत **बांग्लादेश की 'नई सरकार'** के साथ जुड़ाव करेगा और दोनों पक्ष **द्विपक्षीय संबंधों को गहरा करेंगे**, यह बात बुधवार को **विदेश मंत्रालय (MEA)** ने कही, जब **विदेश मंत्री एस. जयशंकर** ने **नई दिल्ली** में **बांग्लादेश के विदेश मंत्री खलीलुर रहमान** और प्रधानमंत्री **तारिक रहमान** के विदेश मामलों के सलाहकार **हुमायूं कबीर** की मेजबानी की।

- Following the talks, the **Ministry of Foreign Affairs (MoFA) of Bangladesh** said Mr. Khalilur Rahman conveyed Dhaka's desire to conduct foreign policy in accordance with the principle of **"Bangladesh First"** and called for the extradition of former Prime Minister **Sheikh Hasina**.
वार्ता के बाद **बांग्लादेश के विदेश मंत्रालय (MoFA)** ने कहा कि श्री खलीलुर रहमान ने ढाका की विदेश नीति को **"बांग्लादेश फर्स्ट"** सिद्धांत के अनुसार चलाने की इच्छा जताई और पूर्व प्रधानमंत्री **शेख हसीना** के प्रत्यर्पण की मांग की।
- However, sources in the Bangladesh side privy to the discussion told The Hindu that broader bilateral relations would not be **"held hostage"** by Ms. Hasina's presence in India.
हालांकि, चर्चा से जुड़े बांग्लादेशी सूत्रों ने कहा कि व्यापक द्विपक्षीय संबंधों को सुश्री हसीना की भारत में उपस्थिति के कारण **'बंधक'** नहीं बनाया जाएगा।
- "The External Affairs Minister reiterated India's desire to engage constructively with the new government and further strengthen bilateral ties.
"विदेश मंत्री ने नई सरकार के साथ रचनात्मक रूप से जुड़ने और द्विपक्षीय संबंधों को और मजबूत करने की भारत की इच्छा दोहराई।
- The two sides agreed to explore proposals for **deepening the partnership** through the relevant bilateral mechanisms," the MEA said.
दोनों पक्षों ने प्रासंगिक द्विपक्षीय तंत्रों के माध्यम से **साझेदारी को गहरा करने** के प्रस्तावों की खोज पर सहमति जताई," MEA ने कहा।
- An MEA statement said the two sides agreed on **"follow-on official meetings"** that were expected to take place at an early date.
MEA के बयान में कहा गया कि दोनों पक्षों ने जल्द होने वाली **"अनुवर्ती आधिकारिक बैठकों"** पर सहमति जताई।
- Mr. Jaishankar said the two sides **"discussed strengthening our bilateral relation in its various facets"** and discussed regional and global developments.
श्री जयशंकर ने कहा कि दोनों पक्षों ने **"द्विपक्षीय संबंधों को विभिन्न पहलुओं में मजबूत करने"** पर चर्चा की और क्षेत्रीय व वैश्विक घटनाक्रमों पर भी विचार किया।
- "Agreed to remain in close touch," he said.
उन्होंने कहा, "करीबी संपर्क में बने रहने पर सहमति हुई।"

Security concerns

सुरक्षा चिंताएं

- During the talks in **Delhi**, the delegation is understood to have allayed **security concerns** for India, saying Bangladesh would not allow its soil to be used against Indian interests.
दिल्ली में हुई वार्ता के दौरान, प्रतिनिधिमंडल ने भारत की **सुरक्षा चिंताओं** को दूर करते हुए कहा कि बांग्लादेश अपनी जमीन का इस्तेमाल भारत के खिलाफ नहीं होने देगा।
- Nor would the new government seek security pacts with other countries, including the **U.S., China or Pakistan**.
नई सरकार **अमेरिका, चीन या पाकिस्तान** सहित अन्य देशों के साथ सुरक्षा समझौते भी नहीं करेगी।
- Bangladesh's Foreign Ministry said Mr. Khalilur Rahman **"thanked"** the Indian government for apprehending the suspected killers of young Islamist leader **Osman Hadi**.
बांग्लादेश के विदेश मंत्रालय ने कहा कि श्री खलीलुर रहमान ने युवा इस्लामिक नेता **उस्मान हादी** के संदिग्ध हत्यारों को पकड़ने के लिए भारतीय सरकार को **"धन्यवाद"** दिया।
- He also **"reiterated"** Dhaka's request for extradition of Ms. Hasina and former Home Minister **Asaduzzaman Khan Kamal**, both of whom were given death sentence by the **ICT in Dhaka**.
उन्होंने सुश्री हसीना और पूर्व गृह मंत्री **असदुज्जमान खान कमाल** के प्रत्यर्पण की मांग को भी **"दोहराया"**, जिन्हें **ढाका के ICT** द्वारा मृत्युदंड दिया गया है।
- However, Bangladeshi sources said Dhaka did not want relations to be **"held hostage"** to Ms. Hasina's presence in India.



हालांकि, बांग्लादेशी सूत्रों ने कहा कि ढाका नहीं चाहता कि संबंध सुश्री हसीना की भारत में उपस्थिति के कारण 'बंधक' बनें।

- But they would seek assurances that her public statements would be curtailed and she would not be allowed to “use Indian territory” for political purposes.

लेकिन वे यह आश्वासन चाहते हैं कि उनके सार्वजनिक बयान सीमित किए जाएं और उन्हें “भारतीय क्षेत्र का उपयोग” राजनीतिक उद्देश्यों के लिए न करने दिया जाए।

- They also raised disappointment over cancellation of IPL contract for Mustafizur Rahman, citing India's concerns regarding rights of minority communities from the T20 World Cup in January.

उन्होंने मुस्तफिजुर रहमान के IPL अनुबंध रद्द होने पर भी निराशा जताई, जिसमें जनवरी के T20 वर्ल्ड कप के दौरान अल्पसंख्यकों के अधिकारों को लेकर भारत की चिंताओं का उल्लेख किया गया।

- Bangladeshi officials indicated they will work to keep sporting ties on track and cited that the Bangladesh Cricket Board has decided to invite the Indian team for a test series later this year.

बांग्लादेशी अधिकारियों ने संकेत दिया कि वे खेल संबंधों को बनाए रखने के लिए काम करेंगे और कहा कि बांग्लादेश क्रिकेट बोर्ड ने इस वर्ष के अंत में भारतीय टीम को टेस्ट सीरीज के लिए आमंत्रित करने का निर्णय लिया है।

- Mr. Khalilur Rahman, who arrived on Tuesday, is the first high-level dignitary for a bilateral engagement since the fall of Ms. Hasina's government on August 5, 2024.

मंगलवार को पहुंचे श्री खलीलुर रहमान, 5 अगस्त 2024 को सुश्री हसीना की सरकार गिरने के बाद द्विपक्षीय वार्ता के लिए आने वाले पहले उच्च-स्तरीय प्रतिनिधि हैं।

- He had visited India in November 2025 while serving the interim government led by Muhammed Yunus as National Security Adviser.

उन्होंने नवंबर 2025 में भी भारत का दौरा किया था, जब वे मुहम्मद यूनुस के नेतृत्व वाली अंतरिम सरकार में राष्ट्रीय सुरक्षा सलाहकार थे।

Visa issues

वीजा मुद्दे

- According to the MoFA of Bangladesh, the Indian side has indicated that issuance of Indian visas will be addressed soon.

बांग्लादेश के विदेश मंत्रालय (MoFA) के अनुसार, भारतीय पक्ष ने संकेत दिया है कि भारतीय वीजा जारी करने की प्रक्रिया जल्द सुधारी जाएगी।

- “During the discussions, Mr. Jaishankar said Indian visas to Bangladeshis, particularly medical and business visas, would be eased in the coming weeks,” the MoFA said.

MoFA ने कहा, “चर्चा के दौरान श्री जयशंकर ने कहा कि बांग्लादेशियों के लिए विशेष रूप से मेडिकल और बिजनेस वीजा आने वाले हफ्तों में आसान किए जाएंगे।”

- Following the meeting, the guests met Petroleum Minister Hardeep Singh Puri and conveyed appreciation for the March 10 supply of 5,000 metric tonnes of high speed diesel.

बैठक के बाद, अतिथियों ने पेट्रोलियम मंत्री हरदीप सिंह पुरी से मुलाकात की और 10 मार्च को 5,000 मीट्रिक टन हाई स्पीड डीजल की आपूर्ति के लिए आभार व्यक्त किया।

- According to the MoFA, they requested to increase the volume of supply of diesel and fertilizers.

MoFA के अनुसार, उन्होंने डीजल और उर्वरकों की आपूर्ति बढ़ाने का अनुरोध किया।

- Mr. Puri indicated that the Government of India will consider the request readily and favourably.

श्री पुरी ने संकेत दिया कि भारत सरकार इस अनुरोध पर तत्काल और सकारात्मक विचार करेगी।

- Mr. Khalilur Rahman will leave on Thursday for Mauritius to participate in the Indian Ocean Conference organised by the India Foundation, MEA and the Government of Mauritius.

श्री खलीलुर रहमान गुरुवार को मॉरीशस के लिए रवाना होंगे, जहां वे इंडियन ओशन कॉन्फ्रेंस में भाग लेंगे, जिसका आयोजन इंडिया फाउंडेशन, MEA और मॉरीशस सरकार द्वारा किया जा रहा है।



TikTok to build a second billion-euro data centre in Finland



Moving storage: TikTok was investing €1 billion in a data centre with an initial capacity of 50 MW. REUTERS

Reuters
HELSINKI/STOCKHOLM

TikTok plans to invest €1 billion (\$1.16 billion) to build a second data centre in Finland in less than a year as it moves data storage for European users to the continent, company officials said on Wednesday.

Avoids U.S. ban

The announcement comes as TikTok's Chinese parent ByteDance in January avoided a U.S. ban over data protection concerns and as European nations ratchet up pressure on social media companies to protect children from their addictive algorithms.

TikTok said it was making a new €1 billion investment in a data centre with an initial capacity of 50 megawatts (MW) and a total potential capacity of 128 MW in Lahti, located in southern Finland.

The investment is part of the company's "€12 billion European data sovereignty initiative delivering industry-leading protections for the data of over 200 million European users," it told Reuters.

Concerns over data protection

Finland has become a magnet for data centres as companies, including Microsoft and Google look to curb energy costs and meet climate goals, drawn by the country's cold climate, low-cost and low-carbon electricity and a stable, business friendly regulatory environment within the European Union.

But Finnish politicians were alarmed by TikTok's plan for its first data centre in Finland after Reuters revealed it in April last year.

While Finland's Defence Ministry had approved the investment in 2024, politicians had not been informed. Finland's then-minister of economic affairs Wille Rydman last year called for the project to be "reconsidered" due to security concerns and lack of openness around the company's plans.

"At the very least, I would hope that this property development company would reconsider once more whether it really wants TikTok as its tenant," Rydman told Finland's public broadcaster Yle, referring to TikTok's local partner.

TikTok said its European user data is currently stored with enhanced safeguards across three data centres in Norway, Ireland, and the U.S.

Its first Finnish data centre in Kouvola is to be operational by the end of this year, with the second one up by 2027.

The mayor in Lahti celebrated the fresh investment decision.

"In the context of Lahti, the investment is substantial. We are pleased that a main tenant agreement has been signed and that the project is progressing as planned," Lahti Mayor Niko Kynarainen said in a statement.

and a stable, business friendly regulatory environment within the European Union.

फिनलैंड डेटा सेंटर के लिए आकर्षण का केंद्र बन गया है क्योंकि **Microsoft** और **Google** जैसी कंपनियाँ ऊर्जा लागत कम करने और जलवायु लक्ष्यों को पूरा करने के लिए यहाँ आ रही हैं, जहाँ ठंडा मौसम, कम लागत और कम-कार्बन बिजली तथा **व्यवसाय अनुकूल नियामक वातावरण** उपलब्ध है।

- But Finnish politicians were alarmed by TikTok's plan for its first data centre in Finland after Reuters revealed it in April last year.

लेकिन फिनलैंड के **राजनेता** टिकटॉक की पहली डेटा सेंटर योजना से चिंतित हो गए थे, जब रॉयटर्स ने इसे पिछले वर्ष अप्रैल में उजागर किया था।

- While Finland's Defence Ministry had approved the investment in 2024, politicians had not been informed.

09A. TikTok to build a second billion-euro data centre in Finland

टिकटॉक फिनलैंड में दूसरा बिलियन-यूरो डेटा सेंटर बनाएगा

- **TikTok to build a second billion-euro data centre in Finland.**

टिकटॉक फिनलैंड में दूसरा बिलियन-यूरो डेटा सेंटर बनाएगा।

TikTok plans to invest €1 billion (\$1.16 billion) to build a second data centre in Finland in less than a year as it moves data storage for European users to the continent, company officials said on Wednesday.

टिकटॉक ने यूरोपीय उपयोगकर्ताओं के डेटा स्टोरेज को महाद्वीप में स्थानांतरित करने के तहत एक वर्ष से कम समय में फिनलैंड में दूसरा डेटा सेंटर बनाने के लिए **€1 बिलियन (\$1.16 बिलियन)** निवेश करने की योजना बनाई है, कंपनी अधिकारियों ने बुधवार को कहा।

Avoids U.S. ban

अमेरिकी प्रतिबंध से बचाव

The announcement comes as **TikTok's Chinese parent ByteDance** in January avoided a U.S. ban over data protection concerns and as European nations ratchet up pressure on social media companies to protect children from their addictive algorithms.

यह घोषणा ऐसे समय में आई है जब टिकटॉक की चीनी मूल कंपनी **ByteDance** ने जनवरी में **डेटा सुरक्षा चिंताओं** के कारण अमेरिकी प्रतिबंध से बचाव किया और यूरोपीय देश **सोशल मीडिया कंपनियों** पर बच्चों को उनके **आसक्त करने वाले एल्गोरिदम** से बचाने के लिए दबाव बढ़ा रहे हैं।

TikTok said it was making a new €1 billion investment in a data centre with an initial capacity of 50 megawatts (MW) and a total potential capacity of 128 MW in Lahti, located in southern Finland.

टिकटॉक ने कहा कि वह दक्षिणी फिनलैंड के **Lahti** में 50 मेगावाट (MW) की प्रारंभिक क्षमता और कुल संभावित **128 MW क्षमता** वाले डेटा सेंटर में **€1 बिलियन** का नया निवेश कर रहा है।

The investment is part of the company's "€12 billion European data sovereignty initiative delivering industry-leading protections for the data of over 200 million European users," it told Reuters.

कंपनी ने रॉयटर्स को बताया कि यह निवेश उसकी **€12 बिलियन यूरोपीय डेटा संप्रभुता पहल** का हिस्सा है, जो **200 मिलियन से अधिक यूरोपीय उपयोगकर्ताओं** के डेटा के लिए उच्च स्तरीय सुरक्षा प्रदान करती है।

Concerns over data protection

डेटा सुरक्षा को लेकर चिंताएँ

Finland has become a magnet for data centres as companies, including Microsoft and Google look to curb energy costs and meet climate goals, drawn by the country's cold climate, low-cost and low-carbon electricity and a stable, business friendly regulatory environment within the European Union.



हालांकि फिनलैंड के **रक्षा मंत्रालय** ने 2024 में इस निवेश को मंजूरी दी थी, लेकिन **राजनेताओं** को इसकी जानकारी नहीं दी गई थी।

- Finland's then-minister of economic affairs Wille Rydman last year called for the project to be "reconsidered" due to security concerns and lack of openness around the company's plans. फिनलैंड के तत्कालीन **आर्थिक मामलों के मंत्री Wille Rydman** ने पिछले वर्ष **सुरक्षा चिंताओं** और कंपनी की योजनाओं में पारदर्शिता की कमी के कारण इस परियोजना पर पुनर्विचार करने की मांग की थी।
- "At the very least, I would hope that this property development company would reconsider once more whether it really wants TikTok as its tenant," Rydman told Finland's public broadcaster Yle, referring to TikTok's local partner. उन्होंने कहा, "कम से कम, मैं आशा करता हूँ कि यह **प्रॉपर्टी डेवलपमेंट कंपनी** एक बार फिर विचार करेगी कि क्या वह वास्तव में टिकटॉक को अपना किरायेदार बनाना चाहती है," Rydman ने फिनलैंड के **सार्वजनिक प्रसारक Yle** से कहा।
- TikTok said its European user data is currently stored with enhanced safeguards across three data centres in Norway, Ireland, and the U.S. टिकटॉक ने कहा कि उसका **यूरोपीय उपयोगकर्ता डेटा** वर्तमान में **Norway, Ireland और U.S.** के तीन डेटा सेंटरों में उन्नत सुरक्षा के साथ संग्रहीत है।
- Its first Finnish data centre in Kouvola is to be operational by the end of this year, with the second one up by 2027. फिनलैंड में उसका पहला डेटा सेंटर **Kouvola** में इस वर्ष के अंत तक चालू हो जाएगा, जबकि दूसरा **2027** तक तैयार होगा।
- The mayor in Lahti celebrated the fresh investment decision. **Lahti** के मेयर ने इस नए निवेश निर्णय का स्वागत किया।
- "In the context of Lahti, the investment is substantial. **Lahti** के संदर्भ में यह निवेश काफी बड़ा है।
- We are pleased that a main tenant agreement has been signed and that the project is progressing as planned," Lahti Mayor Niko Kyynäräinen said in a statement. हम खुश हैं कि एक **मुख्य किरायेदार समझौता** हस्ताक्षरित हुआ है और परियोजना योजना के अनुसार आगे बढ़ रही है," **Lahti के मेयर Niko Kyynäräinen** ने बयान में कहा।



In Iran, Trump faces the limits of American power

The U.S.-Israeli war on Iran has not just failed to achieve its declared objectives but also reinforced Iran's standing as a major regional power in West Asia; under attack, Iran ensured decapitation would not affect the coherence of the state; Tehran widened the conflict by attacking U.S. bases in the region and by taking control of the Strait of Hormuz. Iran dragged the global economy into the conflict

NEWS ANALYSIS

Stanley Johny

“There will be no deal with Iran except UNCONDITIONAL SURRENDER!” U.S. President Donald Trump said on March 6, the seventh day of the war. On April 8, on the 40th day of the war, Mr. Trump announced a two-week ceasefire, hours after he threatened to erase the Iranian civilisation if Tehran did not accept his deal.

Mr. Trump also agreed to treat an Iranian proposal as “a workable basis” for future talks. Iran said it would honour the ceasefire and ensure “safe passage” of vessels through the Strait of Hormuz “in coordination with its forces”.

While it is too early to conclude whether the ceasefire would hold or it would lead to a lasting peace agreement, one thing is clear — the U.S.-Israeli war on Iran has not just failed to achieve its declared objectives but also reinforced Iran's standing as a major regional power in West Asia, particularly.

When he launched the war on February 28, Mr. Trump outlined five broad objectives: to “raze” Iran's missile industry “to the ground”; to “annihilate” Iran's Navy; to ensure that Iran's “proxies” could no longer “destabilise” the region; to prevent Iran from ever obtaining a nuclear weapon; and to bring about regime change. None of this has been met.

Forty days later, however, his biggest demand was one that was not part of his original set of objectives — reopen Hormuz.

Iran got pounded over the past 40 days. It lost several top leaders, including Supreme Leader Ali Khamenei, Defence Council chief Ali Shamkhani and Security Council chief Ali Larjani. Its manufacturing facilities, petrochemical complexes, gas fields, oil depots, rail tracks, universities and even bridges were bombed. The damage is a major setback for an economy already in crisis.

Iran's three moves

But Iran made three moves that allowed it to play what Trita Parsi, of the Quincy Institute, calls the “longer game”. First, it ensured that decapitation would not affect the coherence of the state or its ability to fight back — a strategy likely put in place after the June 2025 war when Israel killed multiple Iranian military leaders. Second, Iran immediately regionalised the conflict by attacking American bases in the Persian Gulf. The accuracy and lethality of these strikes suggest that Tehran had prepared for this moment. As Vali Nasr, of Johns Hopkins University, told *The Hindu*, Iran turned the entire Persian Gulf into a battlefield. Third, by taking control of the Strait of Hormuz, Iran dragged the global economy into the war launched by the U.S. and Israel.



Vacillating stance: Donald Trump announced the ceasefire hours after he threatened to erase the Iranian civilisation. REUTERS

Over the past few weeks, Mr. Trump repeatedly declared victory. But such declarations failed to convince even his allies, as the Strait of Hormuz remained under Iranian control. The U.S. had no easy options. Mr. Trump faced three possible ways out. First, he could declare victory and withdraw, effectively leaving the Strait in Iran's hands — a move that

would be seen as a huge strategic defeat.

Second, he could escalate further, hoping that heavier strikes would force Iran to flinch and make concessions. But this carried enormous risks as Iran could counter-escalate by attacking energy facilities across the Gulf and militarily shutting the Strait. Such an outcome would multiply Mr. Trump's challenges and could draw the U.S. into a ground war. Mr. Trump did attempt limited escalation. He bombed Kharg Island, Iran's main export terminal, while Israel struck Iran's South Pars gas fields. Mr. Trump issued multiple ultimatums. But each time, Iran either ignored them or responded with counter-strikes. Last week, the loss of two aircraft over Iran punctured Mr. Trump's claims that Tehran's anti-defence capabilities were

destroyed. Although the U.S. managed to extract the pilots of a downed F-15E, it lost more aircraft in the process.

Mr. Trump's third option was to seek a deal with Iran, whose unconditional surrender he had demanded. He chose diplomacy, with Pakistan, an ally with close ties with Tehran, mediating, even as he threatened to blow up Iran's civilian infrastructure. The plan was to use the threats to exact concessions from Tehran for an exit path.

Tables have turned

He finally got an off-ramp, hours before his latest ultimatum was set to expire. But his admission that the framework for coming talks would be Iran's 10-point proposal, not America's 15-point proposal, shows how tables have turned during the war. Iran has demanded guarantees

against future attacks, continued control over the Strait of Hormuz, right to continue enriching uranium, removal of all sanctions, withdrawal of U.S. troops in the region and payment of reparations. As a concession to Mr. Trump, Iran has agreed to allow “safe passage” of vessels through the Strait during the ceasefire “in coordination” with its forces. Note: “safe passage” is not the same as “free passage”.

There are wide gaps between the American and Iranian positions, which will be taken up at the Islamabad conference on April 10. But Iran will arrive with far greater leverage than it had in the pre-war talks in Muscat and Geneva. During the pre-war talks, the U.S. used the threat of an attack to demand concessions from Tehran. After 40 days of war, that threat is now a spent force.

09A. In Iran, Trump faces the limits of American power

ईरान में, ट्रंप को अमेरिकी शक्ति की सीमाओं का सामना

- The U.S.-Israeli war on Iran has not just failed to achieve its declared objectives but also reinforced Iran's standing as a major regional power in West Asia; under attack, Iran ensured decapitation would not affect the coherence of the state; Tehran widened the conflict by attacking U.S. bases in the region and by taking control of the Strait of Hormuz, Iran dragged the global economy into the conflict.

अमेरिका-इज़राइल युद्ध ईरान के खिलाफ अपने घोषित उद्देश्यों को हासिल करने में विफल रहा है और साथ ही पश्चिम एशिया में ईरान की स्थिति को एक प्रमुख क्षेत्रीय शक्ति के रूप में मजबूत किया है; हमले के दौरान ईरान ने सुनिश्चित किया कि नेतृत्व की हत्या से राज्य की एकता प्रभावित न हो; तेहरान ने क्षेत्र में अमेरिकी ठिकानों पर हमला करके और हॉर्मुज जलडमरूमध्य पर नियंत्रण लेकर संघर्ष को बढ़ाया और वैश्विक अर्थव्यवस्था को इसमें खींच लिया।

- “There will be no deal with Iran except UNCONDITIONAL SURRENDER!” U.S. President Donald Trump said on March 6, the seventh day of the war. “ईरान के साथ कोई समझौता नहीं होगा जब तक बिना शर्त आत्मसमर्पण नहीं होता!,” अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप ने 6 मार्च को, युद्ध के सातवें दिन कहा।
- On April 8, on the 40th day of the war, Mr. Trump announced a two-week ceasefire, hours after he threatened to erase the Iranian civilisation if Tehran did not accept his deal. 8 अप्रैल को, युद्ध के 40वें दिन, ट्रंप ने दो सप्ताह के युद्धविराम की घोषणा की, कुछ घंटे बाद जब उन्होंने तेहरान द्वारा समझौता न मानने पर ईरानी सभ्यता को समाप्त करने की धमकी दी थी।
- Mr. Trump also agreed to treat an Iranian proposal as “a workable basis” for future talks. ट्रंप ने एक ईरानी प्रस्ताव को भविष्य की वार्ताओं के लिए “एक व्यवहार्य आधार” मानने पर भी सहमति जताई।
- Iran said it would honour the ceasefire and ensure “safe passage” of vessels through the Strait of Hormuz “in coordination with its forces”. ईरान ने कहा कि वह युद्धविराम का पालन करेगा और अपने बलों के समन्वय से हॉर्मुज जलडमरूमध्य से जहाजों के लिए “सुरक्षित मार्ग” सुनिश्चित करेगा।
- While it is too early to conclude whether the ceasefire would hold or it would lead to a lasting peace agreement, one thing is clear — the U.S.-Israeli war on Iran has not just failed to achieve its declared objectives but also reinforced Iran's standing as a major regional power in West Asia, particularly. हालांकि यह कहना जल्दबाजी होगी कि युद्धविराम टिकेगा या स्थायी शांति समझौते में बदलेगा, एक बात स्पष्ट है—अमेरिका-इज़राइल युद्ध अपने उद्देश्यों में विफल रहा और ईरान की क्षेत्रीय शक्ति की स्थिति को मजबूत किया।
- When he launched the war on February 28, Mr. Trump outlined five broad objectives: to “raze” Iran's missile industry “to the ground”; to “annihilate” Iran's Navy; to ensure that Iran's



“proxies” could no longer “destabilise” the region; to prevent Iran from ever obtaining a nuclear weapon; and to bring about regime change.

28 फरवरी को युद्ध शुरू करते समय ट्रंप ने पांच उद्देश्य बताए: ईरान की **मिसाइल इंडस्ट्री** को नष्ट करना; उसकी **नेवी** को समाप्त करना; उसके “प्रॉक्सी” को क्षेत्र को अस्थिर करने से रोकना; उसे **परमाणु हथियार** पाने से रोकना; और **शासन परिवर्तन** करना।

- None of this has been met.
इनमें से कोई भी उद्देश्य पूरा नहीं हुआ।
- Forty days later, however, his biggest demand was one that was not part of his original set of objectives — reopen Hormuz.
40 दिन बाद, उनकी सबसे बड़ी मांग थी—**हॉर्मुज** को फिर से खोलना, जो उनके मूल उद्देश्यों में नहीं था।
- Iran got pounded over the past 40 days.
पिछले 40 दिनों में ईरान को भारी नुकसान हुआ।
- It lost several top leaders, including Supreme Leader Ali Khamenei, Defence Council chief Ali Shamkhani and Security Council chief Ali Larijani.
उसने कई शीर्ष नेताओं को खो दिया, जिनमें **अली खामेनेई**, **अली शामखानी** और **अली लारिजानी** शामिल हैं।
- Its manufacturing facilities, petrochemical complexes, gas fields, oil depots, rail tracks, universities and even bridges were bombed.
उसकी **मैनुफैक्चरिंग इकाइयाँ**, **पेट्रोकेमिकल कॉम्प्लेक्स**, **गैस फील्ड**, **तेल भंडार**, **रेल ट्रैक**, **विश्वविद्यालय** और **पुल** तक बमबारी में नष्ट हुए।
- The damage is a major setback for an economy already in crisis.
यह नुकसान पहले से संकटग्रस्त **अर्थव्यवस्था** के लिए बड़ा झटका है।

Iran's three moves

ईरान की तीन रणनीतियाँ

- But Iran made three moves that allowed it to play what Trita Parsi, of the Quincy Institute, calls the “longer game”.
लेकिन ईरान ने तीन ऐसे कदम उठाए जिससे वह “**लंबी रणनीति**” खेल सका, जैसा कि **ट्रिटा पारसी** ने कहा।
- First, it ensured that decapitation would not affect the coherence of the state or its ability to fight back.
पहला, उसने सुनिश्चित किया कि **नेतृत्व की हत्या** से राज्य की एकता या उसकी लड़ने की क्षमता प्रभावित न हो।
- Second, Iran immediately regionalised the conflict by attacking American bases in the Persian Gulf.
दूसरा, ईरान ने **फारस की खाड़ी** में अमेरिकी ठिकानों पर हमला कर संघर्ष को क्षेत्रीय बना दिया।
- Third, by taking control of the Strait of Hormuz, Iran dragged the global economy into the war launched by the U.S. and Israel.
तीसरा, **हॉर्मुज जलडमरूमध्य** पर नियंत्रण लेकर ईरान ने वैश्विक अर्थव्यवस्था को युद्ध में खींच लिया।
- Mr. Trump's third option was to seek a deal with Iran, whose unconditional surrender he had demanded.
ट्रंप का तीसरा विकल्प ईरान से समझौता करना था, जिसका **बिना शर्त आत्मसमर्पण** उन्होंने पहले मांगा था।
- He chose diplomacy, with Pakistan, an ally with close ties with Tehran, mediating, even as he threatened to blow up Iran's civilian infrastructure.
उन्होंने **कूटनीति** चुनी, जिसमें **पाकिस्तान** मध्यस्थ बना, जबकि उन्होंने ईरान के नागरिक ढांचे को नष्ट करने की धमकी दी।
- The plan was to use the threats to exact concessions from Tehran for an exit path.
योजना थी कि धमकियों के जरिए तेहरान से **रियायतें** हासिल कर बाहर निकलने का रास्ता बनाया जाए।

Tables have turned

हालात बदल गए हैं

- He finally got an off-ramp, hours before his latest ultimatum was set to expire.
अंततः उन्हें एक **निकास मार्ग** मिला, उनके अंतिम अल्टीमेटम के समाप्त होने से कुछ घंटे पहले।



- But his admission that the framework for coming talks would be Iran's 10-point proposal, not America's 15-point proposal, shows how tables have turned during the war.
लेकिन उनका यह स्वीकार करना कि वार्ता का आधार **ईरान का 10-बिंदु प्रस्ताव** होगा, न कि अमेरिका का 15-बिंदु प्रस्ताव, दिखाता है कि हालात बदल गए हैं।
- Iran has demanded guarantees against future attacks, continued control over the Strait of Hormuz, right to continue enriching uranium, removal of all sanctions, withdrawal of U.S. troops in the region and payment of reparations.
ईरान ने भविष्य के हमलों के खिलाफ **गारंटी, हॉर्मुज पर नियंत्रण, यूरेनियम संवर्धन का अधिकार, सभी प्रतिबंध हटाने**, अमेरिकी सैनिकों की वापसी और **मुआवजा** मांगा है।
- As a concession to Mr. Trump, Iran has agreed to allow "safe passage" of vessels through the Strait during the ceasefire "in coordination" with its forces.
ट्रंप को रियायत देते हुए ईरान ने युद्धविराम के दौरान जहाजों को **"सुरक्षित मार्ग"** देने पर सहमति जताई है।
- Note: 'safe passage' is not the same as 'free passage'.
ध्यान दें: **"सुरक्षित मार्ग"** का मतलब **"मुक्त मार्ग"** नहीं है।
- There are wide gaps between the American and Iranian positions, which will be taken up at the Islamabad conference on April 10.
अमेरिका और ईरान के बीच बड़े मतभेद हैं, जिन्हें 10 अप्रैल को **इस्लामाबाद सम्मेलन** में उठाया जाएगा।
- But Iran will arrive with far greater leverage than it had in the pre-war talks in Muscat and Geneva.
लेकिन ईरान **मस्कट और जेनेवा** की पूर्व-युद्ध वार्ताओं की तुलना में अधिक **प्रभावशाली स्थिति** में पहुंचेगा।
- During the pre-war talks, the U.S. used the threat of an attack to demand concessions from Tehran.
पूर्व-युद्ध वार्ताओं में अमेरिका ने हमले की धमकी देकर **रियायतें** मांगी थीं।
- After 40 days of war, that threat is now a spent force.
40 दिनों के युद्ध के बाद, वह **धमकी अब कमजोर पड़ चुकी है**।

GS Paper III: Economy		08 April 2026
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The other side of sport — mastering manufacturing

SS III: Economy JOB

To say that sports is an emotion in India is an understatement. Although cricket takes up most of the mindshare, the sports ecosystem in India is evolving rapidly with athletes such as Neeraj Chopra and Lakshya Sen bringing attention to the diversity in sports in the right manner. But besides viewership and athletes, the sports ecosystem comprises several key players that keep the growth engine running. One such important, but rather overlooked, component is that of sports goods manufacturing.

Sports equipment manufacturing, a highly labour-intensive sector, plays a significant role in the economics of sport. NITI Aayog and the Foundation for Economic Development (FED) have recently released a report on 'Realising the export potential of the sports equipment manufacturing market in India' that details the state of affairs. Culturally, India interacts heavily with sports, but the country contributes only about 0.5% to the nearly \$50 billion global trade in sports equipment. This under-representation is not due to the absence of legacy or capability. Rather, it points to structural issues in the industry that have significantly hampered its ability to reach its full potential.

Diverse manufacturing landscape

India's manufacturing footprint in sports equipment is geographically concentrated and operationally fragmented. Production still primarily hinges on old, well-established centres such as Jalandhar (Punjab) and Meerut (Uttar Pradesh), which together hold more than an 80% share of domestic output. The sports equipment industry in India is small in terms of production volume and is largely dominated by micro, small, and medium enterprises (MSMEs) engaged in labour-intensive segments such as stitched balls, cricket gear, protective accessories and entry-level fitness equipment. If, on the one hand, this artisanal skill level has sustained the industry for a long time, on the other hand, it has restricted scaling, the adoption of new technologies, and the emergence of internationally recognised brands.

One key characteristic of the sector is the high level of diversity in sports equipment manufacturing compared to other sectors. Raw materials, machinery and the techniques of making footballs, for example, are entirely different from the ones required for making hockey sticks or golf shafts. This vast range of differences makes effective policy design exceedingly difficult and often leads to generic interventions that overlook category-specific realities.

To understand the right ways to compete at a global level, we first need to find out what makes local manufacturers inherently less cost-effective.



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As per the report, industry data show that Indian firms encounter on average a 15% cost disadvantage when compared to their peers in China and Pakistan. For example, a football produced in India might cost ₹100, while competing countries might be able to produce it for only ₹85-₹87. This gap, which is a result of factors such as higher input prices, inefficient logistical planning, and limited economies of scale, greatly reduces export competitiveness and impacts the pricing power that companies have.

The core issues

Making high-performance sports equipment requires feature-specific items such as specialised polymers, performance fabrics, carbon composites and precision tooling. The issue is that not all of these are produced domestically, and those that are made locally are manufactured on an extremely limited scale. Moreover, import duties on such components, as well as on advanced manufacturing machinery, drive up production costs. For MSMEs which function with extremely low margins, these additional levies essentially hinder the possibility of investing not only in technology upgrades but also in product diversification.

Issues related to ease of doing business aggravate the problem. Manufacturing is mainly concentrated in the northern parts of India, which leads to extremely high logistics costs when exporting goods through distant ports. On top of that, rising land prices, fragmented industrial infrastructure, and industrial delays on account of compliance are some of the other factors that keep on eroding operational efficiency. As these challenges are structural rather than cyclical, smaller firms with weak financial strength are most affected.

Another problem is certification and standards compliance. Globally traded sports equipment must meet the very stringent performance standards laid down by international federations. India lacks certified production facilities that meet international standards for most sports categories; therefore, manufacturers must have their products validated by European labs.

Testing expenses can range from ₹5 lakh to ₹50 lakh per stock keeping unit (SKU) which is an enormous amount for an MSME. Apart from the direct monetary costs, a prolonged certification process also delays market launches, which in turn discourages experimentation and, consequently, impedes innovation.

There are many reasons why the sports sector in India is not expanding rapidly, one of which is demand side problems. India has, by and large, failed to create sports brands with worldwide appeal, similar to those for cricket equipment, that could command premium pricing. The main reasons for the lack of organic global demand for

Indian sports equipment are low marketing investments, few international brand partnerships, and the absence of long-term, athlete-brand relationship-driven demand. Hence, most domestic firms today focus on contract manufacturing at the lowest-value end of the spectrum, whereas they should be aiming for original brand ownership.

Reform, support, upgrade

Addressing these issues is complex and requires a balanced approach. The report outlines a clear pathway with key recommendations. First, rationalise import duties on specialised raw materials and advanced machinery to regain price competitiveness. Second, provide targeted fiscal support, such as export-linked incentives, offsetting certification costs, and aiding participation in international trade platforms. Third, India should leverage its advantage in industries such as technical textiles, footwear production, plastics processing, and light engineering alongside sports goods clusters to enable rapid technological upgrades, increase production scale, and shift toward higher-value, performance-oriented equipment.

In the medium term, India must also establish internationally recognised testing and certification centres, which reduce compliance costs, facilitate quicker time-to-market for new innovations, and showcase India's intent to be a standards-setting player rather than just a supplier.

Finally, by investing in local raw materials, especially advanced composites and performance fabrics, India can gradually reduce imports and improve supply availability. On the demand side, relying solely on contract manufacturing is insufficient; building strong domestic brands is essential. A unified national campaign involving top athletes, sports federations, industry bodies, and government departments can help showcase Indian sports equipment globally.

Utilising strategic procurement methods linked with India's forthcoming international sporting events can generate a short-term demand uplift while also promoting domestic production to global buyers.

For long, India has supplied sports goods mainly through indirect global value chains. The next decade offers a chance to change this. With growing domestic sports activity, a reshaping of global supply chains, and opportunities from hosting major international events, the ingredients for change exist. What is lacking is a strategic, well-executed plan to shift from scattered traditional production to large-scale, advanced manufacturing. If India seizes this opportunity, it could become a key player in the global sports economy and set new trends in how sports are played worldwide.

Critical structural problems are preventing India's sports equipment industry from reaching its full potential

09A. The other side of sport — mastering manufacturing खेल का दूसरा पहलू — विनिर्माण में महारत

To say that sports is an emotion in India is an understatement.

यह कहना कि खेल (sports) भारत में एक भावना (emotion) है, कम आंकना होगा।

- Although **cricket** takes up most of the **mindshare**, the **sports ecosystem in India** is evolving rapidly with athletes such as **Neeraj Chopra** and **Lakshya Sen** bringing attention to the **diversity in sports** in the right manner.

हालांकि **क्रिकेट (cricket)** अधिकांश **ध्यान (mindshare)** लेता है, भारत का **खेल पारिस्थितिकी तंत्र (sports ecosystem)** तेजी से विकसित हो रहा है, जहाँ **नीरज चोपड़ा (Neeraj Chopra)** और **लक्ष्य सेन (Lakshya Sen)** जैसे खिलाड़ी **खेलों की विविधता (diversity in sports)** पर सही तरीके से ध्यान आकर्षित कर रहे हैं।

- But besides **viewership and athletes**, the **sports ecosystem** comprises several key players that keep the **growth engine running**.
लेकिन **दर्शकों (viewership)** और **खिलाड़ियों (athletes)** के अलावा, **खेल पारिस्थितिकी तंत्र (sports ecosystem)** में कई प्रमुख घटक होते हैं जो **विकास को बनाए रखते हैं (growth engine running)**।
- One such important, but rather overlooked, component is that of **sports goods manufacturing**.
ऐसा ही एक महत्वपूर्ण लेकिन उपेक्षित घटक है **खेल सामग्री निर्माण (sports goods manufacturing)**।
- **Sports equipment manufacturing**, a highly **labour-intensive sector**, plays a significant role in the **economics of sport**.



खेल उपकरण निर्माण (sports equipment manufacturing) एक अत्यधिक श्रम-प्रधान क्षेत्र (labour-intensive sector) है, जो खेल अर्थव्यवस्था (economics of sport) में महत्वपूर्ण भूमिका निभाता है।

- NITI Aayog and the Foundation for Economic Development (FED) have recently released a report on 'Realising the export potential of the sports equipment manufacturing market in India' that details the state of affairs.

नीति आयोग (NITI Aayog) और फाउंडेशन फॉर इकोनॉमिक डेवलपमेंट (FED) ने हाल ही में 'भारत में खेल उपकरण निर्माण बाजार की निर्यात क्षमता' पर एक रिपोर्ट जारी की है, जो वर्तमान स्थिति (state of affairs) को दर्शाती है।

- Culturally, India interacts heavily with sports, but the country contributes only about 0.5% to the nearly \$50 billion global trade in sports equipment.

सांस्कृतिक रूप से भारत का खेलों (sports) से गहरा जुड़ाव है, लेकिन यह लगभग 50 अरब डॉलर (global trade) के वैश्विक व्यापार में केवल 0.5% योगदान देता है।

- This under-representation is not due to the absence of legacy or capability.

यह कम प्रतिनिधित्व (under-representation) किसी परंपरा या क्षमता (legacy or capability) की कमी के कारण नहीं है।

- Rather, it points to structural issues in the industry that have significantly hampered its ability to reach its full potential.

बल्कि यह उद्योग में मौजूद संरचनात्मक समस्याओं (structural issues) की ओर संकेत करता है, जिन्होंने इसकी पूर्ण क्षमता (full potential) तक पहुँचने की क्षमता को बाधित किया है।

- Diverse manufacturing landscape — विविध विनिर्माण परिदृश्य

- India's manufacturing footprint in sports equipment is geographically concentrated and operationally fragmented.

भारत का विनिर्माण क्षेत्र (manufacturing footprint) खेल उपकरणों में भौगोलिक रूप से केंद्रित और संचालन के दृष्टिकोण से खंडित है।

- Production still primarily hinges on old, well-established centres such as Jalandhar (Punjab) and Meerut (Uttar Pradesh), which together hold more than an 80% share of domestic output.

उत्पादन अभी भी मुख्य रूप से पुराने और स्थापित केंद्रों जैसे जालंधर (पंजाब) और मेरठ (उत्तर प्रदेश) पर निर्भर है, जो मिलकर घरेलू उत्पादन का 80% से अधिक हिस्सा रखते हैं।

- The sports equipment industry in India is small in terms of production volume and is largely dominated by micro, small, and medium enterprises (MSMEs) engaged in labour-intensive segments such as stitched balls, cricket gear, protective accessories and entry-level fitness equipment.

भारत में खेल उपकरण उद्योग उत्पादन मात्रा (production volume) के लिहाज से छोटा है और मुख्यतः सूक्ष्म, लघु और मध्यम उद्यमों (MSMEs) द्वारा संचालित है, जो सिले हुए गेंद (stitched balls), क्रिकेट उपकरण (cricket gear), सुरक्षात्मक सामान (protective accessories) और प्रारंभिक फिटनेस उपकरण (entry-level fitness equipment) जैसे श्रम-प्रधान क्षेत्रों में लगे हैं।

- If, on the one hand, this artisanal skill level has sustained the industry for a long time, on the other hand, it has restricted scaling, the adoption of new technologies, and the emergence of internationally recognised brands.

एक ओर यह कारीगर कौशल (artisanal skill level) लंबे समय तक उद्योग को बनाए रखने में सहायक रहा है, वहीं दूसरी ओर इसने विस्तार (scaling), नई तकनीकों (new technologies) को अपनाने और अंतरराष्ट्रीय ब्रांड (internationally recognised brands) बनने की प्रक्रिया को सीमित किया है।

- One key characteristic of the sector is the high level of diversity in sports equipment manufacturing compared to other sectors.

इस क्षेत्र की एक प्रमुख विशेषता अन्य क्षेत्रों की तुलना में खेल उपकरण निर्माण में विविधता (diversity) का उच्च स्तर है।

- Raw materials, machinery and the techniques of making footballs, for example, are entirely different from the ones required for making hockey sticks or golf shafts.

उदाहरण के लिए, फुटबॉल (football) बनाने के लिए आवश्यक कच्चा माल, मशीनरी और तकनीकें हॉकी स्टिक (hockey sticks) या गोल्फ शाफ्ट (golf shafts) बनाने से पूरी तरह अलग होती हैं।

- This vast range of differences makes effective policy design exceedingly difficult and often leads to generic interventions that overlook category-specific realities.

यह व्यापक अंतर प्रभावी नीति निर्माण (effective policy design) को अत्यंत कठिन बना देता है और



अक्सर ऐसी सामान्य नीतियों को जन्म देता है जो **श्रेणी-विशिष्ट वास्तविकताओं (category-specific realities)** को नजरअंदाज करती हैं।

- To understand the right ways to compete at a global level, we first need to find out what makes local manufacturers inherently **less cost-effective**.
वैश्विक स्तर पर प्रतिस्पर्धा करने के लिए सही तरीकों को समझने हेतु हमें पहले यह जानना होगा कि स्थानीय निर्माता स्वाभाविक रूप से **कम लागत-प्रभावी (less cost-effective)** क्यों हैं।
- As per the report, industry data show that Indian firms encounter on average a **15% cost disadvantage** when compared to their peers in **China and Pakistan**.
रिपोर्ट के अनुसार, उद्योग के आंकड़े बताते हैं कि भारतीय कंपनियों को **चीन और पाकिस्तान (China and Pakistan)** की तुलना में औसतन **15% लागत नुकसान (cost disadvantage)** का सामना करना पड़ता है।
- For example, a football produced in India might cost **₹100**, while competing countries might be able to produce it for only **₹85-₹87**.
उदाहरण के लिए, भारत में बनी एक फुटबॉल की कीमत **₹100** हो सकती है, जबकि प्रतिस्पर्धी देश इसे केवल **₹85-₹87** में बना सकते हैं।
- This gap, which is a result of factors such as **higher input prices, inefficient logistical planning, and limited economies of scale**, greatly reduces **export competitiveness** and impacts the **pricing power** that companies have.
यह अंतर **उच्च इनपुट लागत (higher input prices), अप्रभावी लॉजिस्टिक्स (inefficient logistical planning)** और **सीमित पैमाना अर्थव्यवस्था (limited economies of scale)** जैसे कारकों के कारण है, जो **निर्यात प्रतिस्पर्धा (export competitiveness)** को कम करता है और कंपनियों की **मूल्य निर्धारण क्षमता (pricing power)** को प्रभावित करता है।

The core issues — मुख्य समस्याएँ

- Making **high-performance sports equipment** requires **feature-specific items** such as specialised **polymers, performance fabrics, carbon composites** and **precision tooling**.
उच्च-प्रदर्शन खेल उपकरण (high-performance sports equipment) बनाने के लिए विशेष **विशेषता-आधारित वस्तुओं (feature-specific items)** जैसे विशेष **पॉलिमर (polymers), प्रदर्शन कपड़े (performance fabrics), कार्बन कंपोजिट (carbon composites)** और **सटीक उपकरण (precision tooling)** की आवश्यकता होती है।
- The issue is that not all of these are produced **domestically**, and those that are made locally are manufactured on an extremely **limited scale**.
समस्या यह है कि इनमें से सभी का उत्पादन **घरेलू स्तर (domestically)** पर नहीं होता, और जो स्थानीय रूप से बनाए जाते हैं वे अत्यंत **सीमित पैमाने (limited scale)** पर निर्मित होते हैं।
- Moreover, **import duties** on such components, as well as on **advanced manufacturing machinery**, drive up **production costs**.
इसके अलावा, इन घटकों और **उन्नत मशीनरी (advanced manufacturing machinery)** पर लगने वाले **आयात शुल्क (import duties)** उत्पादन लागत (**production costs**) को बढ़ाते हैं।
- For **MSMEs** which function with extremely low margins, these additional levies essentially hinder the possibility of investing not only in **technology upgrades** but also in **product diversification**.
जो **MSMEs** बहुत कम मार्जिन पर काम करते हैं, उनके लिए ये अतिरिक्त शुल्क **तकनीकी उन्नयन (technology upgrades)** और **उत्पाद विविधीकरण (product diversification)** में निवेश की संभावना को बाधित करते हैं।
- Issues related to **ease of doing business** aggravate the problem.
व्यवसाय करने में आसानी (ease of doing business) से जुड़ी समस्याएँ इस स्थिति को और गंभीर बनाती हैं।
- Manufacturing is mainly concentrated in the **northern parts of India**, which leads to extremely high **logistics costs** when exporting goods through distant ports.
उत्पादन मुख्य रूप से भारत के **उत्तरी क्षेत्रों (northern parts of India)** में केंद्रित है, जिससे दूरस्थ बंदरगाहों से निर्यात करते समय **लॉजिस्टिक्स लागत (logistics costs)** बहुत अधिक हो जाती है।
- On top of that, rising **land prices, fragmented industrial infrastructure**, and industrial delays on account of **compliance** are some of the other factors that keep on eroding **operational efficiency**.
इसके अलावा बढ़ती **भूमि कीमतें (land prices), बिखरी हुई औद्योगिक अवसंरचना (industrial**



infrastructure) और अनुपालन (compliance) के कारण होने वाली देरी संचालन दक्षता (operational efficiency) को प्रभावित करती हैं।

- As these challenges are **structural** rather than cyclical, smaller firms with weak **financial strength** are most affected.
चूंकि ये चुनौतियाँ **संरचनात्मक (structural)** हैं, न कि चक्रीय, इसलिए कमजोर **वित्तीय क्षमता (financial strength)** वाली छोटी कंपनियाँ सबसे अधिक प्रभावित होती हैं।
- Another problem is **certification and standards compliance**.
एक अन्य समस्या **प्रमाणीकरण और मानक अनुपालन (certification and standards compliance)** है।
- Globally traded sports equipment must meet very **stringent performance standards** laid down by **international federations**.
वैश्विक स्तर पर व्यापार किए जाने वाले खेल उपकरणों को **अंतरराष्ट्रीय महासंघों (international federations)** द्वारा निर्धारित अत्यंत **कठोर मानकों (stringent performance standards)** को पूरा करना होता है।
- India lacks **certified production facilities** that meet international standards for most sports categories; therefore, manufacturers must have their products validated by **European labs**.
भारत में अधिकांश खेलों के लिए **प्रमाणित उत्पादन सुविधाओं (certified production facilities)** की कमी है, इसलिए निर्माताओं को अपने उत्पादों का परीक्षण **यूरोपीय प्रयोगशालाओं (European labs)** में कराना पड़ता है।
- Testing expenses can range from **₹5 lakh to ₹50 lakh per SKU**, which is an enormous amount for an **MSME**.
परीक्षण की लागत प्रति **SKU** के लिए **₹5 लाख से ₹50 लाख** तक हो सकती है, जो किसी **MSME** के लिए बहुत बड़ी राशि है।
- Apart from the direct monetary costs, a prolonged **certification process** also delays **market launches**, which discourages **experimentation** and impedes **innovation**.
प्रत्यक्ष लागत के अलावा, लंबी **प्रमाणीकरण प्रक्रिया (certification process)** बाजार में **लॉन्च (market launches)** को भी देर से करती है, जिससे **प्रयोग (experimentation)** और **नवाचार (innovation)** प्रभावित होते हैं।
- There are many reasons why the **sports sector in India** is not expanding rapidly, one of which is **demand side problems**.
भारत में **खेल क्षेत्र (sports sector)** के तेजी से न बढ़ने के कई कारण हैं, जिनमें से एक **मांग पक्ष की समस्याएँ (demand side problems)** हैं।
- India has, by and large, failed to create **sports brands with worldwide appeal** that could command **premium pricing**.
भारत बड़े पैमाने पर ऐसे **वैश्विक ब्रांड (sports brands with worldwide appeal)** बनाने में असफल रहा है जो **उच्च मूल्य (premium pricing)** प्राप्त कर सकें।
- The main reasons are **low marketing investments**, few **international brand partnerships**, and absence of **long-term athlete-brand relationships**.
मुख्य कारण हैं **कम विपणन निवेश (low marketing investments)**, कम **अंतरराष्ट्रीय साझेदारियाँ (international brand partnerships)** और **दीर्घकालिक खिलाड़ी-ब्रांड संबंधों (long-term relationships)** की कमी।
- Hence, most domestic firms today focus on **contract manufacturing** at the lowest-value end rather than aiming for **original brand ownership**.
इसलिए अधिकांश घरेलू कंपनियाँ आज **कॉन्ट्रैक्ट मैन्युफैक्चरिंग (contract manufacturing)** पर ध्यान देती हैं, बजाय **स्वतंत्र ब्रांड निर्माण (original brand ownership)** के।
- **Reform, support, upgrade — सुधार, समर्थन, उन्नयन**
- Addressing these issues is **complex** and requires a **balanced approach**.
इन समस्याओं का समाधान **जटिल (complex)** है और इसके लिए **संतुलित दृष्टिकोण (balanced approach)** आवश्यक है।
- The report outlines a clear **pathway** with key recommendations.
रिपोर्ट प्रमुख सिफारिशों के साथ एक स्पष्ट **मार्ग (pathway)** प्रस्तुत करती है।
- First, rationalise **import duties** on specialised raw materials and **advanced machinery** to regain **price competitiveness**.



- पहला, विशेष कच्चे माल और उन्नत मशीनरी (advanced machinery) पर आयात शुल्क (import duties) को तर्कसंगत बनाना ताकि मूल्य प्रतिस्पर्धा (price competitiveness) बढ़े।
- Second, provide targeted fiscal support such as export incentives, offsetting certification costs, and aiding participation in international trade platforms.
दूसरा, लक्षित वित्तीय सहायता (fiscal support) जैसे निर्यात प्रोत्साहन (export incentives), प्रमाणीकरण लागत (certification costs) को कम करना और अंतरराष्ट्रीय व्यापार मंचों (international trade platforms) में भागीदारी बढ़ाना।
 - Third, leverage advantages in sectors like technical textiles, footwear, plastics processing, and light engineering to enable technological upgrades and increase production scale.
तीसरा, तकनीकी वस्त्र (technical textiles), जूता निर्माण (footwear), प्लास्टिक प्रसंस्करण (plastics processing) और हल्का इंजीनियरिंग (light engineering) जैसे क्षेत्रों का उपयोग करके तकनीकी उन्नयन (technological upgrades) और उत्पादन विस्तार (production scale) को बढ़ाना।
 - In the medium term, India must establish internationally recognised testing and certification centres.
मध्यम अवधि में भारत को अंतरराष्ट्रीय मान्यता प्राप्त परीक्षण और प्रमाणन केंद्र (testing and certification centres) स्थापित करने चाहिए।
 - These will reduce compliance costs, enable faster time-to-market, and position India as a standards-setting player.
ये अनुपालन लागत (compliance costs) को कम करेंगे, तेजी से बाजार प्रवेश (time-to-market) सुनिश्चित करेंगे और भारत को मानक निर्धारित करने वाले देश (standards-setting player) के रूप में स्थापित करेंगे।
 - Finally, by investing in local raw materials, especially advanced composites and performance fabrics, India can reduce imports and improve supply availability.
अंततः, स्थानीय कच्चे माल (raw materials), विशेषकर उन्नत कंपोजिट (advanced composites) और प्रदर्शन कपड़े (performance fabrics) में निवेश करके भारत आयात (imports) कम कर सकता है और आपूर्ति (supply) बढ़ा सकता है।
 - On the demand side, building strong domestic brands is essential.
मांग पक्ष पर मजबूत घरेलू ब्रांड (strong domestic brands) बनाना आवश्यक है।
 - A unified national campaign involving athletes, federations, industry bodies, and government can promote Indian sports equipment globally.
खिलाड़ियों (athletes), संघों (federations), उद्योग निकायों (industry bodies) और सरकार (government) के साथ एक राष्ट्रीय अभियान (national campaign) भारतीय खेल उपकरणों को वैश्विक स्तर पर बढ़ावा दे सकता है।
 - Utilising strategic procurement linked with upcoming international sporting events can boost short-term demand and promote domestic production.
आगामी अंतरराष्ट्रीय खेल आयोजनों (international sporting events) से जुड़े रणनीतिक खरीद (strategic procurement) से अल्पकालिक मांग बढ़ेगी और घरेलू उत्पादन को प्रोत्साहन मिलेगा।
 - For long, India has supplied sports goods through indirect global value chains.
लंबे समय तक भारत ने अप्रत्यक्ष वैश्विक मूल्य श्रृंखलाओं (indirect global value chains) के माध्यम से खेल सामग्री की आपूर्ति की है।
 - The next decade offers a chance to change this.
अगला दशक इसे बदलने का अवसर प्रदान करता है।
 - With growing domestic sports activity, reshaping global supply chains, and hosting major international events, the ingredients for change exist.
बढ़ती घरेलू खेल गतिविधियाँ (domestic sports activity), बदलती वैश्विक आपूर्ति श्रृंखलाएँ (global supply chains) और बड़े अंतरराष्ट्रीय आयोजन (international events) परिवर्तन के अवसर प्रदान करते हैं।
 - What is lacking is a strategic, well-executed plan to shift toward large-scale, advanced manufacturing.
जो कमी है वह है एक रणनीतिक और प्रभावी योजना (well-executed plan) जो बड़े पैमाने पर उन्नत विनिर्माण (advanced manufacturing) की ओर ले जाए।
 - If India seizes this opportunity, it could become a key player in the global sports economy and set new trends in how sports are played worldwide.



यदि भारत इस अवसर का लाभ उठाता है, तो वह वैश्विक खेल अर्थव्यवस्था (global sports economy) में एक महत्वपूर्ण खिलाड़ी (key player) बन सकता है और खेलों के वैश्विक रुझानों को दिशा दे सकता है।

The thermal cost of India's textile surge

GS III: Economy

India is currently winning the global trade shuffle. As political instability rocks traditional hubs such as Bangladesh, international buyers are pivoting toward Indian textile clusters. But as factories in Tiruppur and Bengaluru take on these surge orders, they are walking into a thermodynamic crisis they haven't budgeted for.

The crisis is personal before it is industrial. A textile worker in Tamil Nadu loses 50% of her work capacity on a 40°C afternoon; and as she does not have any sick leaves or cooling breaks, she also loses 50% of her day's wages. She absorbs the cost of a warming planet so that global supply chains remain 'efficient.' However, the biology of labour is hitting a wall, and India's textile industry is quietly cracking under the weight.

The crisis of productivity

Between 2001 and 2020, India lost an estimated 259 billion labour hours annually due to heat stress, a productivity haemorrhage exceeding \$600 billion each year. In 2024 alone, that loss spiked to as high as 247 billion hours.

The productivity crisis is no longer a theoretical risk; it is a mechanical and biological reality crippling India's industrial heartlands. In the manufacturing hubs of Palghar, Maharashtra, factory owners report production capacity dropping by up to 50% as extreme heat triggers hazardous conditions that jeopardise both man and machine. Intense temperatures often restrict operations to just four hours daily, as heat becomes unbearable for the workforce. It also increases the likelihood of workplace injuries and serious health conditions, including heatstroke and dehydration. Industrial equipment, designed for more temperate baselines, frequently overheats, leading to sudden operational shutdowns and technical failures that derail tight production schedules. This physical collapse of the shop floor is mirrored in Karnataka's textile



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The productivity crisis is no longer a theoretical risk; it is a mechanical and biological reality crippling India's industrial heartlands

factories, where, indoor temperatures routinely exceed 35-40°C, far above the permitted threshold of 30°C. At these extremes, the "human engine" throttles down as a matter of survival. International studies confirm that at 33-34°C, a worker's capacity is effectively halved.

As per research published in the *Journal of Political Economy* in 2021, annual output falls by 2% per degree Celsius. On individual hot days, the decline reaches 4%. For India's textile industry, which employs 45 million people and controls 39% of global cotton cultivation, this crisis has led to operational collapse.

The supply chain trap

Global brands impose strict delivery deadlines and heavy financial penalties for delays. Yet, workers cannot be pushed beyond physiological limits. Thus, factory managers face an impossible choice: ignore worker collapse to meet a shipment, or face financial ruin. As orders shift to India due to regional and political instability, hubs such as Tiruppur are being crushed by a "thermodynamic bottleneck" where surge orders collide with record-breaking heat. This creates a regressive tax on the poor, disguised as a weather problem. While global brands insulate themselves by diversifying sourcing – shifting orders to Vietnam or Mexico – local factory owners lack the bargaining power to renegotiate terms and the burden is pushed downward. Ultimately, the cost is absorbed by the millions of informal workers who have no safety net; when a factory floor becomes a furnace, they don't just lose productivity, they lose their daily wages. History has shown that when disruption strikes, workers pay the price; for example, during COVID-19, brands cancelled \$2.8 billion worth of orders from Bangladesh in March 2020 alone, affecting approximately 1.2 million workers.

By 2030, India is projected to lose 5.8% of its daily working hours to extreme heat, the

equivalent of 34 million full-time jobs. The supply chain will not break gradually; it will break when orders simply cannot be met because the human element has reached its thermal limit.

The way forward

India has a choice. It can either continue to externalise the cost of a warming planet onto workers, or the country can systematically transit to a climate-smart supply chain. This requires action on five fronts: first, policymakers must recognise heat stress as a supply chain risk and integrate climate-heat projections into industrial policy and trade agreements. Second, industrial clusters must adopt mandatory heat-action plans with enforceable temperature thresholds, cooling breaks, and worker health assessments. Third, financing mechanisms must be reformed. Banks must incorporate climate risk into loan assessments, and governments must offer concessional credit lines supporting investments in cooling systems, water management, and heat-resilient technologies. Fourth, labour protection codes must be strengthened to address heat stress explicitly. Workers must have guaranteed access to clean drinking water, and shaded rest areas. Fifth, innovation must be driven through targeted R&D grants for wearable cooling technologies, heat-tolerant cotton varieties, and energy-efficient manufacturing processes. And finally, international buyers must bear part of the adaptation cost, through fairer pricing and longer lead times. For decades, the global fashion industry has operated on a convenient lie: that the 'cost of production' is a static number on a spreadsheet. This number was artificially deflated by a climate we took for granted. The physics of thermoregulation will not bend to profit margins. If heat stress remains invisible in boardrooms, India's workers will pay in lost wages and shortened lives.

Views expressed are personal.

09A. The thermal cost of India's textile surge

भारत के वस्त्र उछाल की तापीय लागत

India is currently winning the global trade shuffle.

भारत वर्तमान में वैश्विक व्यापार परिवर्तन (global trade shuffle) में आगे बढ़ रहा है।

- As **political instability** rocks traditional hubs such as **Bangladesh**, international buyers are pivoting toward **Indian textile clusters**.

जब राजनीतिक अस्थिरता (political instability) बांग्लादेश (Bangladesh) जैसे पारंपरिक केंद्रों को प्रभावित कर रही है, तो अंतरराष्ट्रीय खरीदार भारतीय वस्त्र क्लस्टरों (Indian textile clusters) की ओर रुख कर रहे हैं।



- But as **factories in Tiruppur and Bengaluru** take on these surge orders, they are walking into a **thermodynamic crisis** they haven't budgeted for.
लेकिन जैसे ही तिरुप्पुर (Tiruppur) और बेंगलुरु (Bengaluru) की फैक्ट्रियां इन बढ़ते ऑर्डरों को ले रही हैं, वे एक **ऊष्मागतिक संकट (thermodynamic crisis)** में प्रवेश कर रही हैं जिसके लिए उन्होंने योजना नहीं बनाई थी।
- The crisis is **personal before it is industrial**.
यह संकट पहले **व्यक्तिगत (personal)** है, फिर औद्योगिक।
- A textile worker in **Tamil Nadu loses 50% of her work capacity on a 40°C afternoon; and as she does not have any sick leaves or cooling breaks, she also loses 50% of her day's wages**.
तमिलनाडु (Tamil Nadu) में एक वस्त्र श्रमिक 40°C की दोपहर में अपनी **50% कार्य क्षमता (work capacity)** खो देती है; और क्योंकि उसे कोई अवकाश या ठंडक का ब्रेक नहीं मिलता, वह अपनी **50% दैनिक मजदूरी (day's wages)** भी खो देती है।
- She absorbs the cost of a **warming planet** so that global supply chains remain **efficient**.
वह एक **गर्म होते ग्रह (warming planet)** की लागत स्वयं वहन करती है ताकि वैश्विक आपूर्ति श्रृंखलाएँ **कुशल (efficient)** बनी रहें।
- However, the **biology of labour** is hitting a wall, and India's textile industry is quietly cracking under the weight.
हालांकि, **श्रम की जैविक सीमा (biology of labour)** अब टूटने लगी है और भारत का वस्त्र उद्योग धीरे-धीरे दबाव में टूट रहा है।
- **The crisis of productivity — उत्पादकता का संकट**
- **Between 2001 and 2020, India lost an estimated 259 billion labour hours annually due to heat stress, a productivity haemorrhage exceeding \$600 billion each year.**
2001 से 2020 के बीच भारत ने **हीट स्ट्रेस (heat stress)** के कारण प्रतिवर्ष लगभग **259 अरब श्रम घंटे (labour hours)** खो दिए, जो प्रति वर्ष **600 अरब डॉलर (\$600 billion)** से अधिक की उत्पादकता हानि है।
- In **2024 alone**, that loss spiked to as high as **247 billion hours**.
केवल **2024** में ही यह नुकसान बढ़कर **247 अरब घंटे (billion hours)** तक पहुंच गया।
- The productivity crisis is no longer a **theoretical risk**; it is a **mechanical and biological reality** crippling India's **industrial heartlands**.
उत्पादकता संकट अब केवल **सैद्धांतिक जोखिम (theoretical risk)** नहीं है; यह एक **यांत्रिक और जैविक वास्तविकता (mechanical and biological reality)** है जो भारत के **औद्योगिक क्षेत्रों (industrial heartlands)** को प्रभावित कर रही है।
- **In the manufacturing hubs of Palghar, Maharashtra**, factory owners report production capacity dropping by up to **50%** as **extreme heat** triggers hazardous conditions.
पालघर, महाराष्ट्र (Palghar, Maharashtra) के विनिर्माण केंद्रों में, फैक्ट्री मालिकों ने बताया कि **अत्यधिक गर्मी (extreme heat)** के कारण उत्पादन क्षमता **50% तक घट** जाती है।
- Intense temperatures often restrict operations to just **four hours daily**, as heat becomes unbearable for the workforce.
तेज तापमान अक्सर कार्य को केवल **चार घंटे प्रतिदिन (four hours daily)** तक सीमित कर देता है क्योंकि गर्मी असहनीय हो जाती है।
- It also increases the likelihood of **workplace injuries** and serious health conditions, including **heatstroke** and **dehydration**.
यह **कार्यस्थल दुर्घटनाओं (workplace injuries)** और गंभीर स्वास्थ्य समस्याओं जैसे **हीटस्ट्रोक (heatstroke)** और **निर्जलीकरण (dehydration)** की संभावना भी बढ़ाता है।
- Industrial equipment, designed for more **temperate baselines**, frequently **overheat**, leading to sudden **operational shutdowns** and technical failures.
औद्योगिक उपकरण, जो सामान्य तापमान के लिए बनाए गए हैं, अक्सर **अधिक गर्म (overheat)** हो जाते हैं, जिससे अचानक **संचालन बंद (operational shutdowns)** और तकनीकी विफलताएँ होती हैं।
- This physical collapse of the **shop floor** is mirrored in **Karnataka's textile factories**, where indoor temperatures exceed **35–40°C**, far above the permitted threshold of **30°C**.
यह **शॉप फ्लोर (shop floor)** का भौतिक पतन **कर्नाटक (Karnataka)** की वस्त्र फैक्ट्रियों में भी देखा जाता है, जहाँ अंदर का तापमान **35–40°C** तक पहुँच जाता है, जो निर्धारित सीमा **30°C** से अधिक है।
- At these extremes, the **“human engine”** throttles down as a matter of survival.
इन चरम परिस्थितियों में **“मानव इंजन” (human engine)** जीवित रहने के लिए अपनी गति धीमी कर देता है।



- International studies confirm that at **33–34°C**, a worker's capacity is effectively **halved**.
अंतरराष्ट्रीय अध्ययनों से पता चलता है कि **33–34°C** पर श्रमिक की क्षमता लगभग **आधी (halved)** हो जाती है।
- As per research published in the **Journal of Political Economy (2021)**, annual output falls by **2% per degree Celsius**.
जर्नल ऑफ पॉलिटिकल इकोनॉमी (2021) में प्रकाशित शोध के अनुसार, वार्षिक उत्पादन प्रत्येक **1°C** तापमान वृद्धि पर **2% घटता** है।
- On individual hot days, the decline reaches **4%**.
अत्यधिक गर्म दिनों में यह गिरावट **4%** तक पहुँच जाती है।
- For India's textile industry, which employs **45 million people** and controls **39% of global cotton cultivation**, this crisis has led to **operational collapse**.
भारत का वस्त्र उद्योग, जो **4.5 करोड़ लोगों (45 million people)** को रोजगार देता है और **वैश्विक कपास उत्पादन (global cotton cultivation)** का **39%** नियंत्रित करता है, इस संकट के कारण **संचालन संकट (operational collapse)** का सामना कर रहा है।

The supply chain trap — आपूर्ति श्रृंखला का जाल

- Global brands impose strict **delivery deadlines** and heavy **financial penalties** for delays.
वैश्विक ब्रांड सख्त **डिलीवरी समय-सीमा (delivery deadlines)** और देरी पर भारी **वित्तीय दंड (financial penalties)** लगाते हैं।
- Yet, workers cannot be pushed beyond **physiological limits**.
फिर भी, श्रमिकों को उनकी **शारीरिक सीमाओं (physiological limits)** से अधिक नहीं धकेला जा सकता।
- Thus, factory managers face an impossible choice: ignore **worker collapse** to meet a shipment, or face **financial ruin**.
इस प्रकार, फैक्ट्री प्रबंधकों के सामने एक असंभव विकल्प होता है: **श्रमिकों के गिरने (worker collapse)** को नजरअंदाज करके शिपमेंट पूरा करें या **वित्तीय नुकसान (financial ruin)** झेलें।
- As orders shift to India due to **regional and political instability**, hubs such as **Tiruppur** are being crushed by a **thermodynamic bottleneck**.
जब **क्षेत्रीय और राजनीतिक अस्थिरता (regional and political instability)** के कारण ऑर्डर भारत की ओर शिफ्ट हो रहे हैं, तो **तिरुप्पुर (Tiruppur)** जैसे केंद्र **ऊष्मागतिक बाधा (thermodynamic bottleneck)** से जूझ रहे हैं।
- This creates a **regressive tax on the poor**, disguised as a **weather problem**.
यह गरीबों पर एक **प्रतिगामी कर (regressive tax on the poor)** जैसा प्रभाव डालता है, जो एक **मौसम समस्या (weather problem)** के रूप में छिपा हुआ है।
- While global brands insulate themselves by **diversifying sourcing**, shifting orders to **Vietnam** or **Mexico**, local factory owners lack **bargaining power**.
जब वैश्विक ब्रांड **स्रोत विविधीकरण (diversifying sourcing)** करके ऑर्डर **वियतनाम (Vietnam)** या **मेक्सिको (Mexico)** में स्थानांतरित कर लेते हैं, तो स्थानीय फैक्ट्री मालिकों के पास **मोलभाव की शक्ति (bargaining power)** नहीं होती।
- Ultimately, the cost is absorbed by millions of **informal workers** who have no **safety net**.
अंततः यह लागत लाखों **अनौपचारिक श्रमिकों (informal workers)** द्वारा वहन की जाती है, जिनके पास कोई **सुरक्षा जाल (safety net)** नहीं होता।
- When a factory floor becomes a **furnace**, they don't just lose **productivity**, they lose their **daily wages**.
जब फैक्ट्री का फर्श एक **भट्टी (furnace)** बन जाता है, तो वे केवल **उत्पादकता (productivity)** ही नहीं खोते, बल्कि अपनी **दैनिक मजदूरी (daily wages)** भी खो देते हैं।
- History has shown that when disruption strikes, workers pay the price; for example, during **COVID-19**, brands cancelled **\$2.8 billion worth of orders** from **Bangladesh** in March 2020 alone.
इतिहास बताता है कि जब भी संकट आता है, श्रमिक इसकी कीमत चुकाते हैं; उदाहरण के लिए, **COVID-19** के दौरान मार्च 2020 में ही ब्रांड्स ने **बांग्लादेश (Bangladesh)** से **2.8 अरब डॉलर (\$2.8 billion)** के ऑर्डर रद्द कर दिए।
- This affected approximately **1.2 million workers**.
इससे लगभग **12 लाख श्रमिक (1.2 million workers)** प्रभावित हुए।



- By 2030, India is projected to lose **5.8% of its daily working hours** due to **extreme heat**.
2030 तक भारत के दैनिक कार्य घंटों (daily working hours) का लगभग 5.8% अत्यधिक गर्मी (extreme heat) के कारण खोने का अनुमान है।
- This is equivalent to **34 million full-time jobs**.
यह लगभग 3.4 करोड़ पूर्णकालिक नौकरियों (34 million jobs) के बराबर है।
- The supply chain will not break gradually; it will break when orders simply cannot be met due to **thermal limits** of humans.
आपूर्ति श्रृंखला धीरे-धीरे नहीं टूटेगी; यह तब टूटेगी जब मानव की तापीय सीमा (thermal limits) के कारण ऑर्डर पूरे नहीं हो पाएंगे।

The way forward — आगे का रास्ता

- India has a choice.
भारत के पास एक विकल्प है।
- It can either continue to externalise the cost of a **warming planet** onto workers, or transition to a **climate-smart supply chain**.
या तो वह गर्म होते ग्रह (warming planet) की लागत श्रमिकों पर डालता रहे, या जलवायु-स्मार्ट आपूर्ति श्रृंखला (climate-smart supply chain) की ओर बढ़े।
- First, policymakers must recognise **heat stress** as a **supply chain risk**.
पहला, नीति निर्माताओं को हीट स्ट्रेस (heat stress) को एक आपूर्ति श्रृंखला जोखिम (supply chain risk) के रूप में पहचानना होगा।
- Second, industrial clusters must adopt **heat-action plans** with enforceable **temperature thresholds** and **cooling breaks**.
दूसरा, औद्योगिक क्लस्टरों को हीट-एक्शन प्लान (heat-action plans) अपनाने होंगे जिनमें तापमान सीमा (temperature thresholds) और ठंडक अवकाश (cooling breaks) शामिल हों।
- Third, financing mechanisms must include **climate risk** and provide **concessional credit** for cooling systems and **heat-resilient technologies**.
तीसरा, वित्तीय तंत्र में जलवायु जोखिम (climate risk) को शामिल करना होगा और रियायती ऋण (concessional credit) प्रदान करना होगा ताकि कूलिंग सिस्टम और हीट-रेजिलिएंट तकनीक (heat-resilient technologies) विकसित हो सकें।
- Fourth, labour protection codes must address **heat stress explicitly**.
चौथा, श्रम सुरक्षा कानूनों को हीट स्ट्रेस (heat stress) को स्पष्ट रूप से शामिल करना होगा।
- Workers must have access to **clean drinking water** and **shaded rest areas**.
श्रमिकों को स्वच्छ पेयजल (clean drinking water) और छायादार विश्राम क्षेत्र (shaded rest areas) उपलब्ध होने चाहिए।
- Fifth, innovation must be driven through **R&D grants** for **cooling technologies**, **heat-tolerant cotton**, and **energy-efficient processes**.
पांचवां, अनुसंधान एवं विकास (R&D grants) के माध्यम से कूलिंग तकनीक (cooling technologies), हीट-टॉलरेंट कपास (heat-tolerant cotton) और ऊर्जा-कुशल प्रक्रियाओं (energy-efficient processes) को बढ़ावा देना चाहिए।
- Finally, international buyers must share the **adaptation cost** through **fair pricing** and longer **lead times**.
अंत में, अंतरराष्ट्रीय खरीदारों को अनुकूलन लागत (adaptation cost) में भागीदारी करनी चाहिए, उचित मूल्य निर्धारण (fair pricing) और अधिक समय सीमा (lead times) देकर।
- For decades, the global fashion industry has operated on a myth that **cost of production** is a static number.
दशकों से वैश्विक फैशन उद्योग इस मिथक पर चलता रहा है कि उत्पादन लागत (cost of production) एक स्थिर संख्या है।
- This number was artificially deflated by a climate we took for granted.
यह संख्या उस जलवायु के कारण कृत्रिम रूप से कम रखी गई जिसे हमने सामान्य मान लिया था।
- The physics of **thermoregulation** will not bend to **profit margins**.
ताप नियंत्रण (thermoregulation) का विज्ञान लाभ (profit margins) के अनुसार नहीं बदलेगा।
- If **heat stress** remains invisible in boardrooms, India's workers will pay in **lost wages** and **shortened lives**.



यदि हीट स्ट्रेस (heat stress) बोर्डरूम में अनदेखा रहता है, तो भारत के श्रमिक इसकी कीमत खोई हुई मजदूरी (lost wages) और कम आयु (shortened lives) के रूप में चुकाएंगे।

- Views expressed are personal.
प्रस्तुत विचार व्यक्तिगत हैं।

MPC factors in ceasefire to keep repo rate unchanged

Intensity and duration of West Asia conflict, damage to energy and other infra add risk to inflation and growth outlooks, says panel, cuts growth forecast to 6.9%, hikes inflation projection to 4.5%

GS III: Economy

Lalendu Mishra

MUMBAI

Hours after Donald Trump announced on social media about the conditional temporary ceasefire in West Asia, the Monetary Policy Committee (MPC) unanimously voted to hold the repo rate at 5.25%. It also decided to continue with the neutral stance.

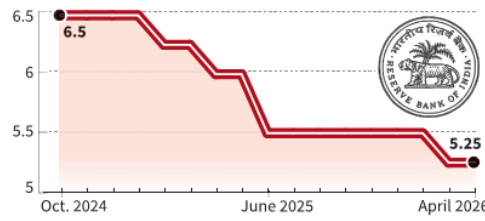
Later, addressing a press conference, Reserve Bank of India (RBI) Governor Sanjay Malhotra said that the ceasefire, to some extent, has been taken into account in the monetary policy decision.

Low interest rates

Mr. Malhotra said despite the impact of the war in West Asia, there was a possibility of having low inter-

Rate pause

The Monetary Policy Committee unanimously decided to keep the repo rate under the liquidity adjustment facility unchanged



est rates in the short to medium term in India.

Stating that the West Asia conflict would impede growth, the MPC opined that the intensity and the duration of the conflict and the resultant damage to the energy and other infrastructure added risk to the inflation and growth outlooks.

The economy is con-

fronted with a supply shock, it emphasised. Going forward, elevated energy and other commodity prices, as also shocks to availability of inputs due to disruptions in the Strait of Hormuz, were likely to impact growth in 2026-27, it added.

Taking various factors into consideration, the real GDP growth forecast for

2026-27 has been reduced by 70 bps to 6.9%.

And the CPI inflation for 2026-27 had been projected a tad higher at 4.5% from 4.4% earlier.

The RBI has factored in crude price at \$85 a barrel in the inflation forecast for this year and \$75 for next year. Stating that the global economic conditions and sentiment had soured after the outbreak of the West Asia conflict, the MPC said these had adversely impacted the growth-inflation outlook.

The MPC noted that geopolitical uncertainties had heightened significantly and the upside risks to the inflation outlook, driven by increased energy price pressures and probable weather disturbances affecting food prices, had increased.

09A. MPC factors in ceasefire to keep repo rate unchanged

एमपीसी ने युद्धविराम को ध्यान में रखते हुए रेपो दर अपरिवर्तित रखी

- Intensity and duration of West Asia conflict, damage to energy and other infra add risk to inflation and growth outlooks, says panel, cuts growth forecast to 6.9%, hikes inflation projection to 4.5%

पश्चिम एशिया संघर्ष की तीव्रता और अवधि, ऊर्जा और अन्य बुनियादी ढांचे को नुकसान से मुद्रास्फीति और विकास के दृष्टिकोण में जोखिम बढ़ा है, पैनल ने कहा, विकास पूर्वानुमान घटाकर 6.9% किया, मुद्रास्फीति अनुमान बढ़ाकर 4.5% किया

- Hours after **Donald Trump** announced on social media about the conditional temporary ceasefire in West Asia, the **Monetary Policy Committee (MPC)** unanimously voted to hold the repo rate at 5.25%.

डोनाल्ड ट्रंप द्वारा सोशल मीडिया पर पश्चिम एशिया में सशर्त अस्थायी युद्धविराम की घोषणा के कुछ घंटों बाद, **मौद्रिक नीति समिति (MPC)** ने सर्वसम्मति से रेपो दर 5.25% पर बनाए रखने का निर्णय लिया।

- It also decided to continue with the neutral stance.
इसने तटस्थ रुख जारी रखने का भी निर्णय लिया।
- Later, addressing a press conference, **Reserve Bank of India (RBI)** Governor **Sanjay Malhotra** said that the ceasefire, to some extent, has been taken into account in the



monetary policy decision.

बाद में प्रेस कॉन्फ्रेंस में भारतीय रिजर्व बैंक (RBI) के गवर्नर संजय मल्होत्रा ने कहा कि मौद्रिक नीति के निर्णय में कुछ हद तक युद्धविराम को ध्यान में रखा गया है।

Low interest rates

कम ब्याज दरें

- Mr. Malhotra said despite the impact of the war in West Asia, there was a possibility of having low interest rates in the short to medium term in India.
श्री मल्होत्रा ने कहा कि पश्चिम एशिया में युद्ध के प्रभाव के बावजूद भारत में अल्प से मध्यम अवधि में कम ब्याज दरों की संभावना है।
- Stating that the West Asia conflict would impede growth, the MPC opined that the intensity and the duration of the conflict and the resultant damage to the energy and other infrastructure added risk to the inflation and growth outlooks.
यह कहते हुए कि पश्चिम एशिया संघर्ष विकास को बाधित करेगा, MPC ने माना कि संघर्ष की तीव्रता और अवधि तथा ऊर्जा और अन्य बुनियादी ढांचे को हुए नुकसान से मुद्रास्फीति और विकास के दृष्टिकोण में जोखिम बढ़ गया है।
- The economy is confronted with a supply shock, it emphasised.
इसने जोर दिया कि अर्थव्यवस्था एक आपूर्ति झटके का सामना कर रही है।
- Going forward, elevated energy and other commodity prices, as also shocks to availability of inputs due to disruptions in the **Strait of Hormuz**, were likely to impact growth in 2026-27, it added.
आगे चलकर, ऊंची ऊर्जा और अन्य वस्तुओं की कीमतें तथा **हॉर्मुज जलडमरूमध्य** में व्यवधान के कारण इनपुट की उपलब्धता में झटके 2026-27 में विकास को प्रभावित कर सकते हैं।
- Taking various factors into consideration, the real GDP growth forecast for 2026-27 has been reduced by 70 bps to 6.9%.
विभिन्न कारकों को ध्यान में रखते हुए, 2026-27 के लिए वास्तविक GDP वृद्धि पूर्वानुमान 70 बेसिस प्वाइंट घटाकर 6.9% कर दिया गया है।
- And the CPI inflation for 2026-27 had been projected a tad higher at 4.5% from 4.4% earlier.
और 2026-27 के लिए CPI मुद्रास्फीति का अनुमान पहले के 4.4% से थोड़ा बढ़ाकर 4.5% किया गया है।
- The RBI has factored in crude price at \$85 a barrel in the inflation forecast for this year and \$75 for next year.
RBI ने इस वर्ष के मुद्रास्फीति पूर्वानुमान में कच्चे तेल की कीमत \$85 प्रति बैरल और अगले वर्ष के लिए \$75 मानी है।
- Stating that the global economic conditions and sentiment had soured after the outbreak of the West Asia conflict, the MPC said these had adversely impacted the growth-inflation outlook.
MPC ने कहा कि पश्चिम एशिया संघर्ष शुरू होने के बाद वैश्विक आर्थिक स्थिति और भावना खराब हो गई है, जिससे विकास-मुद्रास्फीति दृष्टिकोण पर नकारात्मक प्रभाव पड़ा है।
- The MPC noted that geopolitical uncertainties had heightened significantly and the upside risks to the inflation outlook, driven by increased energy price pressures and probable weather disturbances affecting food prices, had increased.
MPC ने नोट किया कि भू-राजनीतिक अनिश्चितताएं काफी बढ़ गई हैं और ऊर्जा कीमतों के दबाव तथा खाद्य कीमतों को प्रभावित करने वाले संभावित मौसम व्यवधानों के कारण मुद्रास्फीति के ऊपर की ओर जोखिम बढ़ गए हैं।



Elevated crude prices to increase imported inflation, widen CAD: Malhotra

GS III: Economy

Lalendu Mishra
MUMBAI

Despite the unprecedented geopolitical disturbances in West Asia and supply chain disruptions as well as its resultant impact on the global economy, Reserve Bank of India Governor Sanjay Malhotra on Wednesday said the fundamentals of the Indian economy remained on a stronger footing at the current juncture than in previous crisis episodes, providing it with 'greater resilience to withstand shocks'.

However, Mr. Malhotra noted that elevated crude oil prices could increase imported inflation and widen the current account deficit. He said the disruptions in energy markets, fertilisers and other commodities may adversely impact industry, agriculture and services, reducing domestic output.

"The heightened uncertainty, increased risk aversion and safe haven demand could impact domestic liquidity conditions, economic activity, consumption and investment and weaker global growth prospects may dampen external demand and reduce remittance flows and adverse spillovers from global financial markets could tighten domestic financial conditions and raise the cost of borrowing," he said.

Overall, the initial supply shock can potentially



Sanjay Malhotra

transform into a demand shock over the medium term if the restoration of supply chains is delayed, he emphasised.

To a question on the impact on remittances, RBI Deputy Governor Poonam Gupta said, "Our remittances come from diverse jurisdictions in which the share of the Gulf countries have declined over time. If you look at the last 10 to 15 years data they [remittances from all geographies] have moved in the upward direction. So we are not anticipating any dip to the remittances because it [the war going by the social media post] is going to be resolved soon."

"We anticipate that the demand for migrant workers will in fact increase from this [Gulf] region which will help the remittances," she added.

She said besides geographical diversity, remittances are coming from a diverse skill pool which includes low-skilled, mid-skilled and high-skilled migrant workers across countries.

09A. Elevated crude prices to increase imported inflation, widen CAD: Malhotra उच्च कच्चे तेल की कीमतें आयातित मुद्रास्फीति बढ़ाएंगी, चालू खाता घाटा (CAD) बढ़ाएंगी: मल्होत्रा

• Elevated crude prices to increase imported inflation, widen CAD: Malhotra.

उच्च कच्चे तेल की कीमतें आयातित मुद्रास्फीति बढ़ाएंगी और चालू खाता घाटा (CAD) को बढ़ाएंगी: मल्होत्रा।

• Despite the unprecedented geopolitical disturbances in West Asia and supply chain disruptions as well as its resultant impact on the global economy, Reserve Bank of India Governor Sanjay Malhotra on Wednesday said the fundamentals of the Indian economy remained on a stronger footing at the current juncture than in previous crisis episodes, providing it with 'greater resilience to withstand shocks'.

पश्चिम एशिया में अभूतपूर्व भूराजनीतिक अशांति और आपूर्ति श्रृंखला व्यवधानों तथा उनके वैश्विक अर्थव्यवस्था पर प्रभाव के बावजूद, भारतीय रिजर्व बैंक के गवर्नर संजय मल्होत्रा ने बुधवार को कहा कि भारतीय अर्थव्यवस्था की मौलिक स्थिति वर्तमान समय में पहले की संकट स्थितियों की तुलना में अधिक मजबूत है, जिससे उसे झटकों का सामना करने की अधिक क्षमता मिलती है।

• However, Mr. Malhotra noted that elevated crude oil prices could increase imported inflation and widen the current account deficit.

हालांकि, श्री मल्होत्रा ने कहा कि बढ़ती कच्चे तेल की कीमतें आयातित मुद्रास्फीति बढ़ा सकती हैं और चालू खाता घाटा को बढ़ा सकती हैं।

• He said the disruptions in energy markets, fertilisers and other commodities may adversely impact industry, agriculture and services, reducing domestic output.

उन्होंने कहा कि ऊर्जा बाजार, उर्वरक और अन्य वस्तुओं में व्यवधान से उद्योग, कृषि और सेवा क्षेत्र पर प्रतिकूल प्रभाव पड़ सकता है, जिससे घरेलू उत्पादन घट सकता है।

• "The heightened uncertainty, increased risk aversion and safe haven demand could impact domestic liquidity conditions, economic activity, consumption and investment and weaker global growth prospects may dampen external demand and reduce remittance flows and adverse spillovers from global financial markets could tighten domestic financial conditions and raise the cost of borrowing," he said.

उन्होंने कहा, "बढ़ती अनिश्चितता, अधिक जोखिम से बचाव और

सुरक्षित निवेश की मांग घरेलू तरलता, आर्थिक गतिविधि, उपभोग और निवेश को प्रभावित कर सकती है, और कमजोर वैश्विक विकास संभावनाएँ बाहरी मांग को कम कर सकती हैं तथा रेमिटेंस प्रवाह घटा सकती हैं, जबकि वैश्विक वित्तीय बाजारों से प्रतिकूल प्रभाव घरेलू वित्तीय स्थितियों को सख्त कर सकते हैं और उधार की लागत बढ़ा सकते हैं।"

• Overall, the initial supply shock can potentially transform into a demand shock over the medium term if the restoration of supply chains is delayed, he emphasised.

कुल मिलाकर, उन्होंने जोर देकर कहा कि प्रारंभिक आपूर्ति झटका मध्यम अवधि में मांग झटका में बदल सकता है यदि आपूर्ति श्रृंखलाओं की बहाली में देरी होती है।

• To a question on the impact on remittances, RBI Deputy Governor Poonam Gupta said, "Our remittances come from diverse jurisdictions in which the share of the Gulf countries have



declined over time.

रेमिटेंस पर प्रभाव के सवाल पर, आरबीआई की डिप्टी गवर्नर **पूनम गुप्ता** ने कहा, “हमारे रेमिटेंस विभिन्न क्षेत्रों से आते हैं, जिनमें **खाड़ी देशों** की हिस्सेदारी समय के साथ कम हुई है।”

- If you look at the last 10 to 15 years data they [remittances from all geographies] have moved in the upward direction.
यदि आप पिछले **10 से 15 वर्षों** के आंकड़े देखें तो वे [सभी क्षेत्रों से आने वाले रेमिटेंस] **ऊर्ध्व दिशा** में बढ़े हैं।
- So we are not anticipating any dip to the remittances because it [the war going by the social media post] is going to be resolved soon.”
इसलिए हम **रेमिटेंस में किसी गिरावट** की उम्मीद नहीं कर रहे हैं क्योंकि यह [युद्ध, सोशल मीडिया पोस्ट के अनुसार] जल्द ही सुलझ जाएगा।”
- “We anticipate that the demand for migrant workers will infact increase from this [Gulf] region which will help the remittances,” she added.
उन्होंने आगे कहा, “हम उम्मीद करते हैं कि इस **खाड़ी क्षेत्र** से **प्रवासी श्रमिकों की मांग** बढ़ेगी, जिससे **रेमिटेंस** को मदद मिलेगी।”
- She said besides geographical diversity, remittances are coming from a diverse skill pool which includes low-skilled, mid-skilled and high-skilled migrant workers across countries.
उन्होंने कहा कि **भौगोलिक विविधता** के अलावा, रेमिटेंस विभिन्न **कौशल स्तरों** से आ रहे हैं, जिनमें **कम कौशल, मध्यम कौशल और उच्च कौशल** वाले प्रवासी श्रमिक शामिल हैं।

‘India can substitute about 150 MT of imported coal with domestic production’

GS III: Economy
Saptarshi Ghosh
NEW DELHI

India has the bandwidth to substitute about 150 million tonnes of imported coal, said Sanjeev Kumar Kassi, Joint Secretary, Ministry of Coal. He was answering a query about the country’s import dependency of the carbon compound.

The senior official explained that India imports approximately 250 million tonnes (MT) of coal annually every fiscal year. Of this, 60 MT is coking coal, and 40 MT is utilised by power plants that are designed to function solely with imported coal as the primary input; thus, leaving space for about 140 to 150 million tonnes which could be met with domestic production instead of imports.

“The substitutable space with us remains around 140 to 150 million tonnes,” he stated, adding,

“For that what we are doing is impressing upon the steel industry also to substitute the [imported] coking coal with our domestic coking coal by stamping charge. We are also asking the steel industry to use more [domestic] coal in the sponge-iron sector.”

Mr. Kassi further stated that imported coal used for blending in power plants has also declined by more than 50% on a year-on-year basis.

“Last year, we used 15.1 million tonnes of [imported] coal for blending in power generation, this year we used 7.3 million tonnes which is almost half,” he observed.

The senior official said the coal stock available with power plants, as of Monday, stood at 55.18 million tonnes which would suffice for 24 days of uninterrupted power generation based on observed trends from the last 7 days.

09A. ‘India can substitute about 150 MT of imported coal with domestic production’

‘भारत लगभग 150 मिलियन टन आयातित कोयले को घरेलू उत्पादन से प्रतिस्थापित कर सकता है’

• India has the bandwidth to substitute about 150 million tonnes of imported coal, said **Sanjeev Kumar Kassi**, Joint Secretary, Ministry of Coal.

भारत के पास लगभग **150 मिलियन टन आयातित कोयले** को प्रतिस्थापित करने की क्षमता है, ऐसा **संजीव कुमार कासी**, संयुक्त सचिव, **कोयला मंत्रालय** ने कहा।

• He was answering a query about the country’s import dependency of the carbon compound.

वह देश की **कार्बन यौगिक** पर **आयात निर्भरता** से जुड़े प्रश्न का उत्तर दे रहे थे।

• The senior official explained that India imports approximately 250 million tonnes (MT) of coal annually every fiscal year.

वरिष्ठ अधिकारी ने बताया कि भारत हर **वित्तीय वर्ष** में लगभग **250 मिलियन टन (MT) कोयला** आयात करता है।

• Of this, 60 MT is coking coal, and 40 MT is utilised by power plants that are designed to function solely with imported coal as the primary input; thus, leaving space for about 140 to 150 million tonnes which could be met with domestic production instead of imports.

इसमें से **60 MT कोकिंग कोल** है, और **40 MT उन बिजली संयंत्रों** में उपयोग होता है जो केवल आयातित कोयले पर निर्भर हैं; इस प्रकार लगभग **140 से 150 मिलियन टन** की जगह बचती है जिसे आयात के बजाय **घरेलू उत्पादन** से पूरा



किया जा सकता है।

- “The substitutable space with us remains around 140 to 150 million tonnes,” he stated, adding, “For that what we are doing is impressing upon the steel industry also to substitute the [imported] coking coal with our domestic coking coal by stamping charge.
उन्होंने कहा, “हमारे पास लगभग **140 से 150 मिलियन टन** का प्रतिस्थापन क्षेत्र उपलब्ध है,” और जोड़ा, “इसके लिए हम **स्टील उद्योग** पर जोर दे रहे हैं कि वे [आयातित] **कोकिंग कोल** के स्थान पर हमारे **घरेलू कोकिंग कोल** का उपयोग **स्टैम्पिंग चार्ज** तकनीक से करें।”
- We are also asking the steel industry to use more [domestic] coal in the sponge-iron sector.”
हम **स्टील उद्योग** से यह भी कह रहे हैं कि वे **स्पंज आयरन क्षेत्र** में अधिक **घरेलू कोयले** का उपयोग करें।”
- Mr. Kassi further stated that imported coal used for blending in power plants has also declined by more than 50% on a year-on-year basis.
श्री कासी ने आगे कहा कि **बिजली संयंत्रों** में मिश्रण के लिए उपयोग होने वाला **आयातित कोयला** भी **वर्ष-दर-वर्ष आधार** पर 50% से अधिक घट गया है।
- “Last year, we used 15.1 million tonnes of [imported] coal for blending in power generation, this year we used 7.3 million tonnes which is almost half,” he observed.
उन्होंने कहा, “पिछले वर्ष हमने **15.1 मिलियन टन** [आयातित] कोयले का उपयोग **बिजली उत्पादन** में मिश्रण के लिए किया, इस वर्ष हमने **7.3 मिलियन टन** उपयोग किया जो लगभग आधा है।”
- The senior official said the coal stock available with power plants, as of Monday, stood at 55.18 million tonnes which would suffice for 24 days of uninterrupted power generation based on observed trends from the last 7 days.
वरिष्ठ अधिकारी ने कहा कि सोमवार तक **बिजली संयंत्रों** के पास उपलब्ध **कोयला भंडार 55.18 मिलियन टन** था, जो पिछले 7 दिनों के रुझानों के आधार पर **24 दिनों** तक निर्बाध **बिजली उत्पादन** के लिए पर्याप्त होगा।

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TOPICS COVERED		
09A	Unmanned space mission launch date to be out soon मानवरहित अंतरिक्ष मिशन की लॉन्च तिथि जल्द घोषित होगी	
09A	Over 4,600 objects placed in orbit in 2025 after 315 space launches: report 2025 में 315 अंतरिक्ष प्रक्षेपणों के बाद 4,600 से अधिक वस्तुएं कक्षा में स्थापित: रिपोर्ट	
09A	Indian scientists find new way to measure distances in deep space भारतीय वैज्ञानिकों ने गहरे अंतरिक्ष में दूरी मापने का नया तरीका खोजा	
09A	Fast-moving cornstarch acts like a liquid before hardening तेज गति से चलने वाला कॉर्नस्टार्च सख्त होने से पहले तरल जैसा व्यवहार करता है	
09A	At long last अंततः बहुत देर बाद	
09A	Why India wants fast breeder reactors भारत तेज ब्रीडर रिएक्टर क्यों चाहता है	
09A	Artemis crew witnesses meteorite impacts on Moon आर्टेमिस दल ने चंद्रमा पर उल्कापिंडों के प्रभाव देखे	



Unmanned space mission launch date to be out soon

GS III: S&T
The Hindu Bureau
BENGALURU

The launch date of the first uncrewed mission of Gaganyaan will be announced soon, Indian Space Research Organisation (ISRO) Chairperson V. Narayanan said on Wednesday.

The HLVM3 G1/OM1 mission, which is the first uncrewed mission of Gaganyaan, was scheduled to be launched in the first quarter of 2026. However, it has been delayed. "Before going for the crewed mission, three uncrewed missions are targeted. Right now, we are working on the first uncrewed mission. All activities are going well," he said.

09A. Unmanned space mission launch date to be out soon

मानवरहित अंतरिक्ष मिशन की लॉन्च तिथि जल्द घोषित होगी

The launch date of the first uncrewed mission of Gaganyaan will be announced soon, Indian Space Research Organisation (ISRO) Chairperson V. Narayanan said on Wednesday.

गगनयान के पहले मानवरहित मिशन की लॉन्च तिथि जल्द घोषित की जाएगी, यह बात भारतीय अंतरिक्ष अनुसंधान संगठन (ISRO) के अध्यक्ष वी. नारायणन ने बुधवार को कही।

The HLVM3 G1/OM1 mission, which is the first uncrewed mission of Gaganyaan, was scheduled to be launched in the first quarter of 2026.

HLVM3 G1/OM1 मिशन, जो गगनयान का पहला मानवरहित मिशन है, इसे 2026 की पहली तिमाही में लॉन्च किया जाना निर्धारित था।

However, it has been delayed.

हालांकि, इसमें देरी हो गई है।

"Before going for the crewed mission, three uncrewed missions are targeted.

"मानवयुक्त मिशन से पहले तीन मानवरहित मिशनों का लक्ष्य रखा गया है।

Right now, we are working on the first uncrewed mission.

इस समय हम पहले मानवरहित मिशन पर काम कर रहे हैं।

All activities are going well," he said.

सभी गतिविधियां अच्छी तरह से चल रही हैं," उन्होंने कहा।

Over 4,600 objects placed in orbit in 2025 after 315 space launches: report

GS III: S&T

The Hindu Bureau
BENGALURU

The year 2025 saw 315 successful space launches globally, with about 4,651 objects placed in orbit. According to the Indian Space Situational Assessment Report (ISSAR) for 2025 released on Wednesday, a maximum number of payloads were deployed during 2025.

The report stated that 4,651 objects were launched to orbits and 1,911 re-entered the atmosphere with a net annual growth of 74.5%.

27 satellites operational
With regard to the Indian space assets in 2025, eight satellites were launched



In 2025, eight Indian satellites were launched and four rocket bodies placed in orbit. -FILE PHOTO

and four rocket bodies were placed in orbit. The report said that 12 Indian objects re-entered the atmosphere.

It added that the IRNSS-1D satellite was decommissioned

600 km above geosynchronous orbit.

In total, there are 86 Indian satellites in orbit of which 27 are operational, 23 are defunct (still in orbit), and 36 decayed.

Among the Indian rocket bodies, three Launch Vehicle Mark-3 (LVM-3) are still in orbit and five are decayed; four Small Satellite Launch Vehicles are decayed; four Geosynchronous Satellite Launch Vehicles (GSLV) are in orbit and 10 have decayed, and 42 Polar Satellite Launch Vehicles (PSLV) are in orbit and 19 have decayed.

The report also said that 563 and 519 orbital manoeuvres were carried out in low-earth orbit and geostationary orbit, respectively.

Fourteen collision avoidance measures were carried out in low-earth orbit along with four in geostationary orbit, the ISSAR report said.

09A. Over 4,600 objects placed in orbit in 2025 after 315 space launches: report

2025 में 315 अंतरिक्ष प्रक्षेपणों के बाद 4,600 से अधिक वस्तुएं कक्षा में स्थापित: रिपोर्ट



- The year **2025** saw **315 successful space launches** globally, with about **4,651 objects placed in orbit**.
साल **2025** में वैश्विक स्तर पर **315 सफल अंतरिक्ष प्रक्षेपण** हुए, जिनमें लगभग **4,651 वस्तुएं कक्षा में स्थापित** की गईं।
- According to the **Indian Space Situational Assessment Report (ISSAR) 2025** released on Wednesday, a maximum number of payloads were deployed during 2025.
बुधवार को जारी **इंडियन स्पेस सिचुएशनल असेसमेंट रिपोर्ट (ISSAR) 2025** के अनुसार, 2025 में सबसे अधिक पेलोड तैनात किए गए।
- The report stated that **4,651 objects were launched to orbits** and **1,911 re-entered the atmosphere** with a net annual growth of **74.5%**.
रिपोर्ट में कहा गया कि **4,651 वस्तुएं कक्षा में भेजी गईं** और **1,911 वायुमंडल में पुनः प्रवेश कर गईं**, जिससे कुल वार्षिक वृद्धि **74.5%** रही।

27 satellites operational 27 उपग्रह सक्रिय

- With regard to the **Indian space assets in 2025**, eight satellites were launched and four rocket bodies were placed in orbit.
2025 में भारतीय अंतरिक्ष संपत्तियों के संदर्भ में, आठ उपग्रह लॉन्च किए गए और चार रॉकेट बॉडी कक्षा में स्थापित की गईं।
- The report said that **12 Indian objects re-entered the atmosphere**.
रिपोर्ट में कहा गया कि **12 भारतीय वस्तुएं वायुमंडल में पुनः प्रवेश कर गईं**।
- It added that the **IRNSS-1D satellite** was decommissioned 600 km above geosynchronous orbit.
इसमें यह भी कहा गया कि **IRNSS-1D उपग्रह** को भू-स्थिर कक्षा से 600 किमी ऊपर निष्क्रिय कर दिया गया।
- In total, there are **86 Indian satellites in orbit** of which **27 are operational**, **23 are defunct (still in orbit)**, and **36 decayed**.
कुल मिलाकर, **86 भारतीय उपग्रह कक्षा में हैं**, जिनमें से **27 सक्रिय**, **23 निष्क्रिय (अभी भी कक्षा में)** और **36 नष्ट हो चुके हैं**।
- Among the Indian rocket bodies, three **Launch Vehicle Mark-3 (LVM-3)** are still in orbit and five are decayed.
भारतीय रॉकेट बॉडी में से तीन **लॉन्च व्हीकल मार्क-3 (LVM-3)** अभी भी कक्षा में हैं और पांच नष्ट हो चुके हैं।
- Four **Small Satellite Launch Vehicles (SSLV)** are decayed.
चार **स्मॉल सैटेलाइट लॉन्च व्हीकल (SSLV)** नष्ट हो चुके हैं।
- Four **Geosynchronous Satellite Launch Vehicles (GSLV)** are in orbit and 10 have decayed.
चार **जियोसिंक्रोनस सैटेलाइट लॉन्च व्हीकल (GSLV)** कक्षा में हैं और 10 नष्ट हो चुके हैं।
- And **42 Polar Satellite Launch Vehicles (PSLV)** are in orbit and 19 have decayed.
और **42 पोलर सैटेलाइट लॉन्च व्हीकल (PSLV)** कक्षा में हैं तथा 19 नष्ट हो चुके हैं।
- The report also said that **563 orbital manoeuvres** were carried out in **low-earth orbit** and **519 in geostationary orbit**.
रिपोर्ट में यह भी कहा गया कि **लो-अर्थ ऑर्बिट** में **563 कक्षीय संचालन** और **जियोस्टेशनरी ऑर्बिट** में **519 संचालन** किए गए।
- Fourteen **collision avoidance measures** were carried out in low-earth orbit along with four in geostationary orbit, the ISSAR report said.
ISSAR रिपोर्ट के अनुसार, **लो-अर्थ ऑर्बिट** में **14 टक्कर से बचाव उपाय** और जियोस्टेशनरी ऑर्बिट में **4 उपाय** किए गए।



Indian scientists find new way to measure distances in deep space

The dense and rapidly spinning remnant cores of dead stars are called pulsars; they emit beams of radio waves that sweep across the earth like light from a lighthouse sweeps across ships at sea; pulsars have an extraordinarily fixed spinning rate, so the pulses arrive very regularly

ISS III: S&T

Shreejaya Karantha

Indian astronomers, including from IIT-Kanpur, have developed a new way to measure distances in the universe using the pulsating cores of dead stars, by studying how their radio emissions are distorted as they travel through space. The technique combines a pair of subtle effects that occur when pulsar signals pass through clouds of ionised gas in the Milky Way.

The dense and rapidly spinning remnant cores of dead stars are called pulsars. They emit beams of radio waves that sweep across the earth like light from a lighthouse sweeps across ships at sea. Pulsars have an extraordinarily fixed spinning rate, so the pulses arrive very regularly. So astronomers have used them as cosmic clocks.

Pulsar timing experiments use millisecond pulsars, which spin hundreds of times per second, to create precise timing models that predict the arrival of following pulses. Any difference in arrival time indicates the presence of another astrophysical event, such as those producing gravitational waves.

But as these radio waves travel through the galaxy before reaching the earth, they also pass through clouds of ionised gas, or plasma, that contain free electrons that slightly alter the radio signal.

Way of light

Astronomers measure one of these effects using a quantity called the dispersion measure (DM). As radio waves travel through the interstellar medium, free electrons slow down lower frequency waves more than higher frequency ones. This causes different frequencies to arrive at the earth at slightly different times. By measuring the delay caused by dispersion, astronomers can estimate how many electrons lie between the earth and the pulsar.

In general, signals from more distant pulsars pass through more interstellar plasma and encounter more electrons. As a result, DM provides a rough estimate of how far away the pulsar is.

Astronomers have long used DM to estimate the distance to pulsars. However, this method relies on models of electron distribution throughout the Milky Way that can be unreliable in complex regions such as the Gum Nebula, a vast region of ionised gas and one of the largest known nebulae in our galaxy. Possibly associated with a supernova explosion or ionisation by hot stars, the nebula contains the Vela Pulsar and regions that can strongly influence radio signals passing through it.

Wobbling signals

The interstellar medium also affects pulsar signals in another way. As plasma is not perfectly smooth, its irregularities scatter radio waves as they travel through it. This scattering causes the signals to follow multiple paths before reaching the earth. The scattered waves interfere with each other, causing the pulsar's brightness to vary with time.

The term for this is scintillation, similar to the twinkling of stars in the night sky. Since the signals arrive by different paths and at slightly different times, the signal appears stretched out or smeared. This effect is known as scatter broadening.

In the new study, published in the *Monthly Notices of Royal Astronomical Society*, the team combined DM with



The Vela pulsar wind nebula. Light blue represents X-ray polarisation data from the NASA Imaging X-ray Polarimetry Explorer. Pink and purple colours correspond to data from the NASA Chandra X-Ray observatory. NASA

In the new study, published in the *Monthly Notices of Royal Astronomical Society*, the team combined dispersion measure with scatter broadening to refine the distance estimates

scatter broadening to refine the distance estimates. As scattering depends on how turbulent the plasma is, the electron density, and the location of the scattering region along the line of sight, the joint method revealed where the turbulent plasma is located between the earth and the pulsar much more accurately.

"Previously, we had only one 'soldier'—dispersion—to solve the problem," the study's lead author Ashish Kumar, formerly at IIT-Kanpur and now at the National Centre for Radio Astrophysics, said. "Now we have two: dispersion and scattering."

The study was carried out with co-authors Avinash Deshpande, former professor at the Raman Research Institute, and Pankaj Jain, a professor at IIT-Kanpur.

Systematic application

"The authors have done a careful job of utilising a variety of measurements on 10 pulsars to constrain the structure of the interstellar medium in this region,

including the distance to the dominant scattering region [the Gum Nebula]," Cornell University professor James Cordes, who wasn't involved in the study, said. He also said combining scattering and dispersion to estimate pulsar distances is not entirely new and has been explored in pulsar studies for decades. In this study, however, the team applied the approach in a systematic way: they used both dispersion and scattering measurements together and adjusted their model step by step until it matched both the observed DM and the scatter broadening.

The distance where the model and observations agreed was then taken to be the pulsar's distance.

Their work shows that much of the scattering affecting pulsars in this direction likely comes from turbulent layers of the Gum Nebula. Using observations of 10 pulsars in the same region of the sky as Gum Nebula, researchers also developed a refined model of the nebula's electron distribution. Results showed that the Vela pulsar lies behind the nebula's front shell.

No hard limit

Scatter broadening depends on how strongly a pulsar's signal is scattered along the line of sight. Calculating this exactly requires extensive analysis. So to simplify it, researchers combined the

dependencies into a single parameter, called the k -factor, at a given frequency.

Estimating the k -factor was the main technical challenge of the study, Dr. Kumar said, as it varies significantly in complex regions. However, one can determine its value for the target pulsar from a nearby pulsar at a known distance.

For the Gum Nebula, the team analysed several pulsars in the region and calculated their individual k -factors. Instead of adopting a single number, they used a range of possible values to account for uncertainties in the scattering properties of the plasma. The team is now working on a follow-up study of roughly 300 pulsars across our galaxy to determine how the k -factor varies in different directions.

Parallax-based measurements are extensively used in distance measurements. While the novel method offers several advantages over DM-only estimates, it cannot beat the "gold standards" of the parallax method in terms of accuracy, Dr. Kumar said.

However, while certain parallax techniques have a "hard limit" on distance, the new method has no specific distance limitation. It could even be used to measure distances to objects outside the Milky Way, like the enigmatic fast radio bursts.

(Shreejaya Karantha is a freelance science writer)

09A. Indian scientists find new way to measure distances in deep space — भारतीय वैज्ञानिकों ने गहरे अंतरिक्ष में दूरी मापने का नया तरीका खोजा

The dense and rapidly spinning remnant cores of dead stars are called pulsars. मृत तारों के घने और तेजी से घूमने वाले अवशेष कोर को पल्सर (pulsars) कहा जाता है।



- They emit beams of **radio waves** that sweep across the earth like a **lighthouse**.
वे रेडियो तरंगों (radio waves) उत्सर्जित करते हैं जो पृथ्वी पर लाइटहाउस (lighthouse) की तरह फैलती हैं।
- Pulsars have an extraordinarily **fixed spinning rate**, so pulses arrive very regularly.
पल्सर की घूर्णन दर (fixed spinning rate) बहुत स्थिर होती है, इसलिए उनके सिग्नल नियमित रूप से आते हैं।
- Indian astronomers, including from **IIT-Kanpur**, have developed a new method.
भारतीय खगोलविदों, जिनमें आईआईटी कानपुर (IIT-Kanpur) के वैज्ञानिक शामिल हैं, ने एक नया तरीका विकसित किया है।
- They measure distances by studying how **radio emissions are distorted in space**.
वे अंतरिक्ष में रेडियो संकेतों के विकृत होने (radio emissions distorted) का अध्ययन करके दूरी मापते हैं।
- The method combines two subtle effects when signals pass through **ionised gas**.
यह विधि दो सूक्ष्म प्रभावों को जोड़ती है जब सिग्नल आयनीकृत गैस (ionised gas) से गुजरते हैं।
- Pulsars act as **cosmic clocks** due to their regular signals.
पल्सर अपने नियमित सिग्नलों के कारण कॉस्मिक घड़ी (cosmic clocks) की तरह काम करते हैं।
- Pulsar timing experiments use **millisecond pulsars** spinning hundreds of times per second.
पल्सर टाइमिंग प्रयोग (pulsar timing experiments) में मिलीसेकंड पल्सर (millisecond pulsars) का उपयोग होता है जो प्रति सेकंड सैकड़ों बार घूमते हैं।
- Any variation in timing can indicate events like **gravitational waves**.
समय में कोई भी बदलाव गुरुत्वाकर्षण तरंगों (gravitational waves) जैसे घटनाओं का संकेत दे सकता है।
- Radio waves pass through **interstellar plasma**, altering signals slightly.
रेडियो तरंगों अंतरतारकीय प्लाज्मा (interstellar plasma) से गुजरते हुए थोड़ी बदल जाती हैं।

Way of light — प्रकाश का मार्ग

- Astronomers measure dispersion using **dispersion measure (DM)**.
खगोलविद डिस्पर्सन माप (dispersion measure - DM) का उपयोग करते हैं।
- Lower frequency waves slow more than higher frequency ones.
कम आवृत्ति वाली तरंगें उच्च आवृत्ति की तुलना में अधिक धीमी होती हैं।
- This causes signals to arrive at different times.
इससे सिग्नल अलग-अलग समय पर पहुंचते हैं।
- DM helps estimate the number of **free electrons** between Earth and pulsar.
DM पृथ्वी और पल्सर के बीच मुक्त इलेक्ट्रॉनों (free electrons) की संख्या का अनुमान देता है।
- More distant pulsars have higher **DM values**.
दूर स्थित पल्सरों के DM मान (DM values) अधिक होते हैं।
- However, DM depends on models of **electron distribution**.
लेकिन DM इलेक्ट्रॉन वितरण (electron distribution) के मॉडल पर निर्भर करता है।
- These models are unreliable in regions like the **Gum Nebula**.
ये मॉडल गम नेबुला (Gum Nebula) जैसे क्षेत्रों में कम विश्वसनीय होते हैं।
- The nebula contains the **Vela Pulsar** and dense plasma regions.
इस नेबुला में वेला पल्सर (Vela Pulsar) और घना प्लाज्मा होता है।

Wobbling signals — डगमगाते संकेत

- Plasma irregularities cause **scattering of radio waves**.
प्लाज्मा की अनियमितताएँ रेडियो तरंगों का प्रकीर्णन (scattering) करती हैं।
- Signals travel through multiple paths and interfere.
सिग्नल कई रास्तों से गुजरते हैं और आपस में हस्तक्षेप करते हैं।
- This causes variation in brightness called **scintillation**.
इससे चमक में बदलाव होता है जिसे स्किन्टिलेशन (scintillation) कहते हैं।
- It is similar to the **twinkling of stars**.
यह तारों के टिमटिमाने (twinkling of stars) जैसा होता है।



- Signals appear stretched due to **scatter broadening**.
सिग्नल **स्कैटर ब्रॉडनिंग (scatter broadening)** के कारण फैल जाते हैं।
- In the new study, scientists combined **DM with scattering effects**.
नए अध्ययन में वैज्ञानिकों ने **DM और स्कैटरिंग प्रभाव (scattering effects)** को जोड़ा है।

Systematic application — व्यवस्थित अनुप्रयोग

- The method combines **scatter broadening** with **dispersion** to refine distance estimates.
यह विधि दूरी के अनुमान को बेहतर बनाने के लिए **स्कैटर ब्रॉडनिंग (scatter broadening)** और **डिस्पर्सन (dispersion)** को जोड़ती है।
- Scattering depends on **plasma turbulence**, **electron density**, and location along the **line of sight**.
स्कैटरिंग **प्लाज्मा अशांति (plasma turbulence)**, **इलेक्ट्रॉन घनत्व (electron density)** और **दृष्टि रेखा (line of sight)** में स्थिति पर निर्भर करती है।
- The combined method reveals the location of **turbulent plasma** more accurately.
संयुक्त विधि **अशांत प्लाज्मा (turbulent plasma)** के स्थान को अधिक सटीक रूप से दर्शाती है।
- Previously, only **dispersion** was used to solve the problem.
पहले केवल **डिस्पर्सन (dispersion)** का उपयोग किया जाता था।
- Now both **dispersion and scattering** are used together.
अब **डिस्पर्सन और स्कैटरिंग (dispersion and scattering)** दोनों का उपयोग किया जा रहा है।
- The study was led by **Ashish Kumar** from **IIT-Kanpur** and **NCRA**.
इस अध्ययन का नेतृत्व **आशीष कुमार (Ashish Kumar)** ने किया, जो **आईआईटी कानपुर (IIT-Kanpur)** और **NCRA** से जुड़े हैं।
- Co-authors include **Avinash Deshpande** and **Pankaj Jain**.
सह-लेखकों में **अविनाश देशपांडे (Avinash Deshpande)** और **पंकज जैन (Pankaj Jain)** शामिल हैं।
- The study used observations of **10 pulsars**.
अध्ययन में **10 पल्सर (pulsars)** के अवलोकन का उपयोग किया गया।
- It helped constrain the structure of the **interstellar medium**.
इससे **अंतरतारकीय माध्यम (interstellar medium)** की संरचना को समझने में मदद मिली।
- The method adjusts models until they match both **DM and scatter broadening**.
यह विधि मॉडल को तब तक समायोजित करती है जब तक वह **DM और स्कैटर ब्रॉडनिंग (scatter broadening)** दोनों से मेल नहीं खा जाए।
- The matching point gives the **distance to the pulsar**.
जहाँ मॉडल और डेटा मेल खाते हैं, वही **पल्सर की दूरी (distance)** मानी जाती है।
- The study shows scattering mainly comes from the **Gum Nebula**.
अध्ययन से पता चलता है कि स्कैटरिंग मुख्यतः **गम नेबुला (Gum Nebula)** से होती है।
- A refined model of the nebula's **electron distribution** was developed.
नेबुला के **इलेक्ट्रॉन वितरण (electron distribution)** का एक बेहतर मॉडल बनाया गया।
- The **Vela pulsar** lies behind the nebula's front shell.
वेला पल्सर (Vela pulsar) नेबुला के बाहरी हिस्से के पीछे स्थित है।

No hard limit — कोई निश्चित सीमा नहीं

- Scatter broadening depends on the **strength of scattering** along the line of sight.
स्कैटर ब्रॉडनिंग **स्कैटरिंग की तीव्रता (strength of scattering)** पर निर्भर करती है।
- Researchers introduced a parameter called the **k-factor**.
शोधकर्ताओं ने एक पैरामीटर **k-factor** प्रस्तुत किया।
- Estimating the **k-factor** was the main technical challenge.
k-factor का अनुमान लगाना मुख्य तकनीकी चुनौती थी।
- Its value varies in **complex plasma regions**.
इसका मान **जटिल प्लाज्मा क्षेत्रों (complex regions)** में बदलता रहता है।
- Nearby pulsars with known distances help estimate the **k-factor**.
पास के ज्ञात दूरी वाले पल्सर **k-factor** निर्धारित करने में मदद करते हैं।



- The team used a **range of k-values** to account for uncertainties.
टीम ने अनिश्चितताओं को ध्यान में रखते हुए **k-factor के विभिन्न मान (range of values)** उपयोग किए।
- They plan to study around **300 pulsars** in future work.
वे भविष्य में लगभग **300 पल्सरो (pulsars)** का अध्ययन करेंगे।
- The method complements **parallax-based measurements**.
यह विधि **पैरालैक्स (parallax)** आधारित माप का पूरक है।
- Parallax is still the **gold standard** for accuracy.
पैरालैक्स अभी भी सटीकता के लिए **गोल्ड स्टैंडर्ड (gold standard)** है।
- However, parallax has a **distance limitation**.
लेकिन पैरालैक्स की **दूरी सीमा (distance limitation)** होती है।
- The new method has **no strict distance limit**.
नई विधि में कोई **निश्चित दूरी सीमा (no hard limit)** नहीं है।
- It can be used to measure distances beyond the **Milky Way**.
इसे **मिल्की वे (Milky Way)** से बाहर की दूरी मापने के लिए भी उपयोग किया जा सकता है।
- It may help study **fast radio bursts (FRBs)**.
यह **फास्ट रेडियो बर्स्ट (fast radio bursts)** के अध्ययन में भी सहायक हो सकता है।

Fast-moving cornstarch acts like a liquid before hardening

GS III: S&T
Vasudevan Mukunth

If you mix cornstarch and water, you will have a substance that defies common sense. If you punch it with your fist, it will feel like you hit a solid wall. But if you move your finger through it slowly, the substance will flow like honey. And scientists have long struggled to understand how this transition happens.

A new study in *Physical Review Letters* has figured it out using high-speed photography and direct force measurements. The authors, from the University of Minnesota, reported that at an extreme speed, the cornstarch mixture behaves like a liquid first before becoming tougher.

For these studies, scientists have usually watched how a drop spreads when it falls on a surface using high-speed cameras. For the new study, the researchers built a specialised rig. They dropped mixtures of cornstarch and water with concentrations ranging from 30% to 43%, on a sensitive force sensor at speeds of up to 7.2 m/s, and recorded it with high-speed cameras.

Thus they could 'see' and 'feel' the impact simultaneously.

The team thus identified three ways in which the drops responded to the surface. The low-concentration mixture behaved like water: the impact force peaked early and then faded as the liquid spread. At a higher concentration and low impact speed, however, the fluid "jammed" almost instantly, behaving like a solid sphere, exerting a symmetric force as it struck the surface and abruptly stopped spreading.

Then the team made its surprising discovery. At high concentrations and high impact speed, the mixture behaved like a re-entrant liquid. The drop acted like a liquid for the first fraction of a millisecond, then quickly transitioned to becoming a jammed solid.

The researchers were able to explain this behaviour using a concept called Reynolds dilatancy. When you compress a dense suspension of particles, the grains try to move past each other. This causes the grain network to expand, which sucks the surrounding water into the gaps and creates friction between the particles. This process turns the liquid into a solid.

The team found that at an ultra-high speed, the initial impact was governed by the raw momentum of the fluid – and this governing happened too quickly for the process that jammed the particle to take over. But as the drop slowed down, the dilatancy mechanism caught up.

The researchers also identified a sudden and pronounced change in the rate of force, which was the exact moment the drop transformed from a liquid into a jammed solid.

The study concluded by offering a new mathematical model that the authors said could predict how these drops will behave across all three regimes.

The new study has reportedly solved a complex physics puzzle and also has practical applications. Understanding how complex fluids respond to extreme stress is vital for improving 3D printing techniques, which are used in industry and which some countries are planning to use on the moon next decade.

Engineers are also exploring using complex fluids in protective gear and designing 'soft robots' that can become more or less stiff on command.

एक नए अध्ययन ने इसे समझाया है।

- Researchers from the **University of Minnesota** used high-speed photography and force measurements.

09A. Fast-moving cornstarch acts like a liquid before hardening — तेज गति से चलने वाला कॉर्नस्टार्च सख्त होने से पहले तरल जैसा व्यवहार करता है

If you mix cornstarch and water, you will have a substance that defies common sense.

यदि आप कॉर्नस्टार्च (cornstarch) और पानी (water) मिलाते हैं, तो आपको एक ऐसा पदार्थ मिलता है जो सामान्य समझ (common sense) को चुनौती देता है।

- If you punch it with your **fist**, it feels like hitting a **solid wall**.

यदि आप इसे अपनी **मुट्टी (fist)** से मारते हैं, तो यह **ठोस दीवार (solid wall)** जैसा महसूस होता है।

- But if you move your finger slowly, it flows like **honey**.

लेकिन यदि आप अपनी उंगली धीरे-धीरे चलाते हैं, तो यह **शहद (honey)** की तरह बहता है।

- Scientists have long tried to understand this **transition**.

वैज्ञानिक लंबे समय से इस **परिवर्तन (transition)** को समझने की कोशिश कर रहे हैं।

- A new study in **Physical Review Letters** has explained it.

Physical Review Letters में प्रकाशित



मिनेसोटा विश्वविद्यालय (University of Minnesota) के शोधकर्ताओं ने हाई-स्पीड फोटोग्राफी और बल मापन का उपयोग किया।

- They found that at **extreme speed**, the mixture behaves like a **liquid first**, then hardens. उन्होंने पाया कि अत्यधिक गति पर मिश्रण पहले तरल (**liquid**) की तरह व्यवहार करता है, फिर कठोर हो जाता है।
- Scientists dropped mixtures with **30% to 43% concentration** at speeds up to **7.2 m/s**. वैज्ञानिकों ने **30% से 43% सांद्रता (concentration)** वाले मिश्रण को **7.2 m/s** की गति से गिराया।
- They used a **force sensor** and **high-speed cameras**. उन्होंने **फोर्स सेंसर (force sensor)** और **हाई-स्पीड कैमरा (high-speed cameras)** का उपयोग किया।
- This allowed them to observe both **impact and force**. इससे वे **प्रभाव (impact)** और **बल (force)** दोनों को समझ सके।
- The team identified **three behaviours** of the drops. टीम ने बूंदों के **तीन व्यवहार (three behaviours)** पहचाने।
- At low concentration, it behaved like **water**. कम सांद्रता पर यह **पानी (water)** जैसा व्यवहार करता है।
- At higher concentration and low speed, it **jammed instantly** like a solid. उच्च सांद्रता और कम गति पर यह तुरंत **जाम (jammed)** होकर ठोस बन जाता है।
- At high concentration and high speed, it showed **re-entrant liquid behaviour**. उच्च सांद्रता और उच्च गति पर यह **री-एंटरेंट तरल व्यवहार (re-entrant liquid behaviour)** दिखाता है।
- It behaved like a liquid briefly before becoming a **jammed solid**. यह थोड़े समय के लिए तरल रहता है और फिर **जाम ठोस (jammed solid)** बन जाता है।
- This behaviour is explained by **Reynolds dilatancy**. इस व्यवहार को **रेनॉल्ड्स डाइलेटेंसी (Reynolds dilatancy)** से समझाया जाता है।
- When compressed, particles move and create **friction**, turning liquid into solid. दबाव पड़ने पर कण हिलते हैं और **घर्षण (friction)** उत्पन्न करते हैं, जिससे तरल ठोस बन जाता है।
- At very high speed, **momentum** dominates initially. बहुत अधिक गति पर शुरुआत में **संवेग (momentum)** प्रभावी होता है।
- As speed decreases, the **dilatancy mechanism** takes over. जैसे ही गति कम होती है, **डाइलेटेंसी (dilatancy)** प्रभाव सक्रिय हो जाता है।
- Researchers identified the exact moment of transition by a sudden change in **force rate**. शोधकर्ताओं ने **बल परिवर्तन (force rate)** में अचानक बदलाव से संक्रमण का क्षण पहचाना।
- They developed a **mathematical model** to predict behaviour. उन्होंने व्यवहार का अनुमान लगाने के लिए एक **गणितीय मॉडल (mathematical model)** विकसित किया।
- The study solves a complex **physics puzzle**. यह अध्ययन एक जटिल **भौतिकी समस्या (physics puzzle)** को हल करता है।
- It has applications in **3D printing** and industrial processes. इसके उपयोग **3D प्रिंटिंग (3D printing)** और औद्योगिक प्रक्रियाओं में हैं।
- It may also be useful for **space applications**, including use on the **moon**. यह **अंतरिक्ष (space)** में, विशेषकर **चंद्रमा (moon)** पर उपयोग के लिए भी उपयोगी हो सकता है।
- Engineers are exploring its use in **protective gear** and **soft robots**. इंजीनियर इसे **सुरक्षा उपकरण (protective gear)** और **सॉफ्ट रोबोट (soft robots)** में उपयोग करने पर काम कर रहे हैं।



GS III: S&T

At long last

India must now revamp its nuclear regulatory regime

The Prototype Fast Breeder Reactor (PFBR) in Kalpakkam, Tamil Nadu, achieving first criticality is a genuine cause for satisfaction, albeit a measured one. A Parliamentary Standing Committee reported this year that the project's final cost is ₹8,181 crore, more than twice the sanctioned amount. Criticality itself is at least 16 years behind schedule; the fast reactor fuel cycle facility is expected to be commissioned by 2029, over a decade late. Poor planning and flawed procurement, abetted by political insulation, are the causes of the delay. The PFBR is the first commercial-scale component of the second stage of India's nuclear power programme. Its purpose is to use spent fuel, after reprocessing, from the first stage, and depleted uranium to produce more plutonium. In the final stage, reactors will use plutonium and thorium as fuel. The programme's design is based on India's abundant thorium deposits, but this sword cuts both ways. The nuclear establishment must also be scrupulous about the PFBR's performance as it is prepared for commercial operation, and admit mistakes or under-performance plainly. The goal is not to use thorium at any cost but to achieve energy security and self-sufficiency. If the economics of solar and wind power render the current nuclear power paradigm a poor allocation of scarce public capital, that finding should honestly determine policy.

Nuclear power contributes around 3% of India's electricity from 8.78 GW of installed capacity. The country has committed to becoming a net-zero economy by 2070 amid an energy demand growth that will be among the largest of any major economy over the next two decades. Nuclear power facilities are expected to consume 6% of the land area required for equivalent solar power generation per unit of electricity produced. Considering that India's biodiversity commitments depend on not converting green cover, nuclear power offers a non-trivial path forward. Breeder reactors are more fuel-efficient, and will also extend the fuel cycle and reduce dependence on uranium imports. The challenge is to realise these merits without squandering time and public money. This means fixing the problems that the PFBR throws up during commissioning, and proceeding with the planned FBRI and FB2 units at Kalpakkam based on lessons learned, without the opacity that has prevailed so far. The PFBR also comes online alongside the SHANTI Act, private nuclear power operations, the advent of small modular reactors, and a new liability regime. Now is an opportune time for India to revamp its regulatory regime. So far, the AERB and the DAE have reported to the Atomic Energy Commission, which is thus both the promoter and the regulator of nuclear energy. The government must resolve this administrative short-circuit before any new complexities arise.

- The nuclear establishment must also be scrupulous about the **PFBR's performance** as it is prepared for commercial operation, and admit mistakes or under-performance plainly. परमाणु प्रतिष्ठान को **PFBR के प्रदर्शन (performance)** के प्रति सतर्क रहना चाहिए जब इसे व्यावसायिक संचालन के लिए तैयार किया जा रहा है, और गलतियों या कम प्रदर्शन को स्पष्ट रूप से स्वीकार करना चाहिए।
- The goal is not to use **thorium at any cost** but to achieve **energy security and self-sufficiency**. लक्ष्य किसी भी कीमत पर **थोरियम (thorium)** का उपयोग करना नहीं, बल्कि **ऊर्जा सुरक्षा और आत्मनिर्भरता (energy security and self-sufficiency)** प्राप्त करना है।
- If the economics of **solar and wind power** render the current nuclear power paradigm a poor allocation of scarce public capital, that finding should honestly determine policy. यदि **सौर और पवन ऊर्जा (solar and wind power)** की अर्थव्यवस्था वर्तमान परमाणु ऊर्जा मॉडल को

09A. At long last अंततः बहुत देर बाद

- **The Prototype Fast Breeder Reactor (PFBR) in Kalpakkam, Tamil Nadu, achieving first criticality is a genuine cause for satisfaction, albeit a measured one.** प्रोटोटाइप फास्ट ब्रीडर रिएक्टर (PFBR) का कलपक्कम, तमिलनाडु (Kalpakkam, Tamil Nadu) में पहली बार क्रिटिकलिटी प्राप्त करना संतोष का वास्तविक कारण है, हालांकि यह संतोष सीमित है।

- **A Parliamentary Standing Committee reported this year that the project's final cost is ₹8,181 crore, more than twice the sanctioned amount.** एक संसदीय स्थायी समिति (Parliamentary Standing Committee) ने इस वर्ष बताया कि परियोजना की अंतिम लागत **₹8,181 करोड़** है, जो स्वीकृत राशि से दोगुनी से अधिक है।

- **Criticality itself is at least 16 years behind schedule; the fast reactor fuel cycle facility is expected to be commissioned by 2029, over a decade late.** क्रिटिकलिटी स्वयं कम से कम **16 वर्ष देरी से** प्राप्त हुई है; फास्ट रिएक्टर ईंधन चक्र सुविधा के **2029** तक चालू होने की उम्मीद है, जो एक दशक से अधिक की देरी है।

- **Poor planning and flawed procurement, abetted by political insulation, are the causes of the delay.** खराब योजना और त्रुटिपूर्ण खरीद प्रक्रिया, जिसे राजनीतिक संरक्षण मिला, इस देरी के कारण है।

- **The PFBR is the first commercial-scale component of the second stage of India's nuclear power programme.** **PFBR** भारत के **परमाणु ऊर्जा कार्यक्रम के दूसरे चरण (second stage)** का पहला वाणिज्यिक स्तर का घटक है।

- **Its purpose is to use spent fuel, after reprocessing, from the first stage, and depleted uranium to produce more plutonium.** इसका उद्देश्य पहले चरण से प्राप्त **उपयोग किए गए ईंधन (spent fuel)** को पुनःप्रसंस्करण के बाद तथा **क्षीण यूरेनियम (depleted uranium)** का उपयोग करके अधिक **प्लूटोनियम** उत्पन्न करना है।

- **In the final stage, reactors will use plutonium and thorium as fuel.** अंतिम चरण में रिएक्टर **प्लूटोनियम और थोरियम (plutonium and thorium)** को ईंधन के रूप में उपयोग करेंगे।

- **The programme's design is based on India's abundant thorium deposits, but this sword cuts both ways.** यह कार्यक्रम भारत के प्रचुर **थोरियम भंडार (thorium deposits)** पर आधारित है, लेकिन यह दोधारी तलवार है।



सार्वजनिक संसाधनों का खराब उपयोग साबित करती है, तो उस निष्कर्ष के आधार पर नीति बनाई जानी चाहिए।

- **Nuclear power** contributes around **3% of India's electricity** from **8.78 GW of installed capacity**.
परमाणु ऊर्जा (nuclear power) भारत की कुल बिजली का लगभग 3% योगदान देती है, जो 8.78 गीगावाट स्थापित क्षमता से प्राप्त होती है।
- The country has committed to becoming a **net-zero economy by 2070** amid an energy demand growth that will be among the largest of any major economy over the next two decades.
देश ने अगले दो दशकों में तेजी से बढ़ती ऊर्जा मांग के बीच 2070 तक नेट-जीरो अर्थव्यवस्था (net-zero economy) बनने का संकल्प लिया है।
- Nuclear power facilities are expected to consume **6% of the land area** required for equivalent solar power generation per unit of electricity produced.
परमाणु ऊर्जा संयंत्रों को समान मात्रा की सौर ऊर्जा उत्पादन के लिए आवश्यक भूमि के केवल 6% क्षेत्रफल की आवश्यकता होती है।
- Considering that India's **biodiversity commitments** depend on not converting green cover, nuclear power offers a non-trivial path forward.
यह देखते हुए कि भारत की **जैव विविधता प्रतिबद्धताएँ (biodiversity commitments)** हरित क्षेत्र को बनाए रखने पर निर्भर हैं, परमाणु ऊर्जा एक महत्वपूर्ण विकल्प प्रस्तुत करती है।
- **Breeder reactors** are more fuel-efficient, and will also extend the fuel cycle and reduce dependence on **uranium imports**.
ब्रीडर रिएक्टर (Breeder reactors) अधिक ईंधन-कुशल होते हैं और ईंधन चक्र को बढ़ाते हैं तथा **यूरेनियम आयात (uranium imports)** पर निर्भरता कम करते हैं।
- The challenge is to realise these merits without squandering time and public money.
चुनौती यह है कि इन लाभों को समय और सार्वजनिक धन की बर्बादी के बिना हासिल किया जाए।
- This means fixing the problems that the **PFBR** throws up during commissioning, and proceeding with the planned **FBR1 and FBR2 units** at Kalpakkam based on lessons learned, without the opacity that has prevailed so far.
इसका अर्थ है कि **PFBR** के कमीशनिंग के दौरान उत्पन्न समस्याओं को ठीक किया जाए और **FBR1 और FBR2 इकाइयों** को सीखे गए सबक के आधार पर आगे बढ़ाया जाए, बिना उस अपारदर्शिता के जो अब तक बनी रही है।
- The **PFBR** also comes online alongside the **SHANTI Act**, private nuclear power operations, the advent of **small modular reactors**, and a new liability regime.
PFBR का संचालन **SHANTI Act**, निजी परमाणु संचालन, **छोटे मॉड्यूलर रिएक्टर (small modular reactors)** और नई देयता व्यवस्था के साथ शुरू हो रहा है।
- Now is an opportune time for India to revamp its **regulatory regime**.
अब भारत के लिए अपने **नियामक ढांचे (regulatory regime)** को सुधारने का उपयुक्त समय है।
- So far, the **AERB** and the **DAE** have reported to the **Atomic Energy Commission**, which is thus both the promoter and the regulator of nuclear energy.
अब तक **AERB** और **DAE** दोनों **Atomic Energy Commission** को रिपोर्ट करते हैं, जो एक साथ प्रमोटर और नियामक दोनों की भूमिका निभाता है।
- The government must resolve this **administrative short-circuit** before any new complexities arise.
सरकार को इस **प्रशासनिक असंगति (administrative short-circuit)** को नई जटिलताओं के उत्पन्न होने से पहले दूर करना चाहिए।



Why India wants fast breeder reactors

How does a fast breeder reactor work? How is an FBR different from a PHWR? What is India's three-stage nuclear programme? Why are FBRs difficult to build and operate? How has India pursued fast breeder reactors? What happens after a reactor achieves criticality? What next for the PFBR?

EXPLAINER

Yasudev Mukumth

The story so far:

In an important milestone, the prototype fast breeder reactor (PFBR) at Kalpakkam achieved criticality on April 6. The term 'criticality' is familiar to India: over the decades, it has been associated with the slow and tedious successes of India's nuclear power programme. At the same time, in keeping with many terms in the nuclear vocabulary, 'criticality' is also often mistaken as an end goal. In reality, it is actually the first step.

What is criticality?

A nuclear reactor becomes critical when its chain reaction is able to sustain itself. That is, when an atom's nucleus undergoes nuclear fission, it releases neutrons that trigger at least one more fission reaction in the surrounding nuclei. Reactor engineers ensure this happens by controlling the composition of the fuel (the material whose nuclei undergo fission), how well the neutrons are able to 'access' more nuclei, and the temperature of the reactor. Once a reactor is critical, it also means it is in a kind of stable state. However, it does not mean that it is operating in a commercially viable way. That comes much later. After criticality, the operators keep the reactor running as it produces a low amount of power, for months if necessary, while they check if its operating parameters are within design limits. If an operator is sure that the parameters are, they can go to the next stage.

How do FBRs work?

Most of India's currently operating nuclear reactors are pressurised heavy water reactors (PHWRs). They are designed to support the fission of natural uranium. Natural uranium consists of 99.3% of uranium-238 and 0.7% of uranium-235. '235' and '238' denote the total number of protons and neutrons in the nucleus. In a PHWR, neutrons are introduced into the reactor, where a device called a moderator slows them down. This is necessary for the neutrons to cause uranium-235 to undergo fission. When it does, it releases heat, which the PHWR converts to electricity; a small amount of plutonium; and a few neutrons.

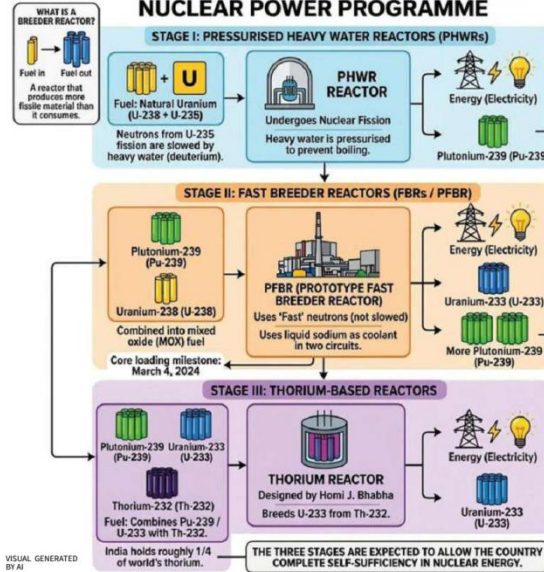
PHWRs are inefficient because only a small fraction of the fuel, around 1%, undergoes fission before it becomes unusable.

A fast-breeder reactor (FBR) is more efficient, achieving a fuel use rate of around 10% or more. Mainly, the fuel consists of plutonium, not uranium. The reactor core is surrounded by a 'blanket' of depleted uranium, like the unusable fuel produced by PHWRs. When a fast neutron bombards the blanket, the uranium nuclei are transmuted to plutonium nuclei, which are reprocessed as nuclear fuel. The plutonium-based fuel also uses the fast neutrons to undergo fission, releasing more fast neutrons.

What is India's three-stage programme?

The nuclear physicist Homi Bhabha is widely credited with conceiving India's nuclear programme in the first years of its independence. The programme has three stages. In the first stage, PHWRs will use natural uranium to produce plutonium and depleted uranium and electricity. In the second stage, FBRs will use the plutonium and depleted uranium from the first stage to produce even more plutonium and electricity. Finally, future

FLOWCHART: INDIA'S THREE-STAGE NUCLEAR POWER PROGRAMME



VISUAL GENERATED BY AI

nuclear reactors will use plutonium and thorium to produce electricity.

Bhabha came up with this programme because India has abundant reserves of thorium but only modest reserves of uranium.

And in this scheme, FBRs have been envisaged as a bridge between the initial step, to use what we have, and the final step, to complete the cycle and thus make India self-sufficient in nuclear power.

Why are FBRs challenging?

That an FBR is easier said than done would be a gross underestimate. The Indian government approved the PFBR more than two decades ago. It was designed by the Indira Gandhi Centre for Atomic Research and built by the Bharatiya Nabhakya Vidya Nigam, Ltd. The latter proved to be more challenging than first expected.

Among other features, the PFBR uses liquid sodium as coolant. Sodium becomes liquid at a higher temperature, and at higher temperature heat transfer is more efficient. Liquid sodium also does not need to be pressurised. However, it reacts violently with air and water, so the pumps, pipes, and tanks exposed to liquid sodium need to be perfectly sealed, with stringent leak detection protocols. Water-cooled reactors do not have such operational complexities, nor the additional cost.

India is also not alone in confronting these challenges. Japan's Monju Nuclear Power Plant suffered a sodium leak and fire in 1995, leading to long shutdowns; the plant eventually had to be decommissioned. The Superphénix in France was once the world's largest

breeder reactor but it was shut down as well, due to technical issues and high operating costs, which also fanned political opposition. Russia, however, has continued to maintain a small fleet of fast-breeder reactors.

In other words, operators have shown FBRs to be technically feasible but they are not yet economically feasible; they have also not won broader public acceptance. Aside from the costs of making them, they also demand rigorous oversight – which depends on both engineering excellence and the safety culture.

How has India pursued FBRs?

India is pursuing FBRs because, as discussed earlier, the three-stage nuclear programme prioritises long-term fuel security. Importantly, it is able to do so because India's nuclear sector remains largely driven by the state. Its decision-making structure is relatively insulated from the ruling establishment: the Department of Atomic Energy (DAE) reports directly to the Prime Minister's Office. As a result, as long as there has been political stability, India has been able to sustain nuclear projects across electoral cycles.

On the flip side, this insulation has reduced scrutiny of the nuclear power programme and protected it from the same pressure to deliver that assails other public sector enterprises like the Indian Railways and the National Highways Authority of India. Engineers have taken on projects with limited transparency on timelines and budgets. When one or both have slipped, the accountability has been spread across agencies. The PFBR's

original cost was ₹3,500 crore. It came to ₹6,800 crore in 2019. The DAE also sought multiple deadline extensions. In 2020, it said the PFBR would be commercialised in October 2022. That milestone is still pending.

The economics of FBRs also remain uncertain. In addition to the aforementioned issues, the broader fuel cycle – especially the reprocessing of spent fuel and the fabrication of new fuel assemblies – will require its own infrastructure. And for this the nuclear establishment will have to set up new regulatory processes.

What next for the PFBR?

The PFBR will be operated at a low power level to check its behaviour in different operating conditions. Engineers will collect the data from these tests to inform decisions about raising the reactor's power output and refining safety protocols. Eventually, they will seek approval from the Atomic Energy Regulatory Board to operate the reactor in commercial mode.

This entails running the PFBR at or near its rated capacity to generate electricity for the grid on a sustained basis, with standard operating procedures and clear regulatory oversight. At this point in time, the reactor will also have transitioned from being experimental to a commercial power plant.

In parallel, the DAE will also develop fuel reprocessing facilities and plan for future FBRs. Once these aims are closer to being realised, the government and India will develop a clearer sense of whether the broader vision of a closed fuel cycle can be realised.

THE GIST

PFBR at Kalpakkam achieved criticality, the first step in a sustained chain reaction, but commercial operation remain pending.

Fast breeder reactors use plutonium and depleted uranium to produce more fuel forming a bridge in India's three-stage nuclear programme aimed at long-term fuel security.

Despite being technically feasible, FBRs face high costs, operational complexity, and delays, making their economic viability and wider acceptance uncertain.

09A. Why India wants fast breeder reactors

भारत तेज ब्रीडर रिएक्टर क्यों चाहता है

How does a fast breeder reactor (FBR) work?

एक फास्ट ब्रीडर रिएक्टर (FBR) कैसे काम करता है?

- How is an **FBR** different from a **PHWR**?
FBR एक **PHWR** से कैसे अलग है?
- What is India's **three-stage nuclear programme**?
भारत का **तीन-चरणीय परमाणु कार्यक्रम (three-stage nuclear programme)** क्या है?
- Why are **FBRs** difficult to build and operate?
FBRs को बनाना और संचालित करना कठिन क्यों है?
- How has India pursued **fast breeder reactors**?
भारत ने **फास्ट ब्रीडर रिएक्टर (fast breeder reactors)** को कैसे विकसित किया है?
- What happens after a reactor achieves **criticality**?
जब कोई रिएक्टर **क्रिटिकलिटी (criticality)** प्राप्त कर लेता है तो क्या होता है?



- What next for the PFBR?
PFBR के लिए आगे क्या है?
- In an important milestone, the **prototype fast breeder reactor (PFBR)** at Kalpakkam achieved **criticality on April 6**.
एक महत्वपूर्ण उपलब्धि में, कल्पक्कम (Kalpakkam) स्थित प्रोटोटाइप फास्ट ब्रीडर रिएक्टर (PFBR) ने 6 अप्रैल (April 6) को क्रिटिकलिटी (criticality) प्राप्त की।
- The term **criticality** is familiar in India's **nuclear power programme**.
क्रिटिकलिटी (criticality) शब्द भारत के परमाणु ऊर्जा कार्यक्रम (nuclear power programme) में जाना-पहचाना है।
- It is often mistaken as an **end goal**, but it is actually the **first step**.
इसे अक्सर अंतिम लक्ष्य (end goal) समझ लिया जाता है, जबकि यह वास्तव में पहला चरण (first step) है।

What is criticality? — क्रिटिकलिटी क्या है?

- A reactor becomes **critical** when the **chain reaction sustains itself**.
कोई रिएक्टर तब क्रिटिकल (critical) होता है जब उसकी श्रृंखला प्रतिक्रिया (chain reaction) स्वयं चलती रहती है।
- When a nucleus undergoes **nuclear fission**, it releases **neutrons** that trigger more reactions.
जब नाभिक में न्यूक्लियर फिशन (nuclear fission) होता है, तो यह न्यूट्रॉन (neutrons) छोड़ता है जो और प्रतिक्रियाएँ उत्पन्न करते हैं।
- Engineers control the **fuel composition**, neutron access, and **temperature** to maintain this.
इंजीनियर ईंधन संरचना (fuel composition), न्यूट्रॉन की पहुँच और तापमान (temperature) को नियंत्रित करते हैं।
- Once critical, the reactor reaches a **stable state**.
क्रिटिकल होने के बाद रिएक्टर स्थिर अवस्था (stable state) में पहुँच जाता है।
- However, it is not yet **commercially viable**.
हालांकि यह अभी व्यावसायिक रूप से उपयोगी (commercially viable) नहीं होता।
- After criticality, operators run it at **low power** and check parameters.
क्रिटिकलिटी के बाद इसे कम शक्ति (low power) पर चलाया जाता है और मापदंडों की जांच की जाती है।

How do FBRs work? — FBR कैसे काम करता है?

- Most reactors in India are **pressurised heavy water reactors (PHWRs)**.
भारत में अधिकांश रिएक्टर प्रेशराइज्ड हेवी वाटर रिएक्टर (PHWRs) हैं।
- They use **natural uranium** containing **uranium-235 and uranium-238**.
वे प्राकृतिक यूरेनियम (natural uranium) का उपयोग करते हैं जिसमें यूरेनियम-235 और 238 होते हैं।
- A **moderator** slows neutrons to enable fission of uranium-235.
एक मॉडरेटर (moderator) न्यूट्रॉनों को धीमा करता है ताकि यूरेनियम-235 का विखंडन हो सके।
- This produces **heat, electricity**, some **plutonium**, and neutrons.
इससे ऊष्मा (heat), बिजली (electricity), कुछ प्लूटोनियम (plutonium) और न्यूट्रॉन बनते हैं।
- PHWRs are inefficient as only about **1% fuel** is used.
PHWR कम कुशल हैं क्योंकि केवल 1% ईंधन (fuel) उपयोग होता है।
- An **FBR** uses **plutonium fuel** and achieves around **10% fuel efficiency**.
एक FBR प्लूटोनियम ईंधन (plutonium fuel) का उपयोग करता है और लगभग 10% दक्षता (fuel efficiency) प्राप्त करता है।
- It has a **blanket of depleted uranium** around the core.
इसके कोर के चारों ओर डिप्लीटेड यूरेनियम (depleted uranium) की परत होती है।
- Fast neutrons convert this uranium into **plutonium**.
तेज न्यूट्रॉन इस यूरेनियम को प्लूटोनियम (plutonium) में बदल देते हैं।
- This plutonium is reused as **nuclear fuel**.
यह प्लूटोनियम फिर से परमाणु ईंधन (nuclear fuel) के रूप में उपयोग होता है।
- **What is India's three-stage programme? — भारत का तीन-चरणीय कार्यक्रम क्या है?**



- **Homi Bhabha** conceived India's **nuclear programme**.
होमी भाभा (Homi Bhabha) ने भारत के **परमाणु कार्यक्रम (nuclear programme)** की अवधारणा दी।
- In the **first stage**, PHWRs use uranium to produce **plutonium and electricity**.
पहले चरण में, PHWR **यूरेनियम (uranium)** का उपयोग करके **प्लूटोनियम और बिजली (electricity)** उत्पन्न करते हैं।
- In the **second stage**, FBRs use plutonium and depleted uranium to produce more **plutonium and power**.
दूसरे चरण में, FBR **प्लूटोनियम और डिप्लीटेड यूरेनियम** का उपयोग करके अधिक **प्लूटोनियम और बिजली** बनाते हैं।
- In the **third stage**, reactors will use **plutonium and thorium**.
तीसरे चरण में, रिएक्टर **प्लूटोनियम और थोरियम (thorium)** का उपयोग करेंगे।
- This design is based on India's large **thorium reserves** and limited **uranium**.
यह योजना भारत के बड़े **थोरियम भंडार (thorium reserves)** और सीमित **यूरेनियम (uranium)** पर आधारित है।
- FBRs act as a **bridge** between the first and third stages.
FBR पहले और तीसरे चरण के बीच **सेतु (bridge)** का कार्य करते हैं।
- They help achieve **energy self-sufficiency** in nuclear power.
वे परमाणु ऊर्जा में **आत्मनिर्भरता (energy self-sufficiency)** प्राप्त करने में मदद करते हैं।

Why are FBRs challenging? — FBR क्यों चुनौतीपूर्ण हैं?

- That an **FBR** is easier said than done would be a gross underestimate.
यह कहना कि **FBR** बनाना आसान है, एक बड़ा कम आकलन होगा।
- The Indian government approved the **PFBR** more than two decades ago.
भारतीय सरकार ने **PFBR** को दो दशक पहले मंजूरी दी थी।
- It was designed by the **Indira Gandhi Centre for Atomic Research** and built by the **Bharatiya Nabhikiya Vidyut Nigam Ltd**.
इसे **इंदिरा गांधी परमाणु अनुसंधान केंद्र (IGCAR)** ने डिजाइन किया और **भारतीय नाभिकीय विद्युत निगम लिमिटेड (BHAVINI)** ने बनाया।
- The latter proved to be more challenging than first expected.
इसका निर्माण अपेक्षा से अधिक चुनौतीपूर्ण साबित हुआ।
- Among other features, the PFBR uses **liquid sodium as coolant**.
PFBR में अन्य विशेषताओं के साथ **तरल सोडियम (liquid sodium)** को कूलेंट के रूप में उपयोग किया जाता है।
- Sodium becomes liquid at a higher temperature, improving **heat transfer efficiency**.
सोडियम उच्च तापमान पर तरल बनता है, जिससे **ऊष्मा स्थानांतरण (heat transfer)** अधिक कुशल होता है।
- Liquid sodium also does not need to be **pressurised**.
तरल सोडियम को **दबाव (pressurised)** में रखने की आवश्यकता नहीं होती।
- However, it reacts violently with **air and water**.
लेकिन यह **हवा (air)** और **पानी (water)** के साथ तीव्र प्रतिक्रिया करता है।
- Therefore, pipes, pumps, and tanks must be perfectly **sealed with leak detection systems**.
इसलिए पाइप, पंप और टैंक को पूरी तरह **सील (sealed)** और **लीक डिटेक्शन सिस्टम** के साथ सुरक्षित रखना पड़ता है।
- Water-cooled reactors do not have such **complexities or costs**.
जल-शीतित रिएक्टरों में ऐसी **जटिलताएँ और लागत** नहीं होतीं।
- India is not alone in facing these challenges.
भारत अकेला नहीं है जो इन चुनौतियों का सामना कर रहा है।
- Japan's **Monju reactor** suffered a sodium leak and fire in **1995**.
जापान का **मोजू रिएक्टर (Monju)** 1995 में सोडियम रिसाव और आग का शिकार हुआ।
- France's **Superphénix reactor** was shut down due to technical issues and high costs.
फ्रांस का **सुपरफ़ीनिक्स रिएक्टर (Superphénix)** तकनीकी समस्याओं और उच्च लागत के कारण बंद कर दिया गया।



- Russia has continued operating a small fleet of **fast breeder reactors**.
रूस अभी भी कुछ **फास्ट ब्रीडर रिएक्टर (FBRs)** चला रहा है।
- FBRs are technically feasible but not yet **economically viable**.
FBR तकनीकी रूप से संभव हैं लेकिन अभी **आर्थिक रूप से व्यवहार्य (economically viable)** नहीं हैं।
- They also lack **public acceptance**.
उन्हें अभी तक **जनस्वीकृति (public acceptance)** नहीं मिली है।
- They require strict **engineering excellence and safety culture**.
इनके लिए उच्च स्तर की **इंजीनियरिंग उत्कृष्टता और सुरक्षा संस्कृति (safety culture)** आवश्यक है।

How has India pursued FBRs? — भारत ने FBR को कैसे आगे बढ़ाया?

- India is pursuing FBRs for **long-term fuel security**.
भारत **दीर्घकालिक ईंधन सुरक्षा (long-term fuel security)** के लिए FBR विकसित कर रहा है।
- The nuclear sector is largely **state-driven**.
परमाणु क्षेत्र मुख्यतः **सरकारी नियंत्रण (state-driven)** में है।
- The **Department of Atomic Energy (DAE)** reports directly to the **Prime Minister's Office**.
परमाणु ऊर्जा विभाग (DAE) सीधे **प्रधानमंत्री कार्यालय (PMO)** को रिपोर्ट करता है।
- This has enabled continuity across **electoral cycles**.
इससे चुनावी चक्रों के बावजूद परियोजनाओं में निरंतरता बनी रही है।
- However, this insulation has reduced **accountability and scrutiny**.
लेकिन इससे **जवाबदेही (accountability)** और निगरानी कम हुई है।
- Projects have faced **delays and cost overruns**.
परियोजनाओं में **देरी और लागत वृद्धि (cost overruns)** देखी गई है।
- The PFBR's original cost was **₹3,500 crore**, later rising to **₹6,800 crore**.
PFBR की मूल लागत **₹3,500 करोड़** थी, जो बढ़कर **₹6,800 करोड़** हो गई।
- Multiple **deadline extensions** were sought.
कई बार **समय सीमा (deadline)** बढ़ाई गई।
- The reactor is still awaiting **commercialisation**.
रिएक्टर अभी भी **व्यावसायिक संचालन (commercialisation)** की प्रतीक्षा में है।
- The broader **fuel cycle infrastructure** also needs development.
पूरे **ईंधन चक्र (fuel cycle)** के लिए अतिरिक्त ढांचा बनाना होगा।
- New **regulatory processes** will also be required.
नए **नियामक ढाँचे (regulatory processes)** की भी आवश्यकता होगी।

What next for the PFBR? — PFBR का आगे क्या?

- The PFBR will initially operate at **low power levels**.
PFBR प्रारंभ में **कम शक्ति स्तर (low power)** पर संचालित होगा।
- Engineers will test its behaviour under different **operating conditions**.
इंजीनियर विभिन्न **परिचालन स्थितियों (operating conditions)** में इसका परीक्षण करेंगे।
- Data collected will guide **power increase and safety improvements**.
संग्रहित डेटा **शक्ति बढ़ाने और सुरक्षा सुधार (safety protocols)** में मदद करेगा।
- Approval will be sought from the **Atomic Energy Regulatory Board (AERB)**.
इसके बाद **परमाणु ऊर्जा नियामक बोर्ड (AERB)** से अनुमति ली जाएगी।
- The reactor will then operate at **rated capacity for electricity generation**.
इसके बाद रिएक्टर **पूर्ण क्षमता (rated capacity)** पर बिजली उत्पादन करेगा।
- It will transition from an **experimental setup to a commercial plant**.
यह एक **प्रयोगात्मक रिएक्टर से व्यावसायिक संयंत्र (commercial plant)** में परिवर्तित हो जाएगा।
- Parallely, the **DAE** will develop **fuel reprocessing facilities**.
साथ ही **DAE** **ईंधन पुनर्संसाधन (fuel reprocessing)** सुविधाएँ विकसित करेगा।
- Plans for future **FBRs** will also be made.
भविष्य के **FBRs** के लिए योजनाएँ बनाई जाएँगी।
- Eventually, India will assess the feasibility of a **closed fuel cycle**.
अंततः भारत **क्लोस्ड फ्यूल साइकिल (closed fuel cycle)** की व्यवहार्यता का आकलन करेगा।



Artemis crew witnesses meteorite impacts on Moon

GS III: S&T

Agence France-Presse
WASHINGTON

During their historic lunar flyby, astronauts on NASA's Artemis II mission witnessed meteorites striking the rugged surface of the Moon, a sight that has piqued scientists' curiosity.

"That was definitely impact flashes on the moon. And Jeremy (Hansen) just saw another one," mission commander Reid Wiseman reported on Monday while flying around the Moon – the first such journey by humans in more than half a century.

"Amazed," replied Kelsey Young, the mission's lunar science lead, as she followed the spacecraft from more than 250,000 miles (400,000 kilometers) away on Earth.

Among NASA's team in Houston, there were "audible screams of delight" from scientists when the crew described flashes of light caused by meteorite impact, Ms. Young said.

As the astronauts hurtled towards home, NASA asked them on Tuesday about the meteorite strikes they saw during their nearly seven-hour observation period. "Were they prolonged? And did you notice any color?" Ms. Young asked.

"It's a pinprick of light," replied Mr. Hansen. "I would suspect there were a lot more of them."

"I would say they were a millisecond, like the fastest a camera shutter can open and close," added Mr. Wiseman, who said the flashes were "white to bluish white".

Ground crews are now working to match these observations with data from a satellite orbiting the Moon, said Ms. Young, adding that the majority of the sightings took place during a solar eclipse, when the Moon passed in front of the Sun.

screams of delight" from scientists when the crew described flashes of light caused by meteorite impact, Ms. Young said.

Kelsey Young ने कहा कि **Houston में NASA टीम** के बीच वैज्ञानिकों ने **उल्कापिंड प्रभाव से उत्पन्न प्रकाश चमक** का वर्णन सुनकर "खुशी की आवाजें" व्यक्त कीं।

- As the astronauts hurtled towards home, NASA asked them on Tuesday about the meteorite strikes they saw during their nearly seven-hour observation period.

जब अंतरिक्ष यात्री पृथ्वी की ओर लौट रहे थे, तो **NASA** ने मंगलवार को उनसे उनके लगभग **सात घंटे के अवलोकन** के दौरान देखे गए **उल्कापिंड हमलों** के बारे में पूछा।

- "Were they prolonged? And did you notice any color?" Ms. Young asked.
Kelsey Young ने पूछा, "क्या वे लंबे समय तक थे? और क्या आपने कोई **रंग** देखा?"
- "It's a pinprick of light," replied Mr. Hansen. "I would suspect there were a lot more of them."
Jeremy Hansen ने उत्तर दिया, "यह **रोशनी की एक छोटी सी बिंदु** जैसी थी। मुझे लगता है कि ऐसे और भी कई होंगे।"

- "I would say they were a millisecond, like the fastest a camera shutter can open and close," added Mr. Wiseman, who said the flashes were "white to bluish white".

Reid Wiseman ने कहा, "मैं कहूंगा कि वे **मिलीसेकंड** के लिए थे, जैसे कैमरे का शटर खुलता और बंद होता है," और उन्होंने बताया कि चमक का रंग **"सफेद से नीला-सफेद"** था।

- Ground crews are now working to match these observations with data from a satellite orbiting the Moon, said Ms. Young, adding that the majority of the sightings took place during a solar eclipse, when the Moon passed in front of the Sun.

Kelsey Young ने कहा कि **ग्राउंड क्रू** अब इन अवलोकनों को चंद्रमा की परिक्रमा कर रहे **उपग्रह के डेटा** से मिलाने पर काम कर रहे हैं, और अधिकांश घटनाएं **सूर्य ग्रहण** के दौरान हुईं जब चंद्रमा सूर्य के सामने से गुजरा।

09A. Artemis crew witnesses meteorite impacts on Moon

आर्टेमिस दल ने चंद्रमा पर उल्कापिंडों के प्रभाव देखे

- Artemis crew witnesses meteorite impacts on Moon.
आर्टेमिस दल ने चंद्रमा पर उल्कापिंडों के प्रभाव देखे।

• During their historic lunar flyby, astronauts on NASA's Artemis II mission witnessed meteorites striking the rugged surface of the Moon, a sight that has piqued scientists' curiosity.

अपने ऐतिहासिक **लूनर फ्लायबाय** के दौरान, **NASA के Artemis II मिशन** के अंतरिक्ष यात्रियों ने चंद्रमा की ऊबड़-खाबड़ सतह पर **उल्कापिंडों के टकराने** को देखा, जिसने वैज्ञानिकों की जिज्ञासा बढ़ा दी।

• "That was definitely the impact that flashes on the moon. And Jeremy (Hansen) just saw another one," mission commander Reid Wiseman reported on Monday while flying around the Moon — the first such journey by humans in more than half a century.

मिशन कमांडर **Reid Wiseman** ने सोमवार को चंद्रमा के चारों ओर उड़ान भरते हुए कहा, "यह निश्चित रूप से चंद्रमा पर **टकराव की चमक** थी। और **Jeremy Hansen** ने अभी एक और देखा," — यह आधी सदी से अधिक समय में मनुष्यों की पहली ऐसी यात्रा थी।

• "Amazed," replied Kelsey Young, the mission's lunar science lead, as she followed the spacecraft from more than 250,000 miles (400,000 kilometers) away on Earth.

मिशन की **लूनर साइंस लीड Kelsey Young** ने **"आश्चर्यचकित"** कहते हुए प्रतिक्रिया दी, जब वह पृथ्वी से **250,000 मील (400,000 किमी)** दूर से अंतरिक्ष यान का अनुसरण कर रही थीं।

- Among NASA's team in Houston, there were "audible



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India withdraws bid to host climate summit in 2028

The government cites a review of its 2028 commitments, says report; the country had last hosted the summit in 2002, when it was a low-key affair

GS III: Environment

Jacob Koshy
NEW DELHI

India has withdrawn its bid to host the 33rd edition of the Conference of Parties (COP 33) in 2028 – the annual United Nations climate talks, according to a report by Climate Home News (CHN) on Wednesday.

Prime Minister Narendra Modi had announced India's interest in hosting the COP33 at the COP28 in Dubai in 2023.

The Ministry for Environment, Forests and Climate Change did not comment on the report, but *The Hindu* has independently confirmed its veracity.

According to the CHN report, an April 2 letter by Rajat Agrawal, Joint Secretary in the Environment Ministry, to the United Nations Framework Convention on Climate Change (UNFCCC) stated that India was withdrawing its candidacy following a "review of its commitments for 2028".

In July 2025, the Envi-



The COP30 was held in Brazil and the COP31 is to be jointly hosted by Türkiye and Australia this year. AP

ronment Ministry set up a dedicated cell for the "professional and logistical requirements" for organising the COP33. This followed a joint declaration at the 17th BRICS summit on July 7, where the member countries "welcomed" India's candidacy.

The hosting of the COP rotates among the UN's five regional groups, with India belonging to the Asia Pacific group.

The COP30 was held in Brazil. The edition this year is to be jointly hosted by Türkiye and Australia and the 2027 summit (COP32) is scheduled to be

held in Ethiopia. With India withdrawing, South Korea is the only country that has so far expressed interest in hosting the COP33. India has hosted the summit only once – in 2002 (COP8) – when it was a relatively low-key affair.

On March 25, India announced its updated Nationally Determined Contributions (NDCs), committing by 2035 to source 60% of its installed electricity capacity from non-fossil sources, reduce emissions intensity of GDP by 47%, and increase its carbon sink by 3.5-4 billion tonnes of CO₂ equivalent.

09A. India withdraws bid to host climate summit in 2028 / भारत ने 2028 में जलवायु शिखर सम्मेलन की मेजबानी की बोली वापस ली

- The government cites a review of its 2028 commitments, says report; the country had last hosted the summit in 2002, when it was a low-key affair

सरकार ने 2028 की प्रतिबद्धताओं की समीक्षा का हवाला दिया, रिपोर्ट के अनुसार; देश ने आखिरी बार 2002 में इस शिखर सम्मेलन की मेजबानी की थी, जब यह कम प्रोफाइल वाला आयोजन था

- India has withdrawn its bid to host the 33rd edition of the Conference of Parties (COP 33) in 2028 — the annual United Nations climate talks, according to a report by Climate Home News (CHN) on Wednesday.

भारत ने 2028 में **Conference of Parties (COP 33)** की 33वीं बैठक की मेजबानी की अपनी बोली वापस ले ली है — जो संयुक्त राष्ट्र की वार्षिक जलवायु वार्ता है, बुधवार को Climate Home News (CHN) की रिपोर्ट के अनुसार।

- Prime Minister **Narendra Modi** had announced India's interest in hosting the COP33 at the COP28 in Dubai in 2023. प्रधानमंत्री **नरेंद्र मोदी** ने 2023 में दुबई में COP28 के दौरान COP 33 की मेजबानी में भारत की रुचि की घोषणा की थी।

- The Ministry for Environment, Forests and Climate Change did not comment on the report, but *The Hindu* has independently confirmed its veracity.

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ने इस रिपोर्ट पर टिप्पणी नहीं की, लेकिन *The Hindu* ने स्वतंत्र रूप से इसकी पुष्टि की है।

- According to the CHN report, an April 2 letter by **Rajat Agrawal**, Joint Secretary in the Environment Ministry, to the United Nations Framework Convention on Climate Change (UNFCCC) stated that India was withdrawing its candidacy following a "review of its



commitments for 2028”.

CHN रिपोर्ट के अनुसार, 2 अप्रैल को **रजत अग्रवाल**, पर्यावरण मंत्रालय के संयुक्त सचिव द्वारा **UNFCCC** को लिखे पत्र में कहा गया कि भारत 2028 की अपनी प्रतिबद्धताओं की समीक्षा के बाद अपनी उम्मीदवारी वापस ले रहा है।

- In July 2025, the Environment Ministry set up a dedicated cell for the “professional and logistical requirements” for organising the COP33.
जुलाई 2025 में, पर्यावरण मंत्रालय ने COP33 के आयोजन के “व्यावसायिक और लॉजिस्टिक आवश्यकताओं” के लिए एक विशेष सेल स्थापित किया था।
- This followed a joint declaration at the 17th BRICS summit on July 7, where the member countries “welcomed” India’s candidacy.
यह 7 जुलाई को 17वें **BRICS शिखर सम्मेलन** में संयुक्त घोषणा के बाद हुआ, जहां सदस्य देशों ने भारत की उम्मीदवारी का “स्वागत” किया था।
- The hosting of the COP rotates among the UN’s five regional groups, with India belonging to the Asia Pacific group.
COP की मेजबानी संयुक्त राष्ट्र के पाँच क्षेत्रीय समूहों के बीच घूमती है, जिसमें भारत **एशिया-प्रशांत समूह** का हिस्सा है।
- The COP30 was held in Brazil.
COP30 ब्राज़ील में आयोजित हुआ था।
- The edition this year is to be jointly hosted by Turkey and Australia and the 2027 summit (COP32) is scheduled to be held in Ethiopia.
इस वर्ष का आयोजन **तुर्किये और ऑस्ट्रेलिया** संयुक्त रूप से करेंगे और 2027 का शिखर सम्मेलन (COP 32) **इथियोपिया** में होने वाला है।
- With India withdrawing, South Korea is the only country that has so far expressed interest in hosting the COP33.
भारत के हटने के बाद, **दक्षिण कोरिया** अब तक COP33 की मेजबानी में रुचि दिखाने वाला एकमात्र देश है।
- India has hosted the summit only once — in 2002 (COP8) — when it was a relatively low-key affair.
भारत ने इस शिखर सम्मेलन की मेजबानी केवल एक बार — 2002 (COP8) में — की थी, जब यह अपेक्षाकृत कम महत्व का आयोजन था।
- On March 25, India announced its updated Nationally Determined Contributions (NDCs), committing by 2035 to source 60% of its installed electricity capacity from non-fossil sources, reduce emissions intensity of GDP by 47%, and increase its carbon sink by 3.5-4 billion tonnes of CO2 equivalent
25 मार्च को भारत ने अपने अपडेटेड **Nationally Determined Contributions (NDCs)** की घोषणा की, जिसमें 2035 तक 60% बिजली क्षमता गैर-जीवाश्म स्रोतों से प्राप्त करने, GDP की उत्सर्जन तीव्रता में 47% कमी लाने और 3.5-4 अरब टन CO2 समकक्ष का कार्बन सिंक बढ़ाने का लक्ष्य रखा गया।

Essay	08 April 2026
TOPICS COVERED	
09A	Why loneliness, a recurring theme in literature, is difficult to comprehend साहित्य में बार-बार उभरने वाला अकेलापन समझना क्यों कठिन है



Why loneliness, a recurring theme in literature, is difficult to comprehend

Across memoir, fiction and film, loneliness emerges as one of the most private human experiences, but it is also one of the most universal feelings often overlooked, as these three writers underscore

Essay

Debasree Purkayastha

In an age of constant connection, loneliness has emerged as a defining paradox. Dominating headlines, it is frequently attributed to social media addiction and the perils of urban life.

In its report UN Decade of Healthy Ageing (2021-30), the World Health Organization states, "Social isolation and loneliness are widespread. Around 16% of people worldwide – one in six – experience loneliness." It comes as little surprise, then, that what is often described as a "loneliness epidemic" continues to dominate discussions about mental health on social media and news platforms.

Loneliness has also been a recurring theme in art – take, for instance, the heartwarming film *Files*, screened at the Berlin International Film Festival 2026. Literature is no exception.

Running deep

The philosophical and personal narrative by British author Olivia Laing in *The Lonely City: Adventures in the Art of Being Alone* draws from the time she lived in New York. She writes, "Loneliness is difficult to confess; difficult too to categorise. Like depression, a state with which it often intersects, it can run deep in the fabric of a person." We immediately

get a sense of what to expect – an analysis of where loneliness stems from and its consequences, which linger in one's mental health and very existence.

The book looks at works of art that draw inspiration from loneliness. It explores the lives and works of Edward Hopper, including *Nighthawks*; Andy Warhol, the artist-activist of AIDS-ravaged 1980s New York; and Henry Darger. At one point, Laing reflects on Warhol's sentimental attachment to his subjects, writing: "He was painting things to which he was sentimentally attached, even loved; objects whose value derives not because they're rare or individual but because they are reliably the same."

Through these artists, the author delves into the causes of loneliness and the shame that often accompanies it. Laing accurately describes the feeling of being lonely – words that ring true and stay with the reader long after the book is finished: "What does it feel like to be lonely? It feels like being hungry: like being hungry when everyone around you is readying for a feast. It feels shameful and alarming and over time these feelings radiate outwards, making the lonely person increasingly isolated, increasingly estranged."

Layers of loneliness

Kiran Desai's *The Loneliness of Sonia and Sunny* explores the many layers of

loneliness through fictional characters. The Booker-shortlisted novel traces the journeys of two individuals, Sonia and Sunny, negotiating distance, displacement, and belonging. Yet, this is not an entirely bleak story. Desai, who won the Man Booker Prize for *The Inheritance of Loss*, weaves in moments of hope as her character Sonia embarks on a path of self-reflection and discovery.

The book opens with a phone call: Sonia's father informs his parents in Allahabad that Sonia, a college student in Vermont in the U.S., is depressed and lonely. Her grandparents struggled to comprehend how someone young and living abroad could possibly feel that way. It is a reaction many encounter in real life – a confusion that often arises in conversations about loneliness, a feeling that is difficult to articulate.

In a conversation with the author during *The Hindu Lit for Life*, Desai spoke about how her understanding of loneliness evolved as she explored it alongside solitude while writing the book. "It is probably essential to artistic life," she said.

Silent and isolating

While some narratives trace loneliness with philosophical distance, others plunge into its most unsettling depths, as Gail Honeyman does in *Eleanor Oliphant Is Completely Fine*.

Loneliness is not always contemplative – sometimes it is isolating, corrosive, and dangerously silent. The novel begins on a bleak note. Eleanor Oliphant, a socially awkward and isolated woman living in Glasgow and working a routine office job, insists she is "completely fine."

Yet beneath the rigid routines and solitary weekends lies a deep, unaddressed loneliness. Over time, she slowly finds her footing. As the author reminds us, "It is never too late, for any of us." It is a poignant and joyful message.

The book compels us to reflect on ourselves. Have we, as a society, been conditioned to ignore the neighbour who has just moved in, or the awkward colleague who has relocated from another State and knows no one? Do we pause long enough to invite someone for a coffee or a movie? It is a stark reality check – a mirror to a world where we cling to our close circles, hesitant to pull up an extra chair at the table.

Across memoir, fiction, and film, loneliness emerges as one of the most private human experiences, but it is also one of the most universal. As Olivia Laing writes, it is "difficult to confess." And yet, in speaking about it, in art, in literature, in conversation, we begin to loosen its grip.

If stories teach us anything, loneliness thrives in silence but softens in recognition.

09A. Why loneliness, a recurring theme in literature, is difficult to comprehend साहित्य में बार-बार उभरने वाला अकेलापन समझना क्यों कठिन है

- Across memoir, fiction and film, loneliness emerges as one of the most private human experiences, but it is also one of the most universal feelings.

संस्मरण (memoir), कथा (fiction) और फिल्म (film) में अकेलापन सबसे निजी मानवीय अनुभव (private human experiences) के रूप में उभरता है, लेकिन यह सबसे सार्वभौमिक भावना (universal feelings) भी है।

- In an age of constant connection, loneliness has emerged as a defining paradox.

लगातार जुड़ाव (constant connection) के इस युग में अकेलापन एक मुख्य विरोधाभास (defining paradox) बनकर उभरा है।

- It is often linked to social media addiction and urban life.

इसे अक्सर सोशल मीडिया की लत (social media addiction) और शहरी जीवन (urban life) से जोड़ा जाता है।

- The World Health Organization (WHO) states that about 16% of people worldwide experience loneliness.

विश्व स्वास्थ्य संगठन (WHO) के अनुसार दुनिया में लगभग 16% लोग (one in six) अकेलेपन का अनुभव करते हैं।

- This has led to the idea of a "loneliness epidemic" dominating mental health discussions. इससे "अकेलेपन की महामारी (loneliness epidemic)" की धारणा मानसिक स्वास्थ्य चर्चाओं में प्रमुख हो गई है।

- Loneliness is also a recurring theme in art and literature.

अकेलापन कला और साहित्य (art and literature) में भी एक बार-बार आने वाला विषय है।





Running deep — गहराई तक व्याप्त

- British author **Olivia Laing** explores loneliness in **The Lonely City**.
ब्रिटिश लेखिका **ओलिविया लैंग (Olivia Laing)** ने अपनी पुस्तक **The Lonely City** में अकेलेपन को समझाया है।
- She describes loneliness as **difficult to confess and categorise**.
वह अकेलेपन को **स्वीकार करना और वर्गीकृत करना कठिन (difficult to confess and categorise)** बताती हैं।
- It often intersects with **depression** and runs deep in a person's life.
यह अक्सर **अवसाद (depression)** से जुड़ा होता है और व्यक्ति के जीवन में गहराई तक समाया रहता है।
- The book draws from **New York experiences** and explores loneliness through **art**.
यह पुस्तक **न्यूयॉर्क (New York)** के अनुभवों पर आधारित है और **कला (art)** के माध्यम से अकेलेपन को समझाती है।
- It discusses artists like **Edward Hopper, Andy Warhol, and Henry Darger**.
इसमें **एडवर्ड हॉपर (Edward Hopper), एंडी वॉरहोल (Andy Warhol)** और **हेनरी डार्जर (Henry Darger)** जैसे कलाकारों का उल्लेख है।
- Loneliness is described as feeling like **hunger when others are feasting**.
अकेलेपन को ऐसे बताया गया है जैसे **जब सब लोग भोजन कर रहे हों और व्यक्ति भूखा हो (hunger analogy)**।
- It creates **shame, isolation, and estrangement** over time.
समय के साथ यह **शर्म (shame), अलगाव (isolation)** और **विच्छेदन (estrangement)** पैदा करता है।

Layers of loneliness — अकेलेपन की परतें

- Kiran Desai's** novel **The Loneliness of Sonia and Sunny** explores different layers of loneliness.
किरण देसाई (Kiran Desai) का उपन्यास **The Loneliness of Sonia and Sunny** अकेलेपन की विभिन्न परतों को दर्शाता है।
- It focuses on themes of **distance, displacement, and belonging**.
यह **दूरी (distance), विस्थापन (displacement)** और **अपनापन (belonging)** जैसे विषयों पर केंद्रित है।
- The story follows **Sonia and Sunny** navigating emotional struggles.
कहानी **सोनिया और सनी (Sonia and Sunny)** के भावनात्मक संघर्षों को दर्शाती है।
- Sonia is shown as a student in the **U.S. (Vermont)** struggling with loneliness.
सोनिया को **अमेरिका (Vermont)** में पढ़ने वाली छात्रा के रूप में दिखाया गया है जो अकेलेपन से जूझ रही है।
- Her grandparents in **Allahabad** fail to understand her loneliness.
इलाहाबाद (Allahabad) में उसके दादा-दादी उसके अकेलेपन को समझ नहीं पाते।
- This reflects a common societal confusion about loneliness.
यह समाज में अकेलेपन को लेकर आम **भ्रम (confusion)** को दर्शाता है।
- Desai highlights that loneliness is **difficult to articulate**.
देसाई बताती हैं कि अकेलेपन को **शब्दों में व्यक्त करना कठिन (difficult to articulate)** होता है।
- She also links loneliness with **solitude and artistic life**.
वह अकेलेपन को **एकांत (solitude)** और **रचनात्मक जीवन (artistic life)** से भी जोड़ती हैं।

Silent and isolating — मौन और अलगावकारी

- While some narratives trace **loneliness** with philosophical distance, others plunge into its most unsettling depths, as **Gail Honeyman** does in **Eleanor Oliphant Is Completely Fine**.
जहाँ कुछ कथाएँ **अकेलेपन (loneliness)** को दार्शनिक दूरी से देखती हैं, वहीं अन्य इसे गहराई से समझाती हैं, जैसे **गेल हनीमैन (Gail Honeyman)** ने **Eleanor Oliphant Is Completely Fine** में किया है।
- Loneliness is not always **contemplative** — sometimes it is **isolating, corrosive, and dangerously silent**.
अकेलापन हमेशा **चिंतनशील (contemplative)** नहीं होता — कभी-कभी यह **अलगावकारी (isolating), क्षयकारी (corrosive)** और **खतरनाक रूप से मौन (dangerously silent)** होता है।



- The novel begins on a **bleak note**.
उपन्यास एक **उदास शुरुआत (bleak note)** के साथ शुरू होता है।
- **Eleanor Oliphant**, a socially awkward and isolated woman living in **Glasgow**, insists she is “**completely fine**.”
एलेनोर ओलिफैंट (Eleanor Oliphant), जो **ग्लासगो (Glasgow)** में रहने वाली एक सामाजिक रूप से असहज और अकेली महिला है, दावा करती है कि वह “**completely fine**” है।
- She works a routine **office job** and lives a structured life.
वह एक नियमित **ऑफिस नौकरी (office job)** करती है और व्यवस्थित जीवन जीती है।
- Yet beneath her routines lies a deep **unaddressed loneliness**.
लेकिन उसकी दिनचर्या के पीछे एक गहरा **अनदेखा अकेलापन (unaddressed loneliness)** छिपा है।
- Over time, she slowly finds her **footing**.
समय के साथ, वह धीरे-धीरे अपनी **स्थिति (footing)** संभालती है।
- The author reminds us, “**It is never too late, for any of us.**”
लेखक हमें याद दिलाते हैं, “**कभी भी देर नहीं होती (It is never too late)!**”
- It is a **poignant and joyful message**.
यह एक **भावनात्मक और आशावादी संदेश (poignant and joyful message)** है।
- The book compels us to **reflect on ourselves**.
यह पुस्तक हमें **स्वयं पर विचार करने (reflect on ourselves)** के लिए प्रेरित करती है।
- Have we ignored the **neighbour** or the **awkward colleague** who feels alone?
क्या हमने उस **पड़ोसी (neighbour)** या **असहज सहकर्मी (awkward colleague)** को नजरअंदाज किया है जो अकेला महसूस करता है?
- Do we take time to invite someone for a **coffee or a movie**?
क्या हम किसी को **काफ़ी या फिल्म (coffee or movie)** के लिए आमंत्रित करने का समय निकालते हैं?
- It shows a world where people stick to their **close circles**.
यह एक ऐसी दुनिया दिखाता है जहाँ लोग अपने **छोटे सामाजिक दायरे (close circles)** तक सीमित रहते हैं।
- They hesitate to include others by pulling an **extra chair at the table**.
वे दूसरों को शामिल करने में हिचकिचाते हैं, जैसे कि एक **अतिरिक्त कुर्सी (extra chair)** लगाने में।
- Across **memoir, fiction, and film**, loneliness remains both **private and universal**.
संस्मरण, कथा और फिल्म (memoir, fiction, film) में अकेलापन एक साथ **निजी (private)** और **सार्वभौमिक (universal)** अनुभव है।
- As **Olivia Laing** writes, it is “**difficult to confess**.”
जैसा कि **ओलिविया लैंग (Olivia Laing)** लिखती हैं, यह “**स्वीकार करना कठिन (difficult to confess)**” है।
- But speaking about it through **art and literature** helps reduce its hold.
लेकिन **कला और साहित्य (art and literature)** के माध्यम से इसके बारे में बात करना इसके प्रभाव को कम करता है।
- Loneliness thrives in **silence** but softens with **recognition**.
अकेलापन **मौन (silence)** में बढ़ता है लेकिन **पहचान (recognition)** से कम हो जाता है।