



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



PATRIOTIC IAS

DAILY CURRENT AFFAIRS

THE HINDU NEWSPAPER

21 MAY 2026

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

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

PCS Special:		21 May
21M	Taiwan Travelogue wins International Booker 'ताइवान ट्रैवलॉग' ने इंटरनेशनल बुकर पुरस्कार जीता	
21M	Arsenal — how the title was won आर्सेनल — खिताब कैसे जीता गया	



Taiwan Travelogue wins International Booker

PCS
Radhika Santhanam

A story about Taiwanese food and love between two women won the International Booker Prize 2026 on Tuesday.

Taiwanese writer Yang Shuang-zi's *Taiwan Travelogue*, translated from the Mandarin Chinese by Lin King, is experimental in form. It contains a scholarly foreword, afterwords, fictional footnotes and real translator's notes.

The novel begins in 1938. Aoyama Chizuko, a Japanese novelist from Nagasaki, arrives in Taiwan, a Japanese colony, on a government-sponsored tour. Disinterested in the official



Writer Yang Shuang-zi and translator Lin King pose with the trophies during the award ceremony in London on Tuesday. GETTY IMAGES

events or the imperialist agenda, she instead decides to explore Taiwan through its food, guided by her voracious appetite. She befriends a charming and reserved Taiwanese wo-

man, Chizuru, who serves as both her interpreter and an exceptional cook.

Chizuko becomes deeply fond of her companion, even urging her to break off her engagement, but

Chizuru maintains a distance. Whether she returns Chizuko's feelings is the question that propels the novel forward. Their relationship – shaped by their different class backgrounds, with one woman from the empire and the other from the colony – reflects the complex dynamics of power.

The prize was announced by Natasha Brown, chair of the 2026 judges, at a ceremony at London's Tate Modern on May 19. In announcing it, the committee said, "*Taiwan Travelogue* pulls off an incredible double feat: it succeeds as both a romance and an incisive

postcolonial novel. As judges, we've enjoyed rich discussions about the many layers of this book. It's a captivating, slyly sophisticated novel."

The novel is Yang Shuang-zi's first to be translated into English and the first translation from the Mandarin Chinese to win the International Booker Prize. This is also the second year in a row that the independent press, And Other Stories, has taken home the prize, following *Heart Lamp* last year.

Yang and King will split the £50,000 prize, which recognises the best fiction translated into English, equally between them.

21M.Taiwan Travelogue wins International Booker

'ताइवान ट्रैवलॉग' ने इंटरनेशनल बुकर पुरस्कार जीता

- A story about **Taiwanese food** and love between two women won the **International Booker Prize 2026** on Tuesday.

ताइवानी भोजन और दो महिलाओं के बीच प्रेम पर आधारित एक कहानी ने मंगलवार को इंटरनेशनल बुकर पुरस्कार 2026 जीता।

- **Taiwanese writer Yang Shuang-zi's Taiwan Travelogue**, translated from the **Mandarin Chinese by Lin King**, is experimental in form.

ताइवानी लेखिका यांग शुआंग-ज़ी की कृति Taiwan Travelogue, जिसका **मैंडरिन चीनी** से अनुवाद **लिन किंग** ने किया है, अपनी संरचना में प्रयोगात्मक है।

- It contains a scholarly foreword, afterwords, fictional footnotes and real translator's notes. इसमें विद्वत्तापूर्ण भूमिका, उपसंहार, काल्पनिक फुटनोट्स और वास्तविक अनुवादक टिप्पणियाँ शामिल हैं।
- The **novel begins in 1938**. यह उपन्यास 1938 से प्रारंभ होता है।

- Disinterested in the official events or the imperialist agenda, she instead decides to **explore Taiwan through its food, guided by her voracious appetite**.

आधिकारिक कार्यक्रमों और साम्राज्यवादी एजेंडे में रुचि न रखते हुए, वह अपनी तीव्र भूख के मार्गदर्शन में भोजन के माध्यम से ताइवान को जानने का निर्णय लेती है।

- She befriends a **charming and reserved Taiwanese woman, Chizuru**, who serves as both her interpreter and an exceptional cook.

वह एक आकर्षक और संकोची ताइवानी महिला **चिज़ुरु** से मित्रता करती है, जो उसकी दुभाषिया और उत्कृष्ट रसोइया दोनों की भूमिका निभाती है।

- **Chizuko becomes deeply fond of her companion, even urging her to break off her engagement, but Chizuru maintains a distance**.

चिज़ुको अपनी साथी से गहराई से स्नेह करने लगती है और उसे अपनी सगाई तोड़ने तक के लिए कहती है, लेकिन चिज़ुरु दूरी बनाए रखती है।



- The prize was announced by **Natasha Brown**, chair of the **2026 judges**, at a ceremony at London's **Tate Modern** on **May 19**.
इस पुरस्कार की घोषणा **2026 निर्णायक मंडल** की अध्यक्ष **नताशा ब्राउन** ने **19 मई** को लंदन के **टेट मॉडर्न** में आयोजित समारोह में की।
- The novel is **Yáng Shuāng-zǐ's** first to be translated into English and the first translation from the **Mandarin Chinese** to win the **International Booker Prize**.
यह **यांग शुआंग-ज़ी** की पहली रचना है जिसका अंग्रेज़ी में अनुवाद हुआ है और यह **मैंडरिन चीनी** से अनूदित पहली कृति है जिसने **इंटरनेशनल बुकर पुरस्कार** जीता है।
- This is also the second year in a row that the independent press, **And Other Stories**, has taken home the prize, following **Heart Lamp** last year.
यह लगातार दूसरा वर्ष है जब स्वतंत्र प्रकाशन संस्था **And Other Stories** ने यह पुरस्कार जीता है, पिछले वर्ष **Heart Lamp** के बाद।
- Yáng and King** will split the **£50,000** prize, which recognises the best fiction translated into English, equally between them.
यांग और किंग इस **£50,000** के पुरस्कार को समान रूप से साझा करेंगे, जो अंग्रेज़ी में अनूदित सर्वश्रेष्ठ कथा साहित्य को सम्मानित करता है।

Arsenal – how the title was won

Pickpockets, set-pieces and keeping the faith – inside the Gunners' journey to the pinnacle of English football

The Magnificent Men

The numbers behind Gunners' title march:

- 1 Arteta is the first manager to clinch the Premier League (PL) title with a club he had represented as a player
- 2 At 44y and 54d, Arteta is the second youngest manager to go the distance in the PL after Mourinho (42y 94d and 43y 93d), who did it twice with Chelsea
- 4 Arsenal has four PL trophies in its kitty, the first three coming under Wenger
- 16 At 16y and 144d (on the final day of the season), Dowman will become the youngest medal winner in the league's history

- 6 Arteta has led the Gunners to a top-division crown in his sixth full season in charge
- 8 Arsenal has now won the league in eight different decades
- 14 The 2025-26 PL victory was the London club's 14th top-flight title
- 19 Clean sheets Arsenal has kept so far this PL season, the best in the competition

Joyous: Arsenal supporters descend at the Emirates to celebrate a first Premier League title in more than two decades. AP

PREMIER LEAGUE

ASFC LONDON

Manchester City's 1-1 draw at Bournemouth on Tuesday assured Arsenal a first Premier League title since Arsene Wenger's "Invincibles" in 2004. But the road to success was anything but smooth. Back in 2021, Arsenal's hierarchy had a big decision to make. It was August 28, and the team had just lost 5-0 at Man City to

slump to the bottom of the Premier League standings with a third straight loss to open the season – something that hadn't happened since 1954. Mesut Ozil, who had just left Arsenal after being frozen out by Arteta, sarcastically posted "Trust the process" on social media, in a cutting reference to the methods of his former coach. The board, headed by American owner Stan Kroenke, stuck with Arteta, though. In the early years of his tenure, Arteta placed his

trust in younger players to revive Arsenal's fortunes. Bukayo Saka and Emile Smith Rowe were among the academy players promoted to the first team. An 18-year-old Gabriel Martinelli arrived from Brazil in 2019. Another 18-year-old, William Saliba, joined the same year from France and was initially loaned out. Over the next couple of years, players under the age of 23 – such as Ben White and Martin Odegaard – were signed. Arteta honed these youngsters into top-class

Premier League players but it was clear that to make the final step, the club needed to buy slightly older, elite-level players like Declan Rice, Viktor Gyokeres and Eberechi Eze. They didn't come cheap. Finishing as runner-up in the Premier League for the past three years saw Arsenal's players and Arteta derided as "nearly men," even chokers. But Arteta kept believing in his squad – and kept coming up with unorthodox, ridicule-inviting

methods to inspire his players. A professional pickpocket was reportedly hired for a preseason dinner and took items from players, highlighting the need for them to be alert at all times. Arteta brought a lightbulb into the locker room ahead of one game, linking that to his demand for the team to shine and light up Emirates Stadium. Just a few weeks ago, TikTok videos featuring fan chants were played on big screens during practice sessions. For a couple of seasons,

Arteta's Arsenal has been the emblem of a more back-to-basics approach in English football – set-pieces, long throw-ins and long balls from the back. It's a world Arsenal has mastered, with Gabriel Magalhaes a menace at corners, Rice key with his pinpoint throws and dead-ball deliveries, and Gyokeres a more robust, hold-up striker. Rice and goalkeeper David Raya have stood out for Arsenal this season, putting them among the favorites for English soccer's Player of the Year award.



21M. Arsenal — how the title was won आर्सेनल — खिताब कैसे जीता गया

- Manchester City's 1-1 draw at Bournemouth on Tuesday assured Arsenal a first Premier League title since Arsene Wenger's "Invincibles" in 2004.
मंगलवार को मैनचेस्टर सिटी का बॉर्नमाउथ के खिलाफ 1-1 से ड्रॉ होना आर्सेनल के लिए 2004 में आर्सेन वेंगर की "इनविंसिबल्स" टीम के बाद पहला प्रीमियर लीग खिताब सुनिश्चित कर गया।

GS Paper 1: History		21 May 2026
TOPICS COVERED		
21M	Modi, Shah are traitors who are attacking Constitution, says Rahul मोदी, शाह संविधान पर हमला करने वाले गद्दार हैं, राहुल ने कहा	

Modi, Shah are traitors who are attacking Constitution, says Rahul

GS I: History

Mayank Kumar
LUCKNOW

Leader of the Opposition in the Lok Sabha Rahul Gandhi on Wednesday hit out at Prime Minister Narendra Modi, Union Home Minister Amit Shah and the Rashtriya Swayamsevak Sangh (RSS), describing them as "traitors". Mr. Gandhi alleged that they were attacking the Constitution, snatching reservation of the marginalised sections and working to support some industrialists.

"I will never apologise and I will say it again: Narendra Modi-Amit Shah are traitors because they have attacked the Constitution. Listen carefully... I am not afraid of RSS people," Mr. Gandhi said at the Bahujan Swabhiman Sammelen in Rae Bareilly.

Mr. Gandhi reiterated that a massive economic crisis was around the corner. "The times ahead are



Leader of the Opposition in the Lok Sabha Rahul Gandhi and Uttar Pradesh Congress chief Ajay Rai at a meeting in Rae Bareilly. PTI

going to be very difficult. Inflation will be at a level the country has never seen before. Prices of everything will rise, farmers will be distressed because there will be a shortage of fertilizers. Oil and gas supplies will be disrupted. But this economic storm will not affect Adani-Ambani and Narendra Modi, because they will remain sitting in their palaces. If anyone will be hit by this economic storm, it will be

the common people of the country," he said.

He also hit out at the Prime Minister over a visit to Italy. "Modi gave a speech in India and said the global situation is vulnerable. He then flew to Italy in his expensive plane, carrying a Melody candy in his pocket for Meloni [Italian Prime Minister]," said the Congress leader.

At the Sammelen, Mr. Gandhi unveiled a statue of

Veera Pasi, who had fought the British during the Revolt of 1857, in Rae Bareilly, hinting at a renewed outreach towards the Pasi community.

Mr. Gandhi also addressed a workers' conference in Amethi, attacking the BJP government on issues such as inflation and rising unemployment. He accused the BJP of taking the lands of marginal farmers and handing it over to industrialists.

"The government used to run the MGNREGA scheme, which provided employment to millions of people. The Modi government changed this scheme," he said.

"The government failed on every front and took the country downward. Every soldier of the Congress will continue to fight with full force from the streets to Parliament to protect the rights of the people and the Constitution," said Mr. Gandhi.

21M. Modi, Shah are traitors who are attacking Constitution, says Rahul मोदी, शाह संविधान पर हमला करने वाले गद्दार हैं, राहुल ने कहा

- At the Sammelen, Mr. Gandhi unveiled a statue of Veera Pasi, who had fought the British during the Revolt of 1857, in Rae Bareilly, hinting at a renewed outreach towards the Pasi community.
सम्मेलन में श्री गांधी ने 1857 के विद्रोह के दौरान अंग्रेजों से लड़ने वाले वीरा पासी की प्रतिमा का अनावरण किया, जिससे पासी समुदाय की ओर नए राजनीतिक संपर्क का संकेत मिला।



GS Paper 1: Society		21 May 2026
TOPICS COVERED		
21M	Preparing India for a credible digital Census विश्वसनीय डिजिटल जनगणना के लिए भारत को तैयार करना	

Preparing India for a credible digital Census

GS I: Society

The house listing phase of the 2027 Census is now progressing in some States and the work in other States will be taken up soon. The questionnaire for this phase was pre-tested last year. It was reported that the inclusion of questions on caste has delayed the pre-testing of the questionnaire for the population enumeration phase of the Census. Field testing of the schedules is essential to ensure that the concepts and definitions are easily understood by the enumerators and respondents.

The question on caste is being included in the Census for the first time since Independence. The only recent experiences on the issues relating to enumeration of caste are from the surveys in Bihar and Karnataka. I am sure that the Census organisation would have conducted extensive research on the issues and possible solutions, and the pre-testing would help streamline the questions and instructions. The experience of Karnataka and Bihar suggests that, whatever the results, there will be communities that are not ready to accept their numbers.

The population figures from the 2027 Census will be used for the next delimitation of Lok Sabha and State Legislative Assembly constituencies. Neither the Constitution nor any other law talks about whether the Census has to count people on *de jure* or *de facto* basis. Census on *de jure* basis would mean that people have to be counted at the place where they reside. On the other hand, a *de facto* census would count people at the place where they are present during the Census.

The method used

The Indian Census has been following an extended *de facto* method. People found at their usual/normal place of residence when the enumerator visits the household, as well as members who are absent at that time but have stayed there for at least one night during the Census enumeration period, which normally lasts 20 days, are also enumerated. Also included are visitors who stayed with the household throughout the entire period of Census enumeration period. A household is defined to include all members, even if unrelated, who partake food from a common kitchen. Thus, household help living with household and paying guests should be enumerated there, if they have food from the same kitchen.

This enumeration process implies that the number of voters in an area may not correspond to the population enumerated there. A six-month residence is required for registration as a voter. Further, the voters' list would include those living abroad (non-resident Indians, or NRIs) who chose to register as a voter, whereas they are not part of the census at all. According to the website of the Ministry of External Affairs, there are about 1.58



K. Narayanan Unni

Retired officer from the Indian Statistical Service

crore NRIs living abroad. This is more than 1% of the population of the country. If they were all counted in the Census in one State, it would get at least five Lok Sabha seats in the next delimitation.

While the NRIs may be from across the country, some States have proportionately more NRIs than others. Kerala, Gujarat, Punjab, Telangana and Tamil Nadu are known to have a significant number of people living abroad. The Kerala Migration Survey 2023 has estimated that about 22 lakh people from the State are living/working abroad. Not including them in the population of the State would result in the loss of one Lok Sabha seat. Some other States may also be similarly affected.

Some countries collect data on non-residents in the census by enumerating family members, if any, living abroad. This process cannot collect information on those households that have migrated abroad with all their members. Still, it would be a useful starting point and would provide better data for delimitation purposes. Therefore, I suggest pre-testing an appropriately worded question on NRIs.

The problem areas

The next Census is unique because the entire data collection process is planned to be carried out using mobile electronic devices, mostly smartphones. This can save time for the computerisation of data. Consistency checks on responses during data collection can result in improved quality of data and faster processing.

However, one has to allow for a significantly large portion of enumerators who are not savvy with smartphones, and tablets. During the recent Socio Economic and Caste Survey in Karnataka, there were reports of enumerators finding it difficult to handle the equipment for the survey. During the planning for the 2021 Census, it was indicated that enumerators would have the option to collect data using printed paper schedules, which could later be transferred to the electronic database from home. It is highly probable that a family member or a student of the teacher appointed as the enumerator may assist with this work. This could lead to accountability issues and may also compromise the confidentiality of the data. Therefore, a mechanism to detect and control data-entry errors is essential. There will also be an option for respondents to self-enumerate using a computer or smartphone as provided in the house listing phase.

The questions in the population enumeration stage are more complex when compared to those in the house-listing phase. Many of the questions require a thorough understanding of the instructions that even many enumerators find difficult. For example, the explanation of disability in the 2011 Census ran to about six printed pages. Even the seemingly simple

question, "Have you worked at any time during the last year?" was accompanied by more than two pages explaining what constitutes 'work'. The follow-up questions on industry, occupation, and related matters are also not easy for most people to understand.

It is too naive to expect that the respondents would read all the instructions before clicking on an item in the drop down menu. The three million plus enumerators may not equally understand the concepts, definitions and the need to ask the questions in an appropriate manner. The self enumeration facility can become worse unless the questions are well worded and explanations are given within the question. It is difficult to achieve this without significant simplification of the concepts and definitions.

Guard against respondent fatigue

Including too many questions in the online schedule in an attempt to obtain better responses can also lead to respondent fatigue, as the form has to be completed for every individual in a household. The possibility of respondents deliberately providing incorrect answers to certain questions in order to avoid follow-up questions cannot be ruled out.

Post-enumeration surveys from past censuses have indicated that distant relatives of the head of the household and unrelated persons, such as domestic helpers living with the household, have higher rates of omission. In a self-enumeration system, the chances of missing such persons are even greater. There is also the possibility of including children who are living in hostels and are therefore not eligible to be enumerated as part of the household. Better structuring of the questions may help ensure more accurate enumeration of such persons. For example, questions such as, "Is the person currently present in the house and, if not, was he or she present at any time after February 9 or likely to return before February 28?" (assuming that the census enumeration takes place during that period as in the past censuses), could be asked for every individual. Similarly, questions such as "Is there any other relative of the head of the household, or any unrelated person such as a servant, helper, or nurse, who shares meals from the same kitchen and lives with the household?" may also be included. While such measures may not ensure completely error-free enumeration, they could help reduce omissions and improve accuracy.

The possibility of fraudulent enumerations in some areas or by some groups using the self enumeration facility cannot be ruled out. The memory of cancelling the Census in some areas in 2001 is still fresh. The organisation needs to be vigilant and steps to prevent such incidents need to be field tested.

It requires accuracy, safeguards, training and careful planning

21M. Preparing India for a credible digital Census

विश्वसनीय डिजिटल जनगणना के लिए भारत को तैयार करना

- The question on caste is being included in the Census for the first time since Independence. स्वतंत्रता के बाद पहली बार जनगणना में जाति संबंधी प्रश्न को शामिल किया जा रहा है।
- The only recent experiences on the issues relating to enumeration of caste are from the surveys in Bihar and Karnataka. जाति गणना से संबंधित मुद्दों पर हाल के एकमात्र अनुभव बिहार और कर्नाटक के सर्वेक्षणों से प्राप्त हुए हैं।
- I am sure that the Census organisation would have conducted extensive research on the issues and possible solutions, and the pre-testing would help streamline the questions and



instructions.

मुझे विश्वास है कि जनगणना संगठन ने इन मुद्दों और संभावित समाधानों पर व्यापक शोध किया होगा, तथा पूर्व-परीक्षण प्रश्नों और निर्देशों को सुव्यवस्थित करने में सहायक होगा।

- The experience of Karnataka and Bihar suggests that, whatever the results, there will be communities that are not ready to accept their numbers.

कर्नाटक और बिहार का अनुभव यह संकेत देता है कि परिणाम चाहे जो भी हों, कुछ समुदाय ऐसे होंगे जो अपनी संख्या को स्वीकार करने के लिए तैयार नहीं होंगे।

- The population figures from the 2027 Census will be used for the next delimitation of Lok Sabha and State Legislative Assembly constituencies.

2027 की जनगणना से प्राप्त जनसंख्या के आंकड़ों का उपयोग लोकसभा तथा राज्य विधान सभा निर्वाचन क्षेत्रों के अगले परिसीमन के लिए किया जाएगा।

- Neither the Constitution nor any other law talks about whether the Census has to count people on de jure or de facto basis.

न तो संविधान और न ही कोई अन्य कानून यह स्पष्ट करता है कि जनगणना लोगों की गणना डे ज्यूर अथवा डे फैक्टो आधार पर करेगी।

- Census on de jure basis would mean that people have to be counted at the place where they reside.

डे ज्यूर आधार पर जनगणना का अर्थ होगा कि लोगों की गणना उस स्थान पर की जाए जहाँ वे निवास करते हैं।

- On the other hand, a de facto census would count people at the place where they are present during the Census.

दूसरी ओर, डे फैक्टो जनगणना में लोगों की गणना उस स्थान पर की जाएगी जहाँ वे जनगणना के समय उपस्थित होंगे।

The method used

प्रयुक्त पद्धति

- The Indian Census has been following an extended de facto method.

भारतीय जनगणना विस्तारित डे फैक्टो पद्धति का अनुसरण करती रही है।

- People found at their usual/normal place of residence when the enumerator visits the household, as well as members who are absent at that time but have stayed there for at least one night during the Census enumeration period, which normally lasts 20 days, are also enumerated.

जब गणनाकर्ता किसी परिवार के पास पहुँचता है, तब वहाँ अपने सामान्य निवास स्थान पर पाए गए व्यक्तियों के साथ-साथ वे सदस्य भी गणना में शामिल किए जाते हैं, जो उस समय अनुपस्थित हों, किन्तु जनगणना गणना अवधि, जो सामान्यतः 20 दिनों की होती है, के दौरान वहाँ कम-से-कम एक रात्रि रुके हों।

- Also included are visitors who stayed with the household throughout the entire period of Census enumeration period.

उन आगंतुकों को भी शामिल किया जाता है, जो पूरी जनगणना गणना अवधि के दौरान उस परिवार के साथ रहे हों।

- A household is defined to include all members, even if unrelated, who partake food from a common kitchen.

एक परिवार की परिभाषा में वे सभी सदस्य शामिल होते हैं, चाहे वे आपस में संबंधित न हों, जो एक ही रसोई से भोजन ग्रहण करते हों।

- Thus, household help living with household and paying guests should be enumerated there, if they have food from the same kitchen.

अतः, परिवार के साथ रहने वाले घरेलू सहायक तथा भुगतान करने वाले अतिथि भी वहीं गणना में शामिल किए जाने चाहिए, यदि वे उसी रसोई से भोजन करते हों।

- This enumeration process implies that the number of voters in an area may not correspond to the population enumerated there.



इस गणना प्रक्रिया का अर्थ है कि किसी क्षेत्र में मतदाताओं की संख्या वहाँ गणना की गई जनसंख्या के अनुरूप आवश्यक रूप से नहीं होगी।

- **A six-month residence is required for registration as a voter.**
मतदाता के रूप में पंजीकरण हेतु छह माह का निवास आवश्यक होता है।
- **Further, the voters' list would include those living abroad (non-resident Indians, or NRIs) who chose to register as a voter, whereas they are not part of the census at all.**
इसके अतिरिक्त, मतदाता सूची में विदेश में रहने वाले (अनिवासी भारतीय अथवा एनआरआई) भी शामिल होंगे, जिन्होंने मतदाता के रूप में पंजीकरण कराया है, जबकि वे जनगणना का हिस्सा नहीं होते।
- **According to the website of the Ministry of External Affairs, there are about 1.58 crore NRIs living abroad.**
विदेश मंत्रालय की वेबसाइट के अनुसार, लगभग 1.58 करोड़ एनआरआई विदेशों में निवास कर रहे हैं।
- **This is more than 1% of the population of the country.**
यह देश की कुल जनसंख्या का 1% से अधिक है।
- **If they were all counted in the Census in one State, it would get at least five Lok Sabha seats in the next delimitation.**
यदि इन सभी की गणना किसी एक राज्य में जनगणना के अंतर्गत की जाए, तो अगले परिशीमन में उस राज्य को कम-से-कम पाँच लोकसभा सीटें प्राप्त हो जाएँगी।
- **While the NRIs may be from across the country, some States have proportionately more NRIs than others.**
यद्यपि एनआरआई देश के विभिन्न भागों से हो सकते हैं, तथापि कुछ राज्यों में अन्य राज्यों की तुलना में अनुपातिक रूप से अधिक एनआरआई हैं।
- **Some countries collect data on non-residents in the census by enumerating family members, if any, living abroad.**
कुछ देश जनगणना में विदेशों में रहने वाले परिवार के सदस्यों की गणना करके अनिवासी व्यक्तियों का डेटा एकत्रित करते हैं।
- **This process cannot collect information on those households that have migrated abroad with all their members.**
यह प्रक्रिया उन परिवारों की जानकारी एकत्रित नहीं कर सकती जो अपने सभी सदस्यों सहित विदेश चले गए हैं।
- For example, the explanation of **disability** in the **2011 Census** ran to about six printed pages. उदाहरण के लिए, **2011 की जनगणना में दिव्यांगता** की व्याख्या लगभग छह मुद्रित पृष्ठों तक विस्तृत थी।
- Even the seemingly simple question, "Have you worked at any time during the last year?" was accompanied by more than two pages explaining what constitutes 'work'.
यहाँ तक कि देखने में सरल प्रश्न, "क्या आपने पिछले वर्ष के दौरान किसी भी समय कार्य किया है?" के साथ भी 'कार्य' की परिभाषा स्पष्ट करने हेतु दो से अधिक पृष्ठों का विवरण दिया गया था।
- The follow-up questions on **industry, occupation**, and related matters are also not easy for most people to understand.
उद्योग, व्यवसाय तथा संबंधित विषयों पर पूछे जाने वाले अनुवर्ती प्रश्न भी अधिकांश लोगों के लिए समझना सरल नहीं होते।
- It is too naive to expect that the respondents would read all the instructions before clicking on an item in the **drop down menu**.
यह अपेक्षा करना अत्यधिक सरलतापूर्ण होगा कि उत्तरदाता **ड्रॉप डाउन मेनू** में किसी विकल्प पर क्लिक करने से पहले सभी निर्देशों को पढ़ेंगे।
- The **three million plus enumerators** may not equally understand the concepts, definitions and the need to ask the questions in an appropriate manner.
तीन मिलियन से अधिक गणनाकर्ता अवधारणाओं, परिभाषाओं तथा प्रश्नों को उचित ढंग से पूछने की आवश्यकता को समान रूप से समझ सकें, यह आवश्यक नहीं है।



- The **self enumeration facility** can become worse unless the questions are well worded and explanations are given within the question.
यदि प्रश्नों को सुव्यवस्थित ढंग से न लिखा जाए और प्रश्नों के भीतर ही स्पष्टीकरण न दिया जाए, तो स्वयं गणना सुविधा और अधिक जटिल हो सकती है।
- It is difficult to achieve this without signification of the concepts and definitions.
अवधारणाओं और परिभाषाओं के पर्याप्त सरलीकरण के बिना इसे प्राप्त करना कठिन है।

Guard against respondent fatigue

उत्तरदाता थकान से बचाव

- Including too many questions in the online schedule in an attempt to obtain better responses can also lead to **respondent fatigue**, as the form has to be completed for every individual in a household.
बेहतर उत्तर प्राप्त करने के उद्देश्य से ऑनलाइन प्रपत्र में अत्यधिक प्रश्न शामिल करने से उत्तरदाता थकान उत्पन्न हो सकती है, क्योंकि परिवार के प्रत्येक सदस्य के लिए प्रपत्र भरना आवश्यक होता है।
- The possibility of respondents deliberately providing incorrect answers to certain questions in order to avoid follow-up questions cannot be ruled out.
अनुवर्ती प्रश्नों से बचने के लिए उत्तरदाताओं द्वारा जानबूझकर कुछ प्रश्नों के गलत उत्तर देने की संभावना से इनकार नहीं किया जा सकता।
- **Post-enumeration surveys** from past censuses have indicated that distant relatives of the head of the household and unrelated persons, such as domestic helpers living with the household, have higher rates of omission.
पूर्व जनगणनाओं के पश्च-गणना सर्वेक्षणों से यह संकेत मिला है कि परिवार प्रमुख के दूरस्थ संबंधियों तथा परिवार के साथ रहने वाले असंबंधित व्यक्तियों, जैसे घरेलू सहायकों, के छूट जाने की संभावना अधिक रहती है।
- In a **self-enumeration system**, the chances of missing such persons are even greater.
स्वयं गणना प्रणाली में ऐसे व्यक्तियों के छूट जाने की संभावना और भी अधिक हो जाती है।
- There is also the possibility of including children who are living in hostels and are therefore not eligible to be enumerated as part of the household.
ऐसे बच्चों को भी शामिल किए जाने की संभावना है जो छात्रावासों में रह रहे हैं और इसलिए परिवार के सदस्य के रूप में गणना किए जाने के पात्र नहीं हैं।
- Better structuring of the questions may help ensure more accurate enumeration of such persons.
प्रश्नों की बेहतर संरचना ऐसे व्यक्तियों की अधिक सटीक गणना सुनिश्चित करने में सहायक हो सकती है।
- For example, questions such as, "Is the person currently present in the house and, if not, was he or she present at any time after February 9 or likely to return before February 28?" (assuming that the census enumeration takes place during that period as in the past censuses), could be asked for every individual.
उदाहरण के लिए, प्रत्येक व्यक्ति से यह प्रश्न पूछा जा सकता है कि, "क्या यह व्यक्ति वर्तमान में घर में उपस्थित है और यदि नहीं, तो क्या वह 9 फरवरी के बाद किसी समय उपस्थित था अथवा 28 फरवरी से पहले लौटने की संभावना है?" (यह मानते हुए कि जनगणना गणना पूर्व की जनगणनाओं की भाँति इसी अवधि में हो रही हो)।
- Similarly, questions such as "Is there any other relative of the head of the household, or any unrelated person such as a servant, helper, or nurse, who shares meals from the same kitchen and lives with the household?" may also be included.
इसी प्रकार, "क्या परिवार प्रमुख का कोई अन्य संबंधी अथवा कोई असंबंधित व्यक्ति, जैसे सेवक, सहायक या नर्स, जो उसी रसोई से भोजन करता हो और परिवार के साथ रहता हो?" जैसे प्रश्न भी शामिल किए जा सकते हैं।



TOPICS COVERED

Monsoon prelude



Waves crash against the barrier at the Fort Kochi beach in Kerala on Wednesday. The **Southwest monsoon is likely to set in over Kerala on May 26, nearly a week ahead of its normal arrival date of June 1.**

GS I Geography
Waves crash against the barrier at the Fort Kochi beach in Kerala on Wednesday. The Southwest monsoon is likely to set in over Kerala on May 26, nearly a week ahead of its normal arrival date of June 1. THE ASI KAVVAT

GS Paper II: Polity		21 May 2026
TOPICS COVERED		
21M	The bail rule जमानत का सिद्धांत	
21M	Measure for measure जैसे को तैसा	

PATRIOTIC IAS



GS II: Polity

The bail rule

The Andrabi ruling reaffirms liberty over the stringent UAPA bar

The idea of justice should never allow for the indefinite imprisonment of someone without trial. However, The Unlawful Activities (Prevention) Act (UAPA), does so, through its stringent Section 43-D(5), which makes bail near impossible once a court is satisfied, on the prosecution's material, that a prima facie case exists against the accused. But on May 18, in *Syed Iftikhar Andrabi vs National Investigation Agency, Jammu*, the top court delivered a welcome restatement of the principle that bail should be the rule even in cases related to the UAPA. The Bench granted bail to Andrabi, who had spent over five years and nine months in pre-trial custody. The Bench also clarified the legal position where an undertrial has spent years in custody without any realistic prospect of the trial concluding. By reiterating that the right to personal liberty and a speedy trial cannot be subservient to the provision in Section 43-D(5), the judgment disapproved the reasoning in two two-judge Bench rulings, *Gurwinder Singh (2024)* and *Gulfisha Fatima*, decided earlier this year. Both had sought to dilute the principle laid down by a three-judge Bench in *K.A. Najeer (2021)*, which held that the "rigours" of Section 43-D(5) would "melt down" where there was no likelihood of the trial concluding within a reasonable time and the incarceration already undergone was substantial. The Bench also held that the two-judge Benches could not have departed from a binding three-judge ruling in the first place.

In *Gulfisha Fatima*, the Delhi Riots "larger conspiracy" bail decision, the Court denied bail to Umar Khalid and Sharjeel Imam and even foreclosed their right to renew the plea for a full year, despite both having spent over five years in prison. Now in *Andrabi*, the Court has disapproved the *Gulfisha Fatima* Bench's reading that *Najeer* was confined to its own facts and was not a constitutional limitation on Section 43-D(5). Consequently, Khalid and Imam should have been granted bail on the basis of the *Najeer* ruling, and not denied it on a narrower reading of it. This is a welcome intervention, provided it is binding in all such cases, even if it is only about the favourable consideration of bail pleas where the accused have been in custody for long periods without trial, and not about a right to bail under the UAPA. Tellingly, a day after *Andrabi*, Additional Solicitor General S.V. Raju told another Bench that under the UAPA's statutory bail bar, "the presumption of innocence takes a backseat" which is precisely the position *Andrabi* has now set itself against, in line with constitutional principles.

Imam and even foreclosed their right to renew the plea for a full year, despite both having spent over **five years in prison**.

गुलफिशा फातिमा मामले में, जो दिल्ली दंगों की "बड़ी साजिश" जमानत याचिका से संबंधित था, न्यायालय ने **उमर खालिद** और **शरजील इमाम** को जमानत देने से इनकार कर दिया तथा उन्हें एक पूर्ण वर्ष तक पुनः याचिका दायर करने के अधिकार से भी वंचित कर दिया, जबकि दोनों ने पाँच वर्षों से अधिक समय कारागार में व्यतीत किया था।

21M. The bail rule

जमानत का सिद्धांत

• But on **May 18**, in **Syed Iftikhar Andrabi vs National Investigation Agency, Jammu**, the **top court** delivered a welcome restatement of the principle that **bail should be the rule even in cases related to the UAPA**.

किन्तु **18 मई** को, **सैयद इफ्तिखार अंद्राबी बनाम राष्ट्रीय जांच एजेंसी, जम्मू** मामले में, **उच्चतम न्यायालय** ने इस सिद्धांत को पुनः स्पष्ट करते हुए स्वागतयोग्य निर्णय दिया कि **जमानत ही सामान्य नियम होनी चाहिए**, यहाँ तक कि **UAPA** से संबंधित मामलों में भी।

• The **Bench** granted bail to Andrabi, who had spent over **five years and nine months in pre-trial custody**.

पीठ ने अंद्राबी को जमानत प्रदान की, जिन्होंने **विचारण-पूर्व हिरासत में पाँच वर्ष और नौ महीने** से अधिक समय व्यतीत किया था।

• By reiterating that the **right to personal liberty and a speedy trial cannot be subservient to the provision in Section 43-D(5)**, the judgment disapproved the reasoning in two two-judge Bench rulings, **Gurwinder Singh (2024)** and **Gulfisha Fatima**, decided earlier this year.

यह दोहराते हुए कि **व्यक्तिगत स्वतंत्रता का अधिकार** तथा **त्वरित न्यायिक प्रक्रिया का अधिकार धारा 43-D(5)** के अधीन नहीं हो सकते, इस निर्णय ने इस वर्ष पूर्व में दिए गए दो द्वि-न्यायाधीशीय पीठों के निर्णयों, **गुरविंदर सिंह (2024)** और **गुलफिशा फातिमा**, की तर्कप्रणाली को अस्वीकार कर दिया।

• Both had sought to dilute the **principle laid down by a three-judge Bench in K.A. Najeer (2021)**, which held that the "rigours" of **Section 43-D(5)** would "melt down" where there was **no likelihood of the trial concluding within a reasonable time and the incarceration already undergone was substantial**.

दोनों निर्णयों ने **K.A. नजीब (2021)** में तीन-न्यायाधीशीय पीठ द्वारा स्थापित सिद्धांत को कमजोर करने का प्रयास किया था, जिसमें कहा गया था कि **धारा 43-D(5)** की "कठोरताएँ" वहाँ "शिथिल हो जाएँगी", जहाँ उचित समयावधि में मुकदमे के समाप्त होने की संभावना न हो तथा अभियुक्त पहले ही पर्याप्त अवधि का कारावास भुगत चुका हो।

• In **Gulfisha Fatima**, the **Delhi Riots "larger conspiracy" bail decision**, the Court denied bail to **Umar Khalid and Sharjeel**



GS II: Polity

Measure for measure

Courts should not react defensively to every line of criticism

While it is the courts' prerogative to punish contempt, how well they have separated contemptuous attacks from constitutionally protected criticism, especially by journalists, lawyers, activists, and scholars, has varied widely. This is because the judiciary has not been able to draw consistent lines between fair and exaggerated criticism, politically motivated and defamatory comments, and speech that obstructs justice. The judiciary faces misinformation, political pressure, abusive on-line discourse, and declining public trust, and the ways in which judges can respond to these attacks are limited. Rhetorical excess in oral observations must also not be confused with legal doctrine. However, recent comments by the Bench have created the appearance of a judiciary increasingly intolerant of external scrutiny. Last week, when hearing a lawyer's petition over not having been elevated to a senior rank, CJI Surya Kant described certain actors in the legal ecosystem as "parasites" and certain young lawyers engaging in RTI-based activism as "cockroaches". While he later said the remarks were directed at persons entering professions with bogus degrees, rather than critics of the judiciary, such language is unbecoming of the CJI. The tenor follows the NCERT textbook controversy, with the Supreme Court focusing its manifest ire on three academics involved in drafting the chapter, effectively excluding them from work on public school curricula without prior hearing. The action evoked concerns about the Court being aggrieved party and arbiter. In the Ali Khan Mahmudabad matter, the Court granted him relief from coercive action but also imposed a gag order. Then, in a display of willingness to discipline the norms of public conduct rather than determine legality, it urged the state to decline to prosecute him as a concession.

When a CJI's comments of this nature appear outside formal contempt proceedings, they render a chilling effect as they amount to institutional condemnation without the safeguards of due process. The comments on using the RTI Act as a basis for activism have a similar effect, beyond the Act being a legitimate instrument. Recently, when a journalist (with a law degree) sought data on complaints against specific judges, the Supreme Court Registry declined the existence of such information. When the journalist produced a Law Ministry disclosure to the contrary, the Registry's legal representative dubbed the inquiry "fishing and roving" – a moving goalpost that was, again, under-concerned with legality while raising questions of the Court arguing its own case. Former CJI D.Y. Chandrachud said that judges are public actors exercising state power and courts should not react defensively to every line of criticism. That attitude improved how the bar, the press, and the academy experienced courts. The recent comments have set the clock back.

21M. Measure for measure

जैसे को तैसा

• Courts should not react defensively to every line of **criticism**. न्यायालयों को प्रत्येक प्रकार की आलोचना पर रक्षात्मक प्रतिक्रिया नहीं देनी चाहिए।

• While it is the courts' prerogative to punish contempt, how well they have separated contemptuous attacks from constitutionally protected criticism, especially by journalists, lawyers, activists, and scholars, has varied widely.

यद्यपि अवमानना के लिए दंड देना न्यायालयों का विशेषाधिकार है, किन्तु उन्होंने अवमाननापूर्ण आक्रमणों और संवैधानिक रूप से संरक्षित आलोचना, विशेषकर पत्रकारों, वकीलों, कार्यकर्ताओं और विद्वानों द्वारा की गई आलोचना, के बीच कितनी स्पष्टता से भेद किया है, इसमें व्यापक भिन्नता रही है।

• This is because the judiciary has not been able to draw consistent lines between fair and exaggerated criticism, politically motivated and defamatory comments, and speech that obstructs justice.

ऐसा इसलिए है क्योंकि न्यायपालिका निष्पक्ष और अतिरंजित आलोचना, राजनीतिक रूप से प्रेरित एवं मानहानिकारक टिप्पणियों, तथा न्याय में बाधा उत्पन्न करने वाले वक्तव्यों के बीच निरंतर और स्पष्ट सीमाएँ निर्धारित नहीं कर पाई हैं।

• The judiciary faces misinformation, political pressure, abusive online discourse, and declining public trust, and the ways in which judges can respond to these attacks are limited.

न्यायपालिका को भ्रामक सूचना, राजनीतिक दबाव, अपमानजनक ऑनलाइन विमर्श तथा घटते जनविश्वास जैसी चुनौतियों का सामना करना पड़ रहा है, और न्यायाधीशों के पास इन आक्रमणों का प्रत्युत्तर देने के सीमित साधन हैं।

• Rhetorical excess in oral observations must also not be confused with legal doctrine.

मौखिक टिप्पणियों में की गई भाषणात्मक अतिशयोक्ति को भी विधिक सिद्धांत के साथ भ्रमित नहीं किया जाना चाहिए।

• However, recent comments by the Bench have created the appearance of a judiciary increasingly intolerant of external scrutiny.

किन्तु, हाल की पीठ संबंधी टिप्पणियों ने ऐसी छवि उत्पन्न की है कि न्यायपालिका बाहरी समीक्षा के प्रति क्रमशः असहिष्णु होती जा रही है।

• Last week, when hearing a lawyer's petition over not having been elevated to a senior rank, CJI Surya Kant described certain actors in the legal ecosystem as "parasites" and certain young lawyers engaging in RTI-based activism as "cockroaches".

पिछले सप्ताह, एक वकील की वरिष्ठ पद पर पदोन्नति न होने संबंधी याचिका की

सुनवाई करते समय, मुख्य न्यायाधीश सूर्यकांत ने विधिक तंत्र के कुछ व्यक्तियों को "परजीवी" तथा आरटीआई आधारित सक्रियता में संलग्न कुछ युवा वकीलों को "तिलचट्टे" कहा।

• While he later said the remarks were directed at persons entering professions with bogus degrees, rather than critics of the judiciary, such language is unbecoming of the CJI.

यद्यपि बाद में उन्होंने कहा कि ये टिप्पणियाँ न्यायपालिका के आलोचकों के बजाय फर्जी डिग्रियों के साथ पेशे में प्रवेश करने वाले व्यक्तियों के लिए थीं, तथापि ऐसी भाषा मुख्य न्यायाधीश के पद की गरिमा के अनुरूप नहीं है।



- The tenor follows the **NCERT textbook controversy**, with the **Supreme Court** focusing its manifest ire on three academics involved in drafting the chapter, effectively excluding them from work on public school curricula without prior hearing.

यह स्वर एनसीईआरटी पाठ्यपुस्तक विवाद के पश्चात सामने आया, जिसमें उच्चतम न्यायालय ने अध्याय के प्रारूपण में शामिल तीन शिक्षाविदों पर स्पष्ट रूप से अपना आक्रोश केंद्रित किया और बिना पूर्व सुनवाई के उन्हें सार्वजनिक विद्यालय पाठ्यक्रम से संबंधित कार्यों से प्रभावी रूप से बाहर कर दिया।

GS Paper II: Governance		21 May 2026
TOPICS COVERED		
21M	'Banks must push APY subscribers to higher pension slab' 'बैंकों को APY ग्राहकों को उच्च पेंशन श्रेणी की ओर प्रेरित करना चाहिए'	

'Banks must push APY subscribers to higher pension slab'

GS II: Governance: Government Scheme

Press Trust of India
NEW DELHI

Flagging concerns over the high concentration of **Atal Pension Yojana (APY) subscribers in the minimum slab of ₹1,000**, Financial Services Secretary M. Nagaraju called on financial institutions, particularly banks, to nudge individuals toward higher pension slabs as incomes grow.

The flagship social security scheme, APY, has witnessed gross enrolments crossing the 9 crore mark, and in FY26, a record 1.35 crore new subscribers were added.

"Amid this remarkable progress, I must call your attention to the critical concern that there is an overwhelming concentration of enrolments in the ₹1,000 monthly pension slab," he said, while ad-



APY has witnessed gross enrolments crossing the 9 crore mark. PTI

dressing an Atal Pension Yojana Annual Felicitation Programme organised by PFRDA here.

"We must ask: would ₹1,000 per month provide adequate protection to subscribers 20 or 30 years from now? This concentration suggests counselling at the point of enrolment needs strengthening."

उन्होंने यहां PFRDA द्वारा आयोजित अटल पेंशन योजना वार्षिक सम्मान कार्यक्रम को संबोधित करते हुए कहा, "इस उल्लेखनीय प्रगति के बीच, मैं आपका ध्यान इस गंभीर चिंता की ओर आकर्षित करना चाहता हूँ कि नामांकन का अत्यधिक बड़ा हिस्सा ₹1,000 मासिक पेंशन श्रेणी में केंद्रित है।"

- "We must ask: would ₹1,000 per month provide adequate protection to subscribers 20 or 30 years from now? This concentration suggests counselling at the point of enrolment needs strengthening."

"हमें यह पूछना चाहिए: क्या ₹1,000 प्रति माह 20 या 30 वर्ष बाद ग्राहकों को पर्याप्त सुरक्षा प्रदान करेगा? यह स्थिति दर्शाती है कि नामांकन के समय परामर्श व्यवस्था को और मजबूत करने की आवश्यकता है।"

21M. 'Banks must push APY subscribers to higher pension slab'

'बैंकों को APY ग्राहकों को उच्च पेंशन श्रेणी की ओर प्रेरित करना चाहिए'

- Flagging concerns over the high concentration of **Atal Pension Yojana (APY) subscribers in the minimum slab of ₹1,000**, Financial Services Secretary M. Nagaraju called on financial institutions, particularly banks, to nudge individuals toward higher pension slabs as incomes grow.

अटल पेंशन योजना (APY) के ग्राहकों की बड़ी संख्या के ₹1,000 की न्यूनतम पेंशन श्रेणी में केंद्रित होने पर चिंता जताते हुए, वित्तीय सेवा सचिव एम. नागराजू ने वित्तीय संस्थानों, विशेष रूप से बैंकों, से लोगों को आय बढ़ने के साथ उच्च पेंशन श्रेणियों की ओर प्रेरित करने का आह्वान किया।

- The flagship social security scheme, APY, has witnessed gross enrolments crossing the 9 crore mark, and in FY26, a record 1.35 crore new subscribers were added.

प्रमुख सामाजिक सुरक्षा योजना APY में कुल नामांकन 9 करोड़ के पार पहुंच गया है, और FY26 में रिकॉर्ड 1.35 करोड़ नए ग्राहक जुड़े हैं।

- "Amid this remarkable progress, I must call your attention to the critical concern that there is an overwhelming concentration of enrolments in the ₹1,000 monthly pension slab," he said, while addressing an Atal Pension Yojana Annual Felicitation Programme organised by PFRDA here.



GS Paper II: International Relations		21 May 2026
TOPICS COVERED		
21M	India, Italy seal defence pact, elevate their bilateral ties to a 'special strategic partnership' भारत और इटली ने रक्षा समझौते पर मुहर लगाई, द्विपक्षीय संबंधों को 'विशेष रणनीतिक साझेदारी' तक उन्नत किया	
21M	Philippine court says it won't stop ICC arrest of drug war enforcer फिलीपींस की अदालत ने कहा कि वह ड्रग युद्ध प्रवर्तक की ICC गिरफ्तारी नहीं रोकेंगी	
21M	Protesters are trying to 'disrupt democratic order', says Bolivia प्रदर्शनकारी 'लोकतांत्रिक व्यवस्था को बाधित' करने की कोशिश कर रहे हैं, बोलीविया ने कहा	
21M	JNIM expands beyond Mali, looks to establish Islamist rule in Sahel region माली से आगे बढ़ रहा है जेएनआईएम, साहेल क्षेत्र में इस्लामी शासन स्थापित करने की कोशिश	
21M	France, Russia jostle for influence in West African coastal country of Togo पश्चिम अफ्रीकी तटीय देश टोगो में प्रभाव बढ़ाने को लेकर फ्रांस और रूस के बीच प्रतिस्पर्धा	

India, Italy seal defence pact, elevate their bilateral ties to a 'special strategic partnership'

GS II: IR
Kallol Bhattacharjee
NEW DELHI

India and Italy have been in continuous contact over the conflicts in Ukraine and West Asia, said Prime Minister Narendra Modi on Wednesday, reiterating his call for "dialogue and diplomacy" to resolve the festering wars.

Delivering a press statement in Rome at the end of his multi-nation Europe trip, Mr. Modi described India-Italy relation as a "win-win partnership", and welcomed the upgrade of bilateral ties to the level of "Special Strategic Partnership".

"We have remained in continuous contact over Ukraine, West Asia, and other areas of hostilities.

India has a clear position that all problems should be resolved through dialogue and diplomacy," Mr. Modi said in his press statement. "I am happy that we are upgrading our ties to the level of Special Strategic Partnership," he said.

The Ministry of External Affairs said that the Special Strategic Partnership will lead to strengthened cooperation in trade, technology, defence, clean energy and innovation as well as in the field of mobility of skilled and non-skilled workers through safe and secure channels.

Agriculture research
The two sides also sealed a "Defence Industrial Road Map", an Memorandum of Understanding (MoU) on cooperation in critical minerals, and another agreement for cooperation between the Italian Corps of



Sweet gift: Prime Minister Narendra Modi gifts 'Melody' toffees to Italian Prime Minister Giorgia Meloni in Rome on Wednesday. ANI

the Guardia di Finanza and the Directorate of Enforcement.

A Joint Statement issued on the occasion of Mr. Modi's visit announced that the two sides have signed an agreement on agriculture and agricultural research that will connect Ministries and institutions of India and Italy.

The two sides also expressed commitment "to a free, open, peaceful and prosperous Indo-Pacific, in line with international law, including United Nations Convention on the Law of the Sea (UNCLOS)."

On the Gulf situation, they called for "freedom of navigation and the resumption of global flows through Strait of Hormuz".

In a significant push, ahead of the India-Africa Forum Summit-4, the two

sides said they have agreed work on selected projects trilaterally in Africa.

In this regard, the Joint Statement said, "Recognising the strategic priority both countries attach to Africa, the two Prime Ministers agreed to work together in trilateral initiatives with African partners in areas such as Digital Public Infrastructure (DPI), agriculture, education, healthcare, artificial intelligence, connectivity and infrastructure and renewable energy in line with India's development partnership in Africa and Italy's Mattei Plan."

Mr. Modi was conferred with the Agricola Medal for 2026 by the Food and Agriculture Organisation (FAO) of the United Nations, at the FAO headquarters in Rome.

21M. India, Italy seal defence pact, elevate their bilateral ties to a 'special strategic partnership'

भारत और इटली ने रक्षा समझौते पर मुहर लगाई, द्विपक्षीय संबंधों को 'विशेष रणनीतिक साझेदारी' तक उन्नत किया

- **India and Italy** have been in continuous contact over the conflicts in **Ukraine** and **West Asia**, said Prime Minister **Narendra Modi** on Wednesday, reiterating his call for "dialogue and diplomacy" to resolve the festering wars. प्रधानमंत्री नरेंद्र मोदी ने बुधवार को कहा कि **भारत और इटली यूक्रेन तथा पश्चिम एशिया** के संघर्षों को लेकर लगातार संपर्क में रहे हैं और उन्होंने इन युद्धों के समाधान के लिए "संवाद और कूटनीति" की अपनी अपील दोहराई।

- Delivering a press statement in **Rome** at the end of his multi-nation Europe trip, Mr. Modi described India-Italy relation as a "win-win partnership", and welcomed the upgrade of bilateral ties to the level of "**Special Strategic Partnership**".

अपनी बहु-देशीय यूरोप यात्रा के अंत में **रोम** में प्रेस वक्तव्य देते हुए श्री मोदी ने भारत-इटली संबंधों को "विन-विन साझेदारी" बताया और द्विपक्षीय संबंधों को "विशेष रणनीतिक साझेदारी" के स्तर तक उन्नत किए जाने का स्वागत किया।

- "We have remained in continuous contact over **Ukraine, West Asia**, and other areas of hostilities.

"हम **यूक्रेन, पश्चिम एशिया** और अन्य संघर्ष क्षेत्रों को लेकर लगातार संपर्क में रहे हैं।"

- India has a clear position that all problems should be



resolved through **dialogue and diplomacy**,” Mr. Modi said in his press statement.

भारत का स्पष्ट मत है कि सभी समस्याओं का समाधान **संवाद और कूटनीति** के माध्यम से होना चाहिए,” श्री मोदी ने अपने प्रेस वक्तव्य में कहा।

- “I am happy that we are upgrading our ties to the level of **Special Strategic Partnership**,” he said.
“मुझे खुशी है कि हम अपने संबंधों को **विशेष रणनीतिक साझेदारी** के स्तर तक उन्नत कर रहे हैं,” उन्होंने कहा।
- The **Ministry of External Affairs** said that the Special Strategic Partnership will lead to strengthened cooperation in **trade, technology, defence, clean energy and innovation** as well as in the field of mobility of skilled and non-skilled workers through safe and secure channels.
विदेश मंत्रालय ने कहा कि यह विशेष रणनीतिक साझेदारी **व्यापार, प्रौद्योगिकी, रक्षा, स्वच्छ ऊर्जा और नवाचार** के साथ-साथ सुरक्षित माध्यमों से कुशल और अकुशल श्रमिकों की आवाजाही के क्षेत्र में सहयोग को मजबूत करेगी।

Agriculture research

कृषि अनुसंधान

- The two sides also sealed a “**Defence Industrial Road Map**”, an **Memorandum of Understanding (MoU)** on cooperation in **critical minerals**, and another agreement for cooperation between the Italian Corps of the **Guardia di Finanza** and the **Directorate of Enforcement**.
दोनों पक्षों ने “**रक्षा औद्योगिक रोडमैप**”, **महत्वपूर्ण खनिजों** में सहयोग पर एक **समझौता ज्ञापन (MoU)** तथा इटली की **गार्डिया दी फिनांजा** और **प्रवर्तन निदेशालय** के बीच सहयोग संबंधी एक अन्य समझौते पर भी हस्ताक्षर किए।
- A **Joint Statement** issued on the occasion of Mr. Modi’s visit announced that the two sides have signed an agreement on **agriculture and agricultural research** that will connect Ministries and institutions of India and Italy.
श्री मोदी की यात्रा के अवसर पर जारी एक **संयुक्त वक्तव्य** में घोषणा की गई कि दोनों पक्षों ने **कृषि और कृषि अनुसंधान** पर एक समझौते पर हस्ताक्षर किए हैं, जो भारत और इटली के मंत्रालयों और संस्थानों को जोड़ेगा।
- The two sides also expressed commitment “to a free, open, peaceful and prosperous **Indo-Pacific**, in line with international law, including **United Nations Convention on the Law of the Sea (UNCLOS)**.”
दोनों पक्षों ने “एक स्वतंत्र, खुला, शांतिपूर्ण और समृद्ध **इंडो-पैसिफिक**” के प्रति अपनी प्रतिबद्धता व्यक्त की, जो अंतरराष्ट्रीय कानून, विशेषकर **संयुक्त राष्ट्र समुद्री कानून सम्मेलन (UNCLOS)** के अनुरूप हो।
- On the **Gulf** situation, they called for “freedom of navigation and the resumption of global flows through **Strait of Hormuz**”.
खाड़ी क्षेत्र की स्थिति पर उन्होंने “नौवहन की स्वतंत्रता और **होर्मुज़ जलडमरूमध्य** से वैश्विक आवागमन की पुनर्बहाली” का आह्वान किया।
- In a significant push, ahead of the **India-Africa Forum Summit-4**, the two sides said they have agreed to work on selected projects trilaterally in **Africa**.
एक महत्वपूर्ण पहल के तहत, **भारत-अफ्रीका फोरम शिखर सम्मेलन-4** से पहले दोनों पक्षों ने कहा कि वे **अफ्रीका** में चयनित परियोजनाओं पर त्रिपक्षीय रूप से कार्य करने पर सहमत हुए हैं।
- In this regard, the Joint Statement said, “Recognising the strategic priority both countries attach to **Africa**, the two Prime Ministers agreed to work together in trilateral initiatives with African partners in areas such as **Digital Public Infrastructure (DPI)**, agriculture, education, healthcare, **artificial intelligence**, connectivity and infrastructure and **renewable energy** in line with India’s development partnership in Africa and Italy’s **Mattei Plan**.”
इस संबंध में संयुक्त वक्तव्य में कहा गया, “दोनों देशों द्वारा **अफ्रीका** को दिए जाने वाले रणनीतिक महत्व को स्वीकार करते हुए, दोनों प्रधानमंत्रियों ने अफ्रीकी साझेदारों के साथ **डिजिटल पब्लिक इंफ्रास्ट्रक्चर (DPI)**, कृषि,



शिक्षा, स्वास्थ्य सेवा, कृत्रिम बुद्धिमत्ता, कनेक्टिविटी, अवसंरचना तथा नवीकरणीय ऊर्जा जैसे क्षेत्रों में त्रिपक्षीय पहलों पर साथ कार्य करने पर सहमति व्यक्त की, जो अफ्रीका में भारत की विकास साझेदारी और इटली की **मैटेई योजना** के अनुरूप है।”

- Mr. Modi was conferred with the **Agricola Medal for 2026** by the **Food and Agriculture Organisation (FAO)** of the **United Nations**, at the FAO headquarters in Rome.
श्री मोदी को संयुक्त राष्ट्र के खाद्य और कृषि संगठन (FAO) द्वारा रोम स्थित एफएओ मुख्यालय में 2026 का एग्रीकोला मेडल प्रदान किया गया।

MANILA

Philippine court says it won't stop ICC arrest of drug war enforcer



GS II: IR
The Philippine Supreme Court on Wednesday refused to block the arrest of Senator Ronald "Bato" Dela Rosa, wanted by the ICC over the deadly drug war, denying his request for interim relief in a 9-5-1 vote. The ICC last week unsealed an arrest warrant against Dela Rosa, accused of crimes against humanity. AFP

21M. Philippine court says it won't stop ICC arrest of drug war enforcer

फिलीपींस की अदालत ने कहा कि वह ड्रग युद्ध प्रवर्तक की ICC गिरफ्तारी नहीं रोकेगी

- The **Philippine Supreme Court** on Wednesday refused to block the arrest of Senator **Ronald "Bato" Dela Rosa**, wanted by the **ICC** over the deadly drug war, denying his request for interim relief in a **9-5-1 vote**.

फिलीपींस के सर्वोच्च न्यायालय ने बुधवार को घातक ड्रग युद्ध मामले में ICC द्वारा वांछित सीनेटर **रोनाल्ड "बाटो" डेला रोसा** की गिरफ्तारी पर रोक लगाने से इनकार कर दिया और **9-5-1 मतों** से उनकी अंतरिम राहत की याचिका खारिज कर दी।

- The **ICC** last week unsealed an arrest warrant against **Dela Rosa**, accused of **crimes against humanity**. **ICC** ने पिछले सप्ताह **डेला रोसा** के खिलाफ जारी गिरफ्तारी वारंट

सार्वजनिक किया था, जिन पर **मानवता के विरुद्ध अपराधों** का आरोप है।

Protesters are trying to 'disrupt democratic order', says Bolivia

GS II: IR

Agence France-Presse
LA PAZ

Bolivia's embattled government on Wednesday accused protesters calling for the resignation of centre-right President Rodrigo Paz of trying to "disrupt

the democratic order".

Addressing the Organization of American States (OAS), Foreign Minister Fernando Aramayo said weeks of mass protests and roadblocks were "aimed at creating conditions for institutional destabilisation,

weakening the government...and disrupting the democratic order".

Thousands of farmers, labourers, miners and teachers have been taking to the streets to protest an array of issues in the Andean nation.

21M. Protesters are trying to 'disrupt democratic order', says Bolivia

प्रदर्शनकारी 'लोकतांत्रिक व्यवस्था को बाधित' करने की कोशिश कर रहे हैं, बोलीविया ने कहा



- Bolivia's embattled government on Wednesday accused protesters calling for the resignation of centre-right President **Rodrigo Paz** of trying to "disrupt the democratic order".
बोलीविया की संकटग्रस्त सरकार ने बुधवार को मध्य-दक्षिणपंथी राष्ट्रपति **रोड्रिगो पाज़** के इस्तीफे की मांग कर रहे प्रदर्शनकारियों पर "लोकतांत्रिक व्यवस्था को बाधित" करने की कोशिश करने का आरोप लगाया।
- Addressing the **Organization of American States (OAS)**, Foreign Minister **Fernando Aramayo** said weeks of mass protests and roadblocks were "aimed at creating conditions for institutional destabilisation, weakening the government...and disrupting the democratic order".
ऑर्गनाइजेशन ऑफ अमेरिकन स्टेट्स (OAS) को संबोधित करते हुए विदेश मंत्री **फर्नांडो अरामायो** ने कहा कि कई सप्ताहों से चल रहे व्यापक विरोध प्रदर्शन और सड़क अवरोध "संस्थागत अस्थिरता की परिस्थितियां पैदा करने, सरकार को कमजोर करने...और लोकतांत्रिक व्यवस्था को बाधित करने" के उद्देश्य से किए जा रहे हैं।
- Thousands of farmers, labourers, miners and teachers have been taking to the streets to protest an array of issues in the **Andean nation**.
एंडियन देश में हजारों किसान, मजदूर, खनिक और शिक्षक विभिन्न मुद्दों को लेकर सड़कों पर उतरकर प्रदर्शन कर रहे हैं।

JNIM expands beyond Mali, looks to establish Islamist rule in Sahel region

An al-Qaeda affiliate active in the Sahel region of Africa, JNIM aims to establish an emirate rooted in Sharia law and remove foreign military influence; Linked groups have 6,000-7,000 fighters, with operational networks across Mali, Burkina Faso, and Niger; it runs parallel govts. in its controlled areas

GS II: IR

NEWS ANALYSIS

R. Tejaswini

Countries across West Africa have emerged as some of the world's fastest-growing centres of violent extremism and geopolitical instability. A renewed wave of coordinated attacks by Jama'at Nusrat al-Islam wal-Muslimin (JNIM) and Azawad Liberation Front (FLA), along with the assassination of Gen. Sadio Camara, the Defence Minister of Mali, has drawn attention to the security situation in the West African region.

The recent strikes on April 25 expanded from northern Mali into southern regions targeting several cities and military bases, including Bamako, the capital, and Kati, a military garrison where Gen. Camara was based. Gen. Camara and some of his family members were killed in his residence by a vehicle rigged with explosives. Junta leader Assimi Goïta and intelligence chief Modibo Koné were also severely wounded. The general was a key architect of the junta, which seized power after back-to-back coups. Gen. Camara also played a central role in facilitating closer ties with Russia and the Wagner group, following the withdrawal of French forces.

Jama'at Nusrat al-Islam

wal-Muslimin (JNIM), which translates to "Group for the Support of Islam and Muslims", is a jihadist network formed in March 2017 in Mali under the leadership of Iyad Ag Ghali, a prominent Tuareg rebel leader. An al-Qaeda affiliate active in the Sahel region of Africa, the JNIM emerged through a coalition of four pre-existing regional Islamist factions – Ansar Dine, Macina Liberation Front (FLM), Al-Mourabitoun, and elements of Al-Qaeda in the Islamic Maghreb (AQIM).

Today, only Ansar Dine and the Macina front (FLA), along with remnants of other groups, remain under this umbrella following the death of other faction leaders. Despite distinct objectives, the coalition has largely projected organisational cohesion. One of the principal objectives is to overthrow Sahelian governments, establish an emirate rooted in Sharia law and remove foreign military influence. Unlike other jihadist organisations, the JNIM does not operate in Mali alone. It has a significant presence across the Sahel, particularly in Burkina Faso and Niger.

The rise of JNIM

The Tuareg question in northern Mali remains central to the country's instability. For years, Tuareg separatists demanded greater autonomy for Aza-



A file photo of Tuareg rebels of the Azawad Liberation Front (FLA) coalition gathering in Kidal, Mali. AFP

wad, citing systematic neglect. The separatist rebels and Islamist militants briefly controlled parts of northern Mali during the Tuareg rebellion. During the rebellion, Iyad Ag Ghali formed Ansar Dine and Amadou Koufa fought alongside Ansar Dine and later formed FLM in central Mali.

The 2012 Tuareg rebellion and spillover of weapons and fighters from post-Gaddafi Libya helped transform the JNIM into a powerful armed faction. Additionally, the JNIM exploited Mali's political instability, weak governance and ethnic tensions following the 2021 coup to position itself as an alternative to state authorities. Initially, the jihadist network targeted UN peacekeepers, French counterterrorism forces and military bases, which helped establish its reputation as a powerful coalition in the Sahel. It

has expanded its footprint in countries along the Gulf of Guinea, Benin and Togo. The Africa Center for Strategic Studies estimates that JNIM-linked groups comprise between 6,000 and 7,000 fighters spread across the Sahel, with operational networks extending across Mali, Burkina Faso and Niger. The U.S. has classified the JNIM as a foreign terrorist organisation.

The JNIM operates as a decentralised militant coalition unlike traditional armed groups maintaining a rigid structure. This structure has allowed it to expand its influence in the Sahel corridor despite leadership losses. In areas under its purview, the JNIM has matured beyond a traditional militant organisation to establish a parallel system of authority. It maintains control through regional battalions known

as katibas and mobile military units known as markaz and saryat, which operate across West Africa under the direction of the Shura council, the core council. As emir (leader) of the Shura council, Iyad Ag Ghali shapes the coalition's ideological vision and exercises strategic oversight. In areas under the control of the JNIM, strict interpretations of Islamic law are enforced and justice is administered by Islamic judges (qadis), some of whom are affiliated with the organisation.

The coalition expands incrementally, through preaching and establishing of local networks before transitioning into armed attacks and territorial entrenchment. Control over rural populations and ungoverned areas remains key to the JNIM's strategic doctrine.

As the JNIM expanded its presence across Mali, hostilities with Western-led counterterrorism forces intensified. The French-led Operation Barkhane, in coordination with UN peacekeeping mission MINUSMA, targeted jihadist organisations, including the JNIM, in an effort to contain their expansion. Nevertheless, deepening estrangement between Paris and the Malian government led to the withdrawal of French forces in 2022. Following the withdrawal of French forces, the mili-

tary governments of Mali, Burkina Faso and Niger pivoted towards Russia for military support to keep spread of militancy in check. The Wagner Group, later rebranded as Africa Corps, is a Russian paramilitary organisation deployed to support counterinsurgency operations. Currently, about 2,500 Russians are deployed across Mali, according to investigations with Impact (INPACT), an organisation that examines Russian operations.

Several towns across Mali have faced prolonged blockades and restrictions on the movement of goods imposed by militant factions, worsening food insecurity and disrupting education and healthcare services. The violence has also triggered a wide humanitarian crisis across parts of the Sahel. "Terrorism in the Sahel is not only a regional dramatic reality. Progressive links of its groups in Africa and beyond make it a growing global threat," UN Secretary-General Antonio Guterres said.

The JNIM's commanders perceive the Sahel as a politically unstable region surrounded by competing foreign security interests. JNIM's expansion across the Sahel has transformed what began as a localised insurgency into one of Africa's most complex and rapidly widening security crises.



21M. JNIM expands beyond Mali, looks to establish Islamist rule in Sahel region

माली से आगे बढ़ रहा है जेएनआईएम, साहेल क्षेत्र में इस्लामी शासन स्थापित करने की कोशिश

- An al-Qaeda affiliate active in the **Sahel region** of Africa, **JNIM** aims to establish an emirate rooted in **Sharia law** and remove foreign military influence.
अफ्रीका के साहेल क्षेत्र में सक्रिय अल-कायदा से जुड़ा संगठन **JNIM शरिया कानून** पर आधारित अमीरात स्थापित करना और विदेशी सैन्य प्रभाव को समाप्त करना चाहता है।
- Linked groups have **6,000-7,000 fighters**, with operational networks across **Mali, Burkina Faso, and Niger**.
संबद्ध समूहों के पास लगभग **6,000-7,000 लड़ाके** हैं, जिनके संचालन नेटवर्क **माली, बुर्किना फासो और नाइजर** में फैले हुए हैं।
- It runs parallel governments in its controlled areas.
यह अपने नियंत्रण वाले क्षेत्रों में समानांतर सरकारें चलाता है।
- Countries across **West Africa** have emerged as some of the world's fastest-growing centres of violent extremism and geopolitical instability.
पश्चिम अफ्रीका के देश दुनिया में हिंसक उग्रवाद और भू-राजनीतिक अस्थिरता के सबसे तेजी से बढ़ते केंद्रों के रूप में उभरे हैं।
- A renewed wave of coordinated attacks by **Jama'at Nusrat al-Islam wal-Muslimin (JNIM)** and **Azawad Liberation Front (FLA)**, along with the assassination of Gen. **Sadio Camara**, the Defence Minister of Mali, has drawn attention to the security situation in the West African region.
जमात नुसरत अल-इस्लाम वल-मुस्लिमीन (JNIM) और **अजावाद लिबरेशन फ्रंट (FLA)** द्वारा समन्वित हमलों की नई लहर तथा माली के रक्षा मंत्री जनरल **सादियो कमारा** की हत्या ने पश्चिम अफ्रीकी क्षेत्र की सुरक्षा स्थिति की ओर ध्यान आकर्षित किया है।
- The recent strikes on April 25 expanded from northern Mali into southern regions targeting several cities and military bases, including **Bamako**, the capital, and **Kati**, a military garrison where Gen. Camara was based.
25 अप्रैल के हालिया हमले उत्तरी माली से दक्षिणी क्षेत्रों तक फैल गए और उन्होंने राजधानी **बामाको** तथा सैन्य छावनी **काटी** सहित कई शहरों और सैन्य ठिकानों को निशाना बनाया।
- Gen. Camara and some of his family members were killed in his residence by a vehicle rigged with explosives.
जनरल कमारा और उनके परिवार के कुछ सदस्य उनके आवास पर विस्फोटकों से भरे वाहन हमले में मारे गए।
- Junta leader **Assimi Goïta** and intelligence chief **Modibo Koné** were also severely wounded.
जुंटा नेता **अस्सिमी गोइता** और खुफिया प्रमुख **मोदिबो कोने** भी गंभीर रूप से घायल हुए।
- The general was a key architect of the junta, which seized power after back-to-back coups.
जनरल जुंटा शासन के प्रमुख रणनीतिकार थे, जिसने लगातार तख्तापलट के बाद सत्ता हासिल की थी।
- Gen. Camara also played a central role in facilitating closer ties with **Russia** and the **Wagner group**, following the withdrawal of French forces.
फ्रांसीसी सेनाओं की वापसी के बाद जनरल कमारा ने **रूस** और **वैगनर समूह** के साथ करीबी संबंध स्थापित करने में महत्वपूर्ण भूमिका निभाई।
- **Jama'at Nusrat al-Islam wal-Muslimin (JNIM)**, which translates to "Group for the Support of Islam and Muslims", is a jihadist network formed in March 2017 in Mali under the leadership of **Iyad Ag Ghali**, a prominent Tuareg rebel leader.
जमात नुसरत अल-इस्लाम वल-मुस्लिमीन (JNIM), जिसका अर्थ "इस्लाम और मुसलमानों के समर्थन का समूह" है, मार्च 2017 में माली में प्रमुख तुआरेग विद्रोही नेता **इयाद अग घाली** के नेतृत्व में गठित एक जिहादी नेटवर्क है।
- An al-Qaeda affiliate active in the **Sahel region** of Africa, the **JNIM** emerged through a coalition of four pre-existing regional Islamist factions — **Ansar Dine, Macina Liberation**



Front (FLM), Al-Mourabitoun, and elements of Al-Qaeda in the Islamic Maghreb (AQIM).
अफ्रीका के साहेल क्षेत्र में सक्रिय अल-कायदा से जुड़ा JNIM चार क्षेत्रीय इस्लामी गुटों — अंसार दीन, मसीना लिबरेशन फ्रंट (FLM), अल-मौराबितून, और अल-कायदा इन द इस्लामिक मगरेब (AQIM) — के गठबंधन से उभरा।

- Today, only **Ansar Dine** and the **Macina front (FLA)**, along with remnants of other groups, remain under this umbrella following the death of other faction leaders.
आज अन्य गुट नेताओं की मृत्यु के बाद केवल अंसार दीन और मसीना फ्रंट (FLA) सहित कुछ अन्य समूहों के अवशेष ही इस छत्र के अंतर्गत बचे हैं।
- Despite distinct objectives, the coalition has largely projected organisational cohesion.
अलग-अलग उद्देश्यों के बावजूद इस गठबंधन ने बड़े स्तर पर संगठनात्मक एकता प्रदर्शित की है।
- One of the principal objectives is to overthrow **Sahelian governments**, establish an emirate rooted in **Sharia law** and remove foreign military influence.
इसके प्रमुख उद्देश्यों में साहेल देशों की सरकारों को गिराना, शरिया कानून आधारित अमीरात स्थापित करना और विदेशी सैन्य प्रभाव हटाना शामिल है।
- Unlike other jihadist organisations, the **JNIM** does not operate in Mali alone.
अन्य जिहादी संगठनों के विपरीत, JNIM केवल माली तक सीमित नहीं है।
- It has a significant presence across the Sahel, particularly in **Burkina Faso** and **Niger**.
साहेल क्षेत्र में, विशेषकर बुर्किना फासो और नाइजर में इसकी मजबूत उपस्थिति है।

The rise of JNIM

जेएनआईएम का उदय

- The **Tuareg question** in northern Mali remains central to the country's instability.
उत्तरी माली में तुआरेग मुद्दा देश की अस्थिरता का प्रमुख कारण बना हुआ है।
- For years, Tuareg separatists demanded greater autonomy for **Azawad**, citing systematic neglect.
कई वर्षों से तुआरेग अलगाववादी अजावाद के लिए अधिक स्वायत्तता की मांग करते रहे हैं, यह कहते हुए कि उनकी लगातार उपेक्षा की गई।
- The separatist rebels and Islamist militants briefly controlled parts of northern Mali during the Tuareg rebellion.
तुआरेग विद्रोह के दौरान अलगाववादी विद्रोहियों और इस्लामी उग्रवादियों ने उत्तरी माली के कुछ हिस्सों पर थोड़े समय के लिए नियंत्रण स्थापित किया था।
- During the rebellion, **Iyad Ag Ghali** formed **Ansar Dine** and **Amadou Koufa** fought alongside Ansar Dine and later formed **FLM** in central Mali.
विद्रोह के दौरान इयाद अग घाली ने अंसार दीन का गठन किया और अमादौ कौफा ने अंसार दीन के साथ लड़ाई लड़ी तथा बाद में मध्य माली में FLM का गठन किया।
- The **2012 Tuareg rebellion** and spillover of weapons and fighters from post-Gaddafi Libya helped transform the **JNIM** into a powerful armed faction.
2012 के तुआरेग विद्रोह और गद्दाफी के बाद लीबिया से हथियारों एवं लड़ाकों के प्रसार ने JNIM को एक शक्तिशाली सशस्त्र गुट में बदलने में मदद की।
- Additionally, the **JNIM** exploited Mali's political instability, weak governance and ethnic tensions following the 2021 coup to position itself as an alternative to state authorities.
इसके अतिरिक्त, JNIM ने 2021 के तख्तापलट के बाद माली की राजनीतिक अस्थिरता, कमजोर शासन और जातीय तनावों का लाभ उठाकर स्वयं को राज्य सत्ता के विकल्प के रूप में स्थापित किया।
- Initially, the jihadist network targeted **UN peacekeepers**, French counterterrorism forces and military bases, which helped establish its reputation as a powerful coalition in the Sahel.
शुरुआत में इस जिहादी नेटवर्क ने संयुक्त राष्ट्र शांति सैनिकों, फ्रांसीसी आतंकवाद-रोधी बलों और सैन्य ठिकानों को निशाना बनाया, जिससे साहेल में इसकी छवि एक शक्तिशाली गठबंधन के रूप में बनी।



- It has expanded its footprint in countries along the **Gulf of Guinea**, including **Côte d'Ivoire, Benin and Togo**.
इसने गिनी की खाड़ी के देशों जैसे कोट डी आइवर, बेनिन और टोगो में भी अपना प्रभाव बढ़ाया है।
- The **Africa Center for Strategic Studies** estimates that JNIM-linked groups comprise between **6,000 and 7,000 fighters** spread across the Sahel, with operational networks extending across Mali, Burkina Faso and Niger.
अफ्रीका सेंटर फॉर स्ट्रैटेजिक स्टडीज के अनुसार, JNIM से जुड़े समूहों में लगभग **6,000 से 7,000 लड़ाके** हैं, जिनके संचालन नेटवर्क माली, बुर्किना फासो और नाइजर तक फैले हैं।
- The **U.S.** has classified the **JNIM** as a foreign terrorist organisation.
अमेरिका ने **JNIM** को विदेशी आतंकवादी संगठन घोषित किया है।
- The **JNIM** operates as a decentralised militant coalition unlike traditional armed groups maintaining a rigid structure.
JNIM पारंपरिक कठोर संरचना वाले सशस्त्र समूहों के विपरीत एक विकेंद्रीकृत उग्रवादी गठबंधन के रूप में कार्य करता है।
- This structure has allowed it to expand its influence in the Sahel corridor despite leadership losses.
इस संरचना ने नेतृत्व हानि के बावजूद इसे साहेल क्षेत्र में अपना प्रभाव बढ़ाने में मदद की है।
- In areas under its purview, the **JNIM** has matured beyond a traditional militant organisation to establish a parallel system of authority.
अपने नियंत्रण वाले क्षेत्रों में **JNIM** एक पारंपरिक उग्रवादी संगठन से आगे बढ़कर समानांतर शासन व्यवस्था स्थापित कर चुका है।
- It maintains control through regional battalions known as **katibas** and mobile military units known as **markaz** and **saryat**, which operate across West Africa under the direction of the **Shura council**.
यह **कतिबा** नामक क्षेत्रीय बटालियनों तथा **मरकज़** और **सरयात** नामक मोबाइल सैन्य इकाइयों के माध्यम से नियंत्रण बनाए रखता है, जो **शूरा परिषद** के निर्देशन में पश्चिम अफ्रीका में कार्य करती हैं।

France, Russia jostle for influence in West African coastal country of Togo

GS II: IR

Agence France-Presse
LOME

Togo has maintained cordial ties with France since independence in 1960. It is now also opening up to a Russia keen to expand its influence from the Sahel into the Gulf of Guinea.

So, when France sent its Foreign Minister to Togo in April - the first such visit in 24 years - one of the main aims was to counter Russia's rapprochement with the west African coastal country.

France's position is not helped by the fact that Togo continues to cultivate good relations with regional neighbours Burkina Faso, Mali, and Niger.

All are former French



A file photo of Togo's Foreign Minister Robert Dussey attending a conference in Paris, France, in October 2025. REUTERS

colonies now ruled by military juntas who have severed ties with Paris and forged closer links with Russia instead.

"The issue for France is not so much a return to Togo as an attempt to stem the ongoing erosion of its

regional influence," Togolese political scientist and essayist Madi Djabakate told AFP.

In 2025, Moscow signed an agreement with Lome under which it sends army instructors, ships and military aircraft to Togo.

The deal potentially allows the Russian paramilitary Africa Corps - the successor to the Wagner mercenary group - to expand within mineral-rich Togo. Russia, like France, also has eyes on the strategic port of Lome, the deepest in west Africa.

Moscow's ambassador to Togo and Benin said in March that Russia hoped to use Lome port as a logistics hub to import its goods into Togo and the landlocked countries of the Sahel.

The plans have not gone unnoticed in Paris, which continues to see west Africa as its sphere of influence, nor have Moscow's efforts to secure a foothold in Togo via soft power.



21M. France, Russia jostle for influence in West African coastal country of Togo

पश्चिम अफ्रीकी तटीय देश टोगो में प्रभाव बढ़ाने को लेकर फ्रांस और रूस के बीच प्रतिस्पर्धा

- **Togo** has maintained cordial ties with **France** since independence in 1960.
टोगो ने 1960 में स्वतंत्रता के बाद से फ्रांस के साथ सौहार्दपूर्ण संबंध बनाए रखे हैं।
- It is now also opening up to Russia keen to expand its influence from the **Sahel** into the **Gulf of Guinea**.
अब यह रूस के लिए भी अपने द्वार खोल रहा है, जो साहेल क्षेत्र से आगे बढ़कर गिनी की खाड़ी तक अपना प्रभाव बढ़ाना चाहता है।
- So, when **France** sent its Foreign Minister to **Togo** in April – the first such visit in 24 years – one of the main aims was to counter **Russia's rapprochement** with the west African coastal country.
इसलिए जब फ्रांस ने अप्रैल में अपना विदेश मंत्री टोगो भेजा — जो 24 वर्षों में पहली ऐसी यात्रा थी — तो उसका एक प्रमुख उद्देश्य पश्चिम अफ्रीकी तटीय देश के साथ रूस की बढ़ती निकटता का मुकाबला करना था।
- France's position is not helped by the fact that **Togo** continues to cultivate good relations with regional neighbours **Burkina Faso, Mali, and Niger**.
फ्रांस की स्थिति इस तथ्य से और कठिन हो गई है कि टोगो अपने पड़ोसी देशों बुर्किना फासो, माली और नाइजर के साथ अच्छे संबंध बनाए हुए है।
- All are former French colonies now ruled by military juntas who have severed ties with **Paris** and forged closer links with **Russia** instead.
ये सभी पूर्व फ्रांसीसी उपनिवेश हैं, जिन पर अब सैन्य जुंटा शासन कर रहे हैं और जिन्होंने पेरिस से संबंध तोड़कर रूस के साथ करीबी संबंध बना लिए हैं।
- "The issue for **France** is not so much a return to **Togo** as an attempt to stem the ongoing erosion of its regional influence," Togolese political scientist and essayist **Madi Djabakate** told AFP.
टोगो के राजनीतिक वैज्ञानिक और लेखक मादी जबाकाते ने AFP से कहा, "फ्रांस के लिए मुद्दा केवल टोगो में वापसी का नहीं है, बल्कि उसके क्षेत्रीय प्रभाव में हो रही लगातार गिरावट को रोकने का प्रयास है।"
- In 2025, **Moscow** signed an agreement with **Lome** under which it sends army instructors, ships and military aircraft to **Togo**.
2025 में मॉस्को ने लोमे के साथ एक समझौते पर हस्ताक्षर किए, जिसके तहत वह टोगो में सैन्य प्रशिक्षक, जहाज और सैन्य विमान भेजेगा।
- The deal potentially allows the Russian paramilitary **Africa Corps** – the successor to the **Wagner mercenary group** – to expand within mineral-rich **Togo**.
यह समझौता रूसी अर्धसैनिक संगठन अफ्रीका कॉर्प्स — जो वैगनर भाड़े के समूह का उत्तराधिकारी है — को खनिज संपन्न टोगो में विस्तार करने की संभावित अनुमति देता है।
- **Russia**, like **France**, also has eyes on the strategic port of **Lome**, the deepest in west Africa.
रूस, फ्रांस की तरह, पश्चिम अफ्रीका के सबसे गहरे रणनीतिक बंदरगाह लोमे पर भी नजर रखे हुए है।
- **Moscow's** ambassador to **Togo** and **Benin** said in March that **Russia** hoped to use **Lome port** as a logistics hub to import its goods into **Togo** and the landlocked countries of the **Sahel**.
मार्च में टोगो और बेनिन में रूस के राजदूत ने कहा कि रूस उम्मीद करता है कि वह लोमे बंदरगाह को लॉजिस्टिक्स हब के रूप में उपयोग करेगा, ताकि अपने सामान को टोगो और साहेल के भू-आवेष्टित देशों तक पहुँचा सके।
- The plans have not gone unnoticed in **Paris**, which continues to see west Africa as its sphere of influence, nor have **Moscow's** efforts to secure a foothold in **Togo** via soft power.
ये योजनाएँ पेरिस की नजरों से बची नहीं हैं, जो अब भी पश्चिम अफ्रीका को अपने प्रभाव क्षेत्र के रूप में देखता है, और न ही मॉस्को के टोगो में सॉफ्ट पावर के माध्यम से पैर जमाने के प्रयास अनदेखे रहे हैं।



GS Paper III: Economy		21 May 2026
TOPICS COVERED		
21M	How States are managing the surging summer power demand राज्य बढ़ती ग्रीष्मकालीन विद्युत मांग का प्रबंधन कैसे कर रहे हैं	
21M	NCDEX set to unveil weather derivatives contract एनसीडीईएक्स मौसम डेरिवेटिव अनुबंध लॉन्च करने के लिए तैयार	
21M	Australian LNG supplies to India will surge, says Green ऑस्ट्रेलियाई एलएनजी आपूर्ति भारत को बढ़ेगी, ग्रीन ने कहा	

CACHE

How States are managing the surging summer power demand

India's electricity demand has surged sharply, with peak demand touching an all-time high of 256.1 GW in April, making it harder for States to manage supply during high-demand hours and exposing them to costly short-term market purchases and stressed distribution networks

GS III: Economy

Rishu Garg

India's electricity demand has surged earlier than expected this year, with peak demand touching an all-time high of 256.1 gigawatts (GW) on April 25. (The country followed up with higher records on May 19 and May 20). Nearly one-third of this peak demand was met through renewable energy (RE) sources. While the national grid held up without any shortage during solar hours, the non-solar hours saw a deficit of 2% (4,243 megawatts) on the same day.

What is peak demand?

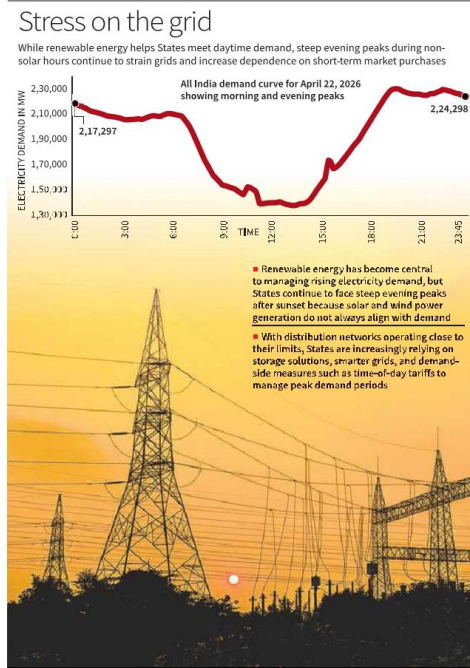
Peak demand refers to the highest point of electrical power consumed on a grid over a specific period, typically a 15-minute interval. While peak demand is a single instant, it occurs during 2 to 4 hours of higher-than-average demand or 'peak demand period'. Summer months may cause longer peaks from late afternoon to evening hours and then during the night due to cooling loads (from air conditioners and coolers). Similarly, winter peaks can last longer in the morning (between 6 a.m. and 10 a.m.) and evening (between 6 p.m. and 9 p.m.) due to increased heating and lighting loads during these hours, particularly in the northern States.

Paying heed to the duration of these peaks is important because even though they occur only for a short period, the grid needs to meet the peak load instantly. In fact, the entire power sector infrastructure (generation, transmission, and distribution capacity) needs to be planned to deal with this peak. But this is easier said than done. Building a system to serve the periods of highest load that last only for a few hours is neither resource-efficient nor economical. If enough capacity is built to meet the peak demand, it will remain underutilised during off-peak hours. On the other hand, if enough capacity is not available to meet the peak demand, then the system will face issues like load shedding and grid instability.

How do States manage demand?

States meet demand through two mechanisms: contractual supply and power exchange purchases. Contractual supply comprises the long-term power purchase agreements (PPAs) that State distribution companies (DISCOMs) sign with power generators to ensure power supply over several years. This helps the DISCOMs in meeting the average demand for their consumers. Almost 85%-90% of the demand in India is being met through contractual supply or bilateral contracts between the DISCOMs and generators. In the event of real-time mismatches or when the contractual supply falls short due to sudden spikes in demand or power plant or transmission failures, DISCOMs turn to the second mechanism – buying power from power exchanges. At present, around 10%-15% of the electricity is traded on the power exchanges.

For managing peaks, States often undertake demand-side measures. Most States have relied on advisories urging consumers to reduce usage during peak hours, typically between 6 p.m. and 11 p.m. Delhi has increasingly utilised measures such as time-of-day tariffs



(electricity charges that vary based on the time of day) and smart metering to flatten evening peaks that are driven by cooling demand.

What are some challenges faced by States due to rising demand?

A steady growth in household electrification, use of air conditioners, electric vehicle penetration, and agricultural power consumption has been driving the increase in India's electricity demand. In the last 5 years, the country's peak demand has risen by 37% – from 183 GW in December 2020 to over 250 GW in April 2026. This surge has made it tougher for States to fulfil the electricity requirements.

With DISCOMs committed to long-term agreements that are signed at a fixed capacity and price, any shortfall has to be met through power exchanges, which are short-term markets. This exposes the States to price volatility because prices in these markets increase during peak periods. Indian Energy Exchange data shows that electricity prices in the day-ahead market have seen sharp spikes during peak periods, with rates touching the regulatory ceiling of ₹ 10 per kilowatt-hour on several occasions during April and May this year.

Another challenge relates to the inadequacy of the distribution network. Infrastructure expansion and upgrades in

India's power distribution segment often lag demand growth, leading to issues with last-mile delivery of power to the end-consumer. Over the last decade, India's generation capacity has increased by 76% (from 303 GW to 532 GW), its transmission lines have expanded by 47% (from 3,41,551 circuit kilometres [ckm] to 5,01,766 ckm), and the transformation capacity has increased by 15% (from 6,58,949 megavolt-amperes [MVA] to 1,41,63,76 MVA). However, a corresponding expansion in the distribution infrastructure has not happened, and distribution networks continue to face major stress. Recent assessments by the Central Electricity Authority indicate that nearly 13 lakh distribution transformers (DTs) fail annually in India. Some States have low DT failure rates of less than 2%, such as Kerala, while some (particularly the northern States) experience DT failure rates as high as 20%. Further, overloading of transformers and feeders, ageing equipment, and inadequate maintenance continue to compromise last-mile power delivery. Many States experience local outages, especially during peak demand periods, highlighting that their distribution networks are operating close to their limits and need upgradation. The challenge posed by demand surges becomes acute for financially stressed States because they are neither able to

procure costly short-term power nor invest in distribution network upgrades. States like Uttar Pradesh and Bihar continue to grapple with high losses, ageing distribution infrastructure, and overloaded transformers.

How does RE help?

RE has become central to the management of rising electricity demand, particularly during summer peak periods. Since solar and wind power plants have low operating costs, higher RE penetration can also reduce overall power purchase costs for DISCOMs.

States with high RE capacity, such as Gujarat and Karnataka, are able to meet daytime peak comfortably as the solar power generation aligns reasonably well with daytime commercial and agricultural demand. But these States face steep evening peaks after sunset, for which they need to increasingly depend on energy storage technologies such as pumped hydro storage (PHS) and battery energy storage systems (BESS). Similarly, Tamil Nadu, with a high wind capacity, benefits significantly from wind generation during the monsoon months, reducing dependence on thermal power. But the State has to resort to market purchases during periods of low wind output to meet the high evening urban demand.

However, Punjab, which has a meagre RE capacity and a dominant agricultural load during the paddy-sowing season that coincides with the summer peak, has to rely heavily on hydro imports and short-term market purchases.

What needs to be done?

Despite its growing contribution, RE cannot help in ensuring a reliable round-the-clock power supply because of its variable nature. Also, electricity demand and RE power generation do not always align. Solar power generation falls sharply after sunset, though electricity demand often remains high during evening hours. Similarly, wind generation is seasonal and highly dependent on monsoon conditions. Because of this, States now face the challenge of managing variability and steep evening demand.

This is where energy storage technologies like BESS and PHS that enhance flexibility become critical for India's power system, as they help to balance the grid when the output (power) generated by RE changes suddenly. PHS is already emerging as a key solution in States like Maharashtra, Andhra Pradesh, Tamil Nadu, and Karnataka. At the same time, the grid itself needs to become smarter and more flexible through stronger transmission networks, upgraded distribution systems, and energy efficiency initiatives.

With Indian States witnessing more peak demand periods, the challenge is shifting from simply generating more electricity to building a system capable of managing power efficiently across regions and time periods. This calls for substantial investments in storage solutions, along with adopting more demand-side measures like ToD tariffs and agricultural load scheduling. (Rishu Garg is a senior policy specialist in the Energy Policy and Regulations group at the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank)



21M. How States are managing the surging summer power demand राज्य बढ़ती ग्रीष्मकालीन विद्युत मांग का प्रबंधन कैसे कर रहे हैं

- India's **electricity demand** has surged sharply, with peak demand touching an all-time high of **256.1 GW** in April.
भारत की **विद्युत मांग** में तीव्र वृद्धि हुई है, जिसमें अप्रैल में अधिकतम मांग **256.1 गीगावाट** के सर्वकालिक उच्च स्तर तक पहुँच गई।
- Nearly **one-third of this peak demand was met through renewable energy (RE) sources**.
इस उच्चतम मांग का लगभग एक-तिहाई हिस्सा **नवीकरणीय ऊर्जा (RE)** स्रोतों के माध्यम से पूरा किया गया।
- Peak demand** refers to the highest point of electrical power consumed on a grid over a specific period, typically a **15-minute interval**.
उच्चतम मांग से आशय किसी विशिष्ट अवधि, सामान्यतः **15 मिनट के अंतराल**, के दौरान ग्रिड पर उपभोग की गई विद्युत शक्ति के सर्वोच्च स्तर से है।
- While peak demand is a single instant, it occurs during **2 to 4 hours of higher-than-average demand or 'peak demand period'**.
यद्यपि उच्चतम मांग एक क्षणिक स्थिति होती है, किन्तु यह सामान्य से अधिक मांग वाले **2 से 4 घंटे** के दौरान उत्पन्न होती है, जिसे '**उच्चतम मांग अवधि**' कहा जाता है।
- Summer months may cause longer peaks from late afternoon to evening hours and then during the night due to cooling loads (from **air conditioners and coolers**).
ग्रीष्म ऋतु में **एयर कंडीशनर और कूलर** के कारण उत्पन्न शीतलन भार से देर दोपहर से शाम तक तथा रात में लंबी उच्चतम मांग अवधि उत्पन्न हो सकती है।
- Similarly, winter peaks can last longer in the morning (between **6 a.m. and 10 a.m.**) and evening (between **6 p.m. and 9 p.m.**) due to increased heating and lighting loads during these hours, particularly in the northern States.
इसी प्रकार, शीत ऋतु में प्रातः (**सुबह 6 बजे से 10 बजे तक**) और सायंकाल (**शाम 6 बजे से 9 बजे तक**) हीटिंग और प्रकाश भार में वृद्धि के कारण उच्चतम मांग अधिक समय तक बनी रह सकती है, विशेषकर उत्तरी राज्यों में।
- Paying heed to the duration of these peaks is important because even though they occur only for a short period, the grid needs to meet the peak load instantly.
इन उच्चतम अवधियों की अवधि पर ध्यान देना महत्वपूर्ण है क्योंकि यद्यपि वे केवल थोड़े समय के लिए उत्पन्न होती हैं, फिर भी ग्रिड को उस उच्च भार की त्वरित पूर्ति करनी पड़ती है।

How do States manage demand?

राज्य मांग का प्रबंधन कैसे करते हैं?

- States meet demand through two mechanisms: **contractual supply and power exchange purchases**.
राज्य मांग की पूर्ति दो व्यवस्थाओं के माध्यम से करते हैं: **संविदात्मक आपूर्ति तथा विद्युत विनिमय खरीद**।
- Contractual supply** comprises the long-term **power purchase agreements (PPAs)** that State distribution companies (**DISCOMs**) sign with power generators to ensure power supply over several years.
संविदात्मक आपूर्ति में दीर्घकालिक **विद्युत क्रय समझौते (PPAs)** शामिल होते हैं, जिन्हें राज्य वितरण कंपनियाँ (**डिस्कॉम**) कई वर्षों तक विद्युत आपूर्ति सुनिश्चित करने हेतु विद्युत उत्पादकों के साथ करती हैं।
- This helps the DISCOMs in meeting the average demand for their consumers**.
यह डिस्कॉम को अपने उपभोक्ताओं की औसत मांग पूरी करने में सहायता करता है।
- Almost 85%-90% of the demand in India is being met through contractual supply or bilateral contracts between the DISCOMs and generators**.



भारत में लगभग 85%-90% विद्युत मांग की पूर्ति संविदात्मक आपूर्ति अथवा डिस्कॉम और उत्पादकों के बीच द्विपक्षीय अनुबंधों के माध्यम से की जाती है।

- In the event of real-time mismatches or when the contractual supply falls short due to sudden spikes in demand or power plant or transmission failures, DISCOMs turn to the second mechanism — buying power from power exchanges.

जब वास्तविक समय में असंतुलन उत्पन्न होता है अथवा मांग में अचानक वृद्धि, विद्युत संयंत्रों की विफलता या संचरण अवरोध के कारण संविदात्मक आपूर्ति अपर्याप्त हो जाती है, तब डिस्कॉम दूसरी व्यवस्था — विद्युत विनिमय बाजारों से बिजली खरीदने — का सहारा लेते हैं।

- At present, around 10%-15% of the electricity is traded on the power exchanges.

वर्तमान में लगभग 10%-15% विद्युत का व्यापार विद्युत विनिमय बाजारों में होता है।

- For managing peaks, States often undertake demand-side measures.

उच्चतम मांग के प्रबंधन हेतु राज्य प्रायः मांग-पक्षीय उपाय अपनाते हैं।

- Most States have relied on advisories urging consumers to reduce usage during peak hours, typically between 6 p.m. and 11 p.m.

अधिकांश राज्यों ने उपभोक्ताओं को सामान्यतः शाम 6 बजे से रात 11 बजे के बीच उच्चतम मांग अवधि में बिजली उपयोग कम करने के लिए परामर्श जारी किए हैं।

- Delhi has increasingly utilised measures such as time-of-day tariffs (electricity charges that vary based on the time of day) and smart metering to flatten evening peaks that are driven by cooling demand.

दिल्ली ने शीतलन संबंधी मांग से उत्पन्न शाम की उच्चतम मांग को कम करने हेतु समय-आधारित शुल्क प्रणाली (दिन के समय के अनुसार बदलने वाले बिजली शुल्क) तथा स्मार्ट मीटरिंग जैसे उपायों का बढ़ते हुए उपयोग किया है।

What are some challenges faced by States due to rising demand?

बढ़ती मांग के कारण राज्यों के समक्ष कौन-सी चुनौतियाँ हैं?

- A steady growth in household electrification, use of air conditioners, electric vehicle penetration, and agricultural power consumption has been driving the increase in India's electricity demand.

घरेलू विद्युतीकरण में निरंतर वृद्धि, एयर कंडीशनर के उपयोग, इलेक्ट्रिक वाहनों के प्रसार तथा कृषि क्षेत्र में बिजली की खपत ने भारत की विद्युत मांग में वृद्धि को प्रेरित किया है।

- In the last 5 years, the country's peak demand has risen by 37% — from 183 GW in December 2020 to over 250 GW in April 2026.

पिछले 5 वर्षों में देश की उच्चतम मांग में 37% की वृद्धि हुई है — जो दिसंबर 2020 में 183 गीगावाट से बढ़कर अप्रैल 2026 में 250 गीगावाट से अधिक हो गई।

- This exposes the States to price volatility because prices in these markets increase during peak periods.

इससे राज्य मूल्य अस्थिरता के प्रति संवेदनशील हो जाते हैं क्योंकि उच्चतम मांग अवधि में इन बाजारों में बिजली की कीमतें बढ़ जाती हैं।

- Infrastructure expansion and upgrades in India's power distribution segment often lag demand growth, leading to issues with last-mile delivery of power to the end-consumer.

भारत के विद्युत वितरण क्षेत्र में अवसंरचना विस्तार और उन्नयन प्रायः मांग वृद्धि से पीछे रह जाते हैं, जिससे अंतिम उपभोक्ता तक बिजली पहुँचाने में समस्याएँ उत्पन्न होती हैं।

- Over the last decade, India's generation capacity has increased by 76% (from 303 GW to 532 GW).

पिछले एक दशक में भारत की उत्पादन क्षमता में 76% की वृद्धि हुई है (जो 303 गीगावाट से बढ़कर 532 गीगावाट हो गई)।

- Its transmission lines have expanded by 47% (from 3,41,551 circuit kilometres [ckm] to 5,01,766 ckm).



इसके संचरण नेटवर्क में 47% की वृद्धि हुई है (जो 3,41,551 सर्किट किलोमीटर से बढ़कर 5,01,766 सर्किट किलोमीटर हो गया)।

- Recent assessments by the Central Electricity Authority indicate that nearly 13 lakh distribution transformers (DTs) fail annually in India.

केंद्रीय विद्युत प्राधिकरण के हालिया आकलनों से पता चलता है कि भारत में प्रतिवर्ष लगभग 13 लाख वितरण ट्रांसफॉर्मर (DTs) विफल हो जाते हैं।

- Some States have low DT failure rates of less than 2%, such as Kerala, while some (particularly the northern States) experience DT failure rates as high as 20%.

कुछ राज्यों, जैसे केरल, में डीटी विफलता दर 2% से कम है, जबकि कुछ राज्यों, विशेषकर उत्तरी राज्यों, में यह दर 20% तक पहुँच जाती है।

- Further, overloading of transformers and feeders, ageing equipment, and inadequate maintenance continue to compromise last-mile power delivery.

इसके अतिरिक्त, ट्रांसफॉर्मरों और फीडरों पर अत्यधिक भार, पुरानी हो चुकी मशीनरी तथा अपर्याप्त रखरखाव अंतिम उपभोक्ता तक बिजली आपूर्ति को प्रभावित करते रहते हैं।

- Many States experience local outages, especially during peak demand periods, highlighting that their distribution networks are operating close to their limits and need upgradation.

अनेक राज्यों में, विशेषकर उच्चतम मांग अवधि के दौरान, स्थानीय बिजली बाधाएँ उत्पन्न होती हैं, जो यह दर्शाती हैं कि उनके वितरण नेटवर्क अपनी क्षमता की सीमा के निकट कार्य कर रहे हैं और उन्हें उन्नयन की आवश्यकता है।

The challenge posed by demand surges

मांग में तीव्र वृद्धि से उत्पन्न चुनौती

- States like Uttar Pradesh and Bihar continue to grapple with high losses, ageing distribution infrastructure, and overloaded transformers.

उत्तर प्रदेश और बिहार जैसे राज्य अब भी उच्च हानियों, पुरानी वितरण अवसंरचना तथा अत्यधिक भार वाले ट्रांसफॉर्मरों की समस्या से जूझ रहे हैं।

How does RE help?

नवीकरणीय ऊर्जा कैसे सहायता करती है?

- States with high RE capacity, such as Gujarat and Karnataka, are able to meet daytime peak comfortably as the solar power generation aligns reasonably well with daytime commercial and agricultural demand.

उच्च नवीकरणीय ऊर्जा क्षमता वाले राज्य, जैसे गुजरात और कर्नाटक, दिन के समय की उच्चतम मांग को आसानी से पूरा कर लेते हैं क्योंकि सौर ऊर्जा उत्पादन दिन के वाणिज्यिक और कृषि संबंधी मांग के साथ पर्याप्त रूप से मेल खाता है।

- But these States face steep evening peaks after sunset, for which they need to increasingly depend on energy storage technologies such as pumped hydro storage (PHS) and battery energy storage systems (BESS).

किन्तु सूर्यास्त के बाद इन राज्यों को तीव्र सायंकालीन उच्चतम मांग का सामना करना पड़ता है, जिसके लिए उन्हें पंप्ड हाइड्रो स्टोरेज (PHS) तथा बैटरी ऊर्जा भंडारण प्रणाली (BESS) जैसी ऊर्जा भंडारण तकनीकों पर अधिक निर्भर होना पड़ता है।

- Similarly, Tamil Nadu, with a high wind capacity, benefits significantly from wind generation during the monsoon months, reducing dependence on thermal power.

इसी प्रकार, उच्च पवन क्षमता वाला तमिलनाडु मानसून महीनों के दौरान पवन ऊर्जा उत्पादन से अत्यधिक लाभ प्राप्त करता है, जिससे तापीय ऊर्जा पर निर्भरता कम होती है।



GS III: Economy: Capital Market

NCDEX set to unveil weather derivatives contract

The National Commodity and Derivatives Exchange (NCDEX) on Wednesday said it will launch RAINMUMBAI, the country's first exchange-traded weather derivatives contract, on May 29, offering businesses and farmers a regulated tool to hedge against monsoon variability. The contract, which has received approval from the Securities and Exchange Board of India (SEBI), was developed with the Indian Institute of Technology Bombay (IIT Bombay), using rainfall data from the India Meteorological Department (IMD). The instrument will be used to hedge losses from unpredictable weather and monsoon variability. IMD surface rainfall and automatic weather stations (AWS) observations at Santacruz and Colaba will be the source of rainfall data. The derivative will trade between 10:00 a.m. and 11:30 p.m.

21M. NCDEX set to unveil weather derivatives contract

एनसीडीईएक्स मौसम डेरिवेटिव अनुबंध लॉन्च करने के लिए तैयार

- The National Commodity and Derivatives Exchange (NCDEX) on Wednesday said it will launch RAINMUMBAI, the country's first exchange-traded weather derivatives contract, on May 29, offering businesses and farmers a regulated tool to hedge against monsoon variability.

नेशनल कमोडिटी एंड डेरिवेटिव्स एक्सचेंज (NCDEX) ने बुधवार को कहा कि वह 29 मई को देश का पहला एक्सचेंज-ट्रेडेड मौसम डेरिवेटिव अनुबंध RAINMUMBAI लॉन्च करेगा, जो व्यवसायों और किसानों को मानसून की अनिश्चितता से बचाव के लिए एक विनियमित साधन प्रदान करेगा।

- The contract, which has received approval from the Securities and Exchange Board of India (SEBI), was developed with the Indian Institute of Technology Bombay (IIT Bombay), using rainfall data from the India Meteorological Department (IMD).

इस अनुबंध को भारतीय प्रतिभूति और विनियम बोर्ड (SEBI) से मंजूरी मिल चुकी है और इसे भारतीय प्रौद्योगिकी संस्थान बॉम्बे (IIT Bombay) के सहयोग से विकसित किया गया है, जिसमें भारतीय मौसम विज्ञान विभाग (IMD) के वर्षा आँकड़ों का उपयोग किया गया है।

- The instrument will be used to hedge losses from unpredictable weather and monsoon variability.
इस साधन का उपयोग अनिश्चित मौसम और मानसून की परिवर्तनशीलता से होने वाले नुकसान से बचाव के लिए किया जाएगा।
- IMD surface rainfall and automatic weather stations (AWS) observations at Santacruz and Colaba will be the source of rainfall data.
IMD की सतही वर्षा तथा सांताक्रूज और कोलाबा स्थित ऑटोमेटिक वेदर स्टेशन (AWS) के अवलोकन वर्षा आँकड़ों का स्रोत होंगे।
- The derivative will trade between 10:00 a.m. and 11:30 p.m.
यह डेरिवेटिव सुबह 10:00 बजे से रात 11:30 बजे तक कारोबार करेगा।



Australian LNG supplies to India will surge, says Green

Shipments could reach via the Indian Ocean route that is free of choke points, says Australian High Commissioner; lithium, copper may follow

GS III: Economy

Appaji Reddem
VIJAYAWADA

Amid the global energy shortage triggered by the West Asia crisis and tensions around the Strait of Hormuz, enhanced LNG supplies from Australia could become a viable alternative to bridge India's energy demand-supply gap, Australian High Commissioner to India Philip Green has said.

In an exclusive interaction with *The Hindu* in Vijayawada, Mr. Green said Australia's proximity to India's east coast and a crisis-free maritime route made Australian LNG well-suited to support eastern India's growing energy needs and green steel production.

At present, most LNG used for industrial and domestic needs in India comes from West Asian countries through ports on India's west coast.

"I can see a future where Australia increases LNG supplies to India," Mr. Green said, noting that Australia's major gas fields are located across the Indian Ocean from India's southern State, Andhra Pradesh. While LNG cargoes from Australia to India had already begun, supplies could become "much more substantial" in the future, particularly for eastern India.



Philip Green

He added that maritime routes between Australia and India remain free and supply chains intact.

Australia's metallurgical coal exports for Indian steel-making and imports of processed petroleum products from India are continuing and uninterrupted.

Mr. Green said that Australia currently exports LNG mainly to East Asian markets such as Japan, Korea and Singapore. The Indian Ocean route offers India a supply chain free from strategic choke points, he said.

ECTA-led surge

Trade between India and Australia is growing strongly and is expected to expand further, according to Mr. Green.

Indian exports to Australia have grown by 200% in the last five years, compared with 40% growth in exports to the rest of the world. "India is profiting

five times more in trade with Australia than with the rest of the world," Mr. Green said. Since the implementation of the Australia-India Economic Cooperation and Trade Agreement (ECTA), Indian textile exports to Australia have risen 25%, agricultural exports 50%, and car exports 85%.

Australia is also aiming to play a major role in supplying critical minerals such as lithium and copper for the clean energy sector. The country produces nearly half of the world's lithium and already exports considerable quantities of copper to India.

Mr. Green said India's growing electric vehicle (EV) and battery industries will require much larger lithium supplies, making Australia a natural partner.

Australia is working with Indian government agencies and companies to build a direct lithium supply chain, including investments and offtake agreements in Australian lithium mines. He added that India must remain proactive in securing Australian lithium amid rising global competition from Europe, North America and East Asia.

"Indian consumers need to be active and hungry in a competitive global market looking to source more Australian lithium," he said.

21M. Australian LNG supplies to India will surge, says Green

ऑस्ट्रेलियाई एलएनजी आपूर्ति भारत को बढ़ेगी, ग्रीन ने कहा

Shipments could reach via the Indian Ocean route that is free of choke points, says Australian High Commissioner; lithium, copper may follow.

ऑस्ट्रेलियाई उच्चायुक्त ने कहा कि आपूर्ति हिंद महासागर मार्ग से हो सकती है, जो रणनीतिक अवरोधों से मुक्त है; इसके बाद लिथियम और तांबा की आपूर्ति भी बढ़ सकती है।

ECTA-led surge

ECTA के नेतृत्व में वृद्धि

Since the implementation of the Australia-India Economic Cooperation and Trade Agreement (ECTA), Indian textile exports to Australia have risen 25%, agricultural exports 50%, and car exports 85%.

ऑस्ट्रेलिया-भारत आर्थिक सहयोग और व्यापार समझौते (ECTA) के लागू होने के बाद से ऑस्ट्रेलिया को भारत का वस्त्र निर्यात 25%, कृषि निर्यात 50% और कार निर्यात 85% बढ़ा है।

GS Paper III: Science and Technology

21 May 2026

TOPICS COVERED

21M Elderly woman dies of amoebic infection

अमीबिक संक्रमण से बुजुर्ग महिला की मृत्यु

21M New crystal found in the detritus of the first-ever nuclear blast

पहले परमाणु विस्फोट के अवशेषों में नया क्रिस्टल खोजा गया

21M QUIZ



Elderly woman dies of amoebic infection

CS III: S&T

The Hindu Bureau
KOCHI

A 73-year-old woman from Nellikuzhi in Kothamangalam in Ernakulam district of Kerala has died of primary amoebic meningoencephalitis (PAM).

The rare but lethal central nervous system infection is caused by *Naegleria fowleri*, a free-living amoeba found in freshwater, lakes, and rivers. It can also survive in poorly maintained swimming pools.

Senior officials said on Wednesday that the woman died on May 15 at a private hospital in Kothamangalam.

She had developed symptoms of the infection, including fever and headache, on May 6. She was admitted to the hospital on May 8 and was rushed to another hospital in Aluva the same day after her con-

dition worsened. As she continued to remain critical, she was shifted back to the private hospital in Kothamangalam after three days.

A worker under the Mahatma Gandhi National Rural Employment Guarantee Scheme, she is suspected to have washed her face using water collected from a canal.

After her death, the panchayat health officials examined the condition of nearly 20 persons who had worked along with her. They have not yet developed any symptoms. The health wing carried out superchlorination of water sources, including wells. R Shahirshah, District Medical Officer, Ernakulam, said preventive measures have been intensified. He cautioned the public to avoid bathing or swimming in unsafe water sources.

- He cautioned the public to avoid bathing or swimming in unsafe water sources. उन्होंने जनता को असुरक्षित जल स्रोतों में स्नान या तैराकी से बचने की चेतावनी दी।

21M. Elderly woman dies of amoebic infection

अमीबिक संक्रमण से बुजुर्ग महिला की मृत्यु

• A 73-year-old woman from Nellikuzhi in Kothamangalam in Ernakulam district of Kerala has died of primary amoebic meningoencephalitis (PAM).

केरल के एर्नाकुलम जिले के कोठामंगलम स्थित नेल्लिकुझी की एक 73 वर्षीय महिला की प्राइमरी अमीबिक मेनिंगोएन्सेफलाइटिस (PAM) से मृत्यु हो गई।

• The rare but lethal central nervous system infection is caused by *Naegleria fowleri*, a free-living amoeba found in freshwater, lakes, and rivers.

यह दुर्लभ लेकिन घातक केंद्रीय तंत्रिका तंत्र संक्रमण नेगलेरिया फाउलेरी नामक मुक्त-जीवी अमीबा के कारण होता है, जो मीठे पानी, झीलों और नदियों में पाया जाता है।

• It can also survive in poorly maintained swimming pools. यह खराब रखरखाव वाले स्विमिंग पूलों में भी जीवित रह सकता है।

• She had developed symptoms of the infection, including fever and headache, on May 6.

उसे 6 मई को संक्रमण के लक्षण, जिनमें बुखार और सिरदर्द शामिल थे, दिखाई देने लगे थे।

• The health wing carried out superchlorination of water sources, including wells.

स्वास्थ्य विभाग ने कुओं सहित जल स्रोतों का सुपरक्लोरीनेशन किया।



New crystal found in the detritus of the first-ever nuclear blast

GS III: S&T
Vasudevan Mukunth

On July 16, 1945, the U.S.'s 'Trinity' nuclear test in New Mexico changed history. The explosion released energy equivalent to 21,000 tons of TNT, vaporised a steel tower, and melted the surrounding desert sand into a glassy green crust called trinitite. Decades later, this mineral still holds secrets.

In a new study published in Proceedings of the National Academy of Sciences, scientists from the University of Firenze, Slovak Academy of Sciences, Carnegie Mellon University, and Princeton University have said they have found a rare, cage-like crystal – called a clathrate – in the trinitite.

The researchers, led by Luca Bindi and Paul Steinhardt, were motivated by the discovery in 2021 of a quasicrystal in red trinitite – a specific variety of the glass tinted by copper from the test tower's wiring. Quasicrystals have ordered but non-repeating atomic patterns that scientists once thought to be impossible in nature. Because both the quasicrystal and the newly discovered clathrate were found in similar copper-rich droplets, the team wanted to know if these two rare forms of matter could be related. In other words, they wanted to check if the extreme conditions in the nuclear blast

could have been a natural laboratory that created materials impossible to synthesise using conventional laboratory methods.

To find the new crystal, the team examined a sample of red trinitite collected shortly after the 1945 test. They used high-resolution nano-CT scans to peer inside the glass, where they identified small drops of metal.

They identified one promising candidate, a grain just 10µm across. Then they determined the arrangement of its atoms and its chemical makeup using advanced instruments. The team also used supercomputer simulations to test its stability and its potential relationship to other rare materials. This is how the team discovered a previously unknown calcium-copper-silicon crystal. They said it is a type-I clathrate, which is characterised by a framework of silicon atoms forming small cages that trap other elements inside.

This is the first time a clathrate has been identified among the solid-state products of a nuclear explosion. According to the study paper, the newfound crystal is metastable: meaning it could only form under the extreme, fast-changing temperatures and pressures of the Trinity test – conditions reaching over 1,500 °C and pressures up to 8 gigapascals – and then frozen into place by cooling rapidly.

The researchers also checked whether the Trinity quasicrystal could have been derived from the clathrate structure. Their computer models showed that while a clathrate framework would indeed be stable with a small amount of copper, it would fall apart when the copper content reached the high levels found in the Trinity quasicrystal. In other words, the two materials formed in the same event but belong to separate structural families. Per the study, extreme environments can shape matter in ways that challenge scientists' understanding of chemistry and could pave the way for creating new synthetic materials that mimic these high-energy conditions.

The researchers wrote in the paper that their work, by ruling out a connection between clathrates and quasicrystals, also deepens the mystery of where and how complex, non-repeating can structures form in nature.

21M. New crystal found in the detritus of the first-ever nuclear blast पहले परमाणु विस्फोट के अवशेषों में नया क्रिस्टल खोजा गया

The Trinity nuclear test and a new crystal discovery

ट्रिनिटी परमाणु परीक्षण और एक नए क्रिस्टल की खोज

- On July 16, 1945, the U.S.'s 'Trinity' nuclear test in New Mexico changed history. 16 जुलाई 1945 को संयुक्त राज्य अमेरिका द्वारा न्यू मैक्सिको में किया गया 'ट्रिनिटी' परमाणु परीक्षण इतिहास बदल देने वाला सिद्ध हुआ।

- The explosion released energy equivalent to 21,000 tons of TNT, vaporised a steel tower, and melted the surrounding desert sand into a glassy green crust called trinitite. इस विस्फोट ने 21,000 टन TNT के बराबर ऊर्जा मुक्त की, एक इस्पाती टॉवर को वाष्पीकृत कर दिया, तथा आसपास की रेगिस्तानी रेत को पिघलाकर हरे काँच जैसी परत में बदल दिया, जिसे ट्रिनाइट कहा जाता है।

- Decades later, this mineral still holds secrets.

दशकों बाद भी यह खनिज अनेक रहस्यों को समेटे हुए है।

- In a new study published in Proceedings of the National Academy of Sciences, scientists from the University of Firenze, Slovak Academy of Sciences, Carnegie Mellon University, and Princeton have said they have found a rare, cage-like

University crystal — called a clathrate — in the trinitite.

प्रोसीडिंग्स ऑफ द नेशनल एकेडमी ऑफ साइंसेज में प्रकाशित एक नए अध्ययन में फ्लोरेंस विश्वविद्यालय, स्लोवाक एकेडमी ऑफ साइंसेज, कार्नेगी मेलॉन विश्वविद्यालय तथा प्रिंसटन विश्वविद्यालय के वैज्ञानिकों ने कहा है कि उन्होंने ट्रिनाइट में एक दुर्लभ पिंजरे जैसी संरचना वाला क्रिस्टल खोजा है, जिसे क्लैथरेट कहा जाता है।

- The researchers, led by Luca Bindi and Paul Steinhardt, were motivated by the discovery in 2021 of a quasicrystal in red trinitite.

लुका बिंडी और पॉल स्टीनहार्ट के नेतृत्व वाले शोधकर्ता 2021 में लाल ट्रिनाइट में पाए गए एक क्वासिक्रिस्टल की खोज से प्रेरित हुए थे।

- Red trinitite is a specific variety of the glass tinted by copper from the test tower's wiring. लाल ट्रिनाइट उस काँच का एक विशेष प्रकार है जो परीक्षण टॉवर की तारों से निकले ताँबे के कारण लाल रंग का हो गया था।

- Quasicrystals have ordered but non-repeating atomic patterns that scientists once thought to be impossible in nature.

क्वासिक्रिस्टलों में सुव्यवस्थित किन्तु पुनरावृत्ति रहित परमाणु संरचनाएँ होती हैं, जिन्हें वैज्ञानिक कभी प्रकृति में असंभव मानते थे।

- Because both the quasicrystal and the newly discovered clathrate were found in similar copper-rich droplets, the team wanted to know if these two rare forms of matter could be



related.

चूँकि क्वासिक्रिस्टल और नव-आविष्कृत क्लैथरेट दोनों समान ताँबा-समृद्ध बूंदों में पाए गए थे, इसलिए शोध दल यह जानना चाहता था कि क्या पदार्थ के ये दोनों दुर्लभ रूप आपस में संबंधित हो सकते हैं।

- They used high-resolution **nano-CT scans** to peer inside the glass, where they identified small drops of metal.
उन्होंने काँच के भीतर देखने हेतु उच्च-रिज़ॉल्यूशन **नैनो-सीटी स्कैन** का उपयोग किया, जहाँ उन्हें धातु की छोटी बूंदें मिलीं।
- This is how the team discovered a previously unknown **calcium-copper-silicon crystal**.
इसी प्रकार दल ने पहले से अज्ञात **कैल्शियम-ताँबा-सिलिकॉन क्रिस्टल** की खोज की।
- They said it is a **type-I clathrate**, which is characterised by a framework of silicon atoms forming small cages that trap other elements inside.
उन्होंने कहा कि यह एक **टाइप-I क्लैथरेट** है, जिसकी विशेषता सिलिकॉन परमाणुओं का ऐसा ढाँचा है जो छोटे पिंजरे बनाकर अन्य तत्वों को अपने भीतर बंद कर लेता है।
- This is the first time a clathrate has been identified among the solid-state products of a nuclear explosion.
यह पहली बार है जब किसी परमाणु विस्फोट से उत्पन्न ठोस पदार्थों में क्लैथरेट की पहचान की गई है।
- According to the study paper, the **newfound crystal is metastable**.
अध्ययन पत्र के अनुसार, नव-खोजा गया क्रिस्टल **मेटास्टेबल** है।
- **Meaning it could only form under the extreme, fast-changing temperatures and pressures of the Trinity test.**
अर्थात् यह केवल ट्रिनिटी परीक्षण की अत्यधिक तथा तीव्रता से बदलती तापमान और दाब स्थितियों में ही बन सकता था।
- **Conditions reaching over 1,500 °C and pressures up to 8 gigapascals.**
ये परिस्थितियाँ **1,500 डिग्री सेल्सियस** से अधिक तापमान तथा **8 गीगापास्कल** तक के दाब तक पहुँच गई थीं।

Answers to May 7 quiz:

1. Measure of the number of atoms bonded to an atom – **Ans: Ligancy**
 2. Force resulting from surface atoms lacking 'lacking' material on one side – **Ans: Surface tension**
 3. High value of this attribute leads to Gibbs-Thomson effect – **Ans: Vapour pressure**
 4. Collective oscillations of electrons in a metal – **Ans: Plasmons**
 5. Formation on surface that allows a material's surface to melt first – **Ans: Liquid film**
- Visual: **Pearlescence**

21M. QUIZ

Ligancy – Measure of the Number of Atoms Bonded to an Atom

- Ligancy refers to the number of atoms, ions, or groups directly bonded to a central atom in a coordination compound or crystal structure. In chemistry and material science, it is closely related to the coordination number.

- For example, in sodium chloride crystal, each sodium ion is surrounded by six chloride ions, giving it a ligancy of six. Ligancy determines the geometry, stability, and bonding characteristics of compounds.

- Use this concept in understanding crystal structures and coordination chemistry.

Surface Tension – Force Resulting from Surface Atoms Lacking Material on One Side

- **Surface tension is the property of a liquid surface caused by unequal intermolecular forces acting on surface molecules.** Molecules inside a liquid experience forces from all directions, but surface molecules lack neighbouring molecules above them.
- This creates a net inward force, making the surface behave like a stretched elastic membrane.
- Surface tension is responsible for phenomena such as water droplets forming spherical shapes and insects walking on water.



- It arises due to cohesive forces between molecules and decreases with increasing temperature.

Vapour Pressure – High Value of this Attribute Leads to Gibbs-Thomson Effect

- Vapour pressure is the pressure exerted by vapour molecules when a substance is in equilibrium with its liquid or solid phase.
- A high vapour pressure indicates that particles can easily escape from the surface. In nanoscale materials, this contributes to the Gibbs-Thomson effect, where small particles exhibit altered melting points and equilibrium conditions due to surface curvature.
- According to material science and NCERT thermodynamics concepts, smaller particles possess higher surface energy, influencing evaporation, condensation, and phase stability in nanotechnology and metallurgy.

Plasmons – Collective Oscillations of Electrons in a Metal

- **Explanation:**
Plasmons are collective oscillations of free electrons present inside metals when stimulated by electromagnetic radiation such as light.
- These oscillations occur because conduction electrons move together against the fixed positive ions in the metallic lattice.
- Plasmons are important in nanotechnology, optics, and surface physics. Surface plasmons are widely used in biosensors, medical diagnostics, and advanced photonic devices.
- Research institutions and modern material science studies highlight their role in improving solar cells, nanoelectronics, and optical communication technologies through enhanced light-matter interaction.

Liquid Film – Formation on Surface that Allows a Material's Surface to Melt First

- **Explanation:**
A liquid film refers to a thin molten layer that forms on the surface of a solid material before the entire material melts.
- This phenomenon is known as surface melting. Surface atoms possess weaker bonding because they have fewer neighbouring atoms compared to atoms inside the solid.
- As temperature rises near the melting point, the surface becomes unstable first and forms a liquid-like layer.
- This concept is important in metallurgy, crystal growth, nanomaterials, and semiconductor technology, where surface properties strongly influence thermal behaviour and material stability.

GS Paper III: Environment		21 May 2026
TOPICS COVERED		
21M	Sperm whale 'clicks' have complex patterns similar to human speech स्पर्म व्हेल की 'क्लिक' ध्वनियों में मानव भाषण जैसी जटिल संरचनाएँ पाई गई हैं	



Sperm whale 'clicks' have complex patterns similar to human speech

Researchers have revealed that sperm whales, which communicate using clicking sounds, also vary the sounds in ways that resemble how humans use vowels; these vocalisations show clear parallels with human phonology – the system of rules that organises sound patterns in human language

CSJN Environment

Anirban Mukhopadhyay
NEW DELHI

Sperm whales communicate using short sequences of clicks known as codas, which they exchange while coordinating within their groups. Scientists have long classified these sequences using the number of clicks and the timing between them.

A study published on April 15 in *Proceedings of the Royal Society B* has however reported that there is more to it than meets the ears: the codas also vary in their acoustic structure in ways that resemble patterns found in human speech.

"Before this work, sperm whale vocalisations were often treated as a kind of Morse code – simply patterns defined mainly by timing," Gasper Begus, associate professor of linguistics at University of California, Berkeley, and senior author of the study, said. "What we are showing here is that there is another layer of structure within the clicks themselves."

A learnt structure

Until now, classification relied on two measurable features: the number of clicks in a sequence and the spacing between them, known as inter-click intervals. These patterns produce distinct coda types. For example, a 1+1+3 coda consists of two clicks separated by pauses, followed by three clicks in rapid succession, while a 5R coda contains five evenly spaced clicks. Because different whale groups use different sets of these patterns, the system is unlikely to be entirely inborn. Instead, scientists think at least part of it is learnt within groups.

When the researchers broke each click down into its frequency components, they found that the sounds fall into two distinct categories: some have a single dominant frequency peak, while others have two. In human linguistics, such peaks are known as formants – the resonant frequencies that allow us to distinguish an "ah" sound from an "ee." Consequently, the authors label these whale categories "a" and "i." These two types are clearly distinct, and the same pattern of clicks – for example, a 1+1+3 coda – can be produced using either the "a" click or "i" click.

Calling it a "fascinating finding," Mason Youngblood, a behavioural scientist at Stony Brook University, said the study shows that sperm whale communication "varies not just in timing but also in tonal quality," in ways similar to human vowels, suggesting the "signals may be able to convey more information than previously thought."

Two layers, then three

The two click types are not used in the same way across all codas. In some, such as the 1+1+3 pattern, both appear in roughly equal numbers. In others, one dominates, and in a few it is almost absent.

If click type were simply a side effect of sound production, this variation would be random. Instead, the patterns are consistent, suggesting that sperm whales control not just when they click, but also what kind of click they produce – treating timing and type as two separate features of their signals.



A sperm whale and her calf off the coast of Mauritius. Sperm whales communicate using short sequences of clicks known as codas. GABRIEL BARATHIEU (CC BY-SA)

The researchers also identified several additional layers of variation in how codas are produced.

Codas in the two click types differ in length. Even when the pattern of spacing between clicks is the same, "a" codas are typically longer than "i" codas. In addition, the "i" category splits into two groups – some codas are short, while others are long – whereas the "a" category does not. This is similar to how the length of a sound can matter in human speech, where longer and shorter vowels can serve different functions.

They also found consistent differences between individual sperm whales. Even within the same coda pattern and click type, some whales produce longer sequences than others.

For example, the length of an "a" coda can differ by about 170 milliseconds between individuals. Despite this, "a" codas are still longer than "i" codas across all sperm whales, showing that while whales may sound different from one

another, they follow the same underlying patterns. Finally, they found that one coda can influence the next. Most codas consist of a single click type, but in a few cases, the first click is different from the rest – for example, a coda made up of "i"-type clicks may begin with a single "a"-type click. These mismatches occur most often when whales switch from one type of coda to another.

MASON YOUNGBLOOD
Behavioural scientist,
Stony Brook University

This suggests that the first click of a coda is affected by the coda that came before it, showing that codas are not

produced in isolation – the previous one can shape how the next begins.

What it means, what we don't know

The results show that sperm whale vocalisations show clear parallels with human phonology – the system of rules that organises sound patterns in human language through combinations of discrete sound categories, timing, and position. Prof. Begus, provides a hypothesis of convergent evolution playing out over grand timescales to explain the observations. "Humans and whales diverged tens of millions of years ago, but both evolved complex vocal systems that show striking structural parallels."

Dr. Youngblood added that the rich social and cultural lives of sperm whales relies heavily on communication within their family and clan groups. He believes this might support such a complexity in whale phonology. At the same time, he cautioned that one must not be quick to call it a language just yet. "There are clear similarities, but also important differences," Dr. Youngblood said. "The fundamentally rhythmic nature of sperm whale codas, for example, sets them apart from human speech."

What these patterns mean remains unknown. The study does not identify what information codas convey or whether different patterns correspond to specific contexts. What it does show is that sperm whale communication is built from multiple features that can vary independently and in relation to one another – a level of organisation that is uncommon in animal communication systems. "Determining whether these patterns map onto specific meanings will require much more work," said Dr. Youngblood. "I know these are the goals of Project CETI, and I'm really looking forward to seeing what comes next." (Anirban Mukhopadhyay is a geneticist by training and science communicator from New Delhi. anirban.genetics@south.du.ac.in)



The study also found consistent differences between individual sperm whales. Even within the same coda pattern and click type, some whales produce longer sequences than others. GETTY IMAGES

21M. Sperm whale 'clicks' have complex patterns similar to human speech
स्पर्म व्हेल की 'क्लिक' ध्वनियों में मानव भाषण जैसी जटिल संरचनाएँ पाई गई हैं



- **Sperm whales** communicate using short sequences of clicks known as **codas**, which they exchange while coordinating within their groups.
स्पर्म व्हेल छोटे क्लिक अनुक्रमों के माध्यम से संचार करती हैं, जिन्हें कोडा कहा जाता है, और वे इन्हें अपने समूहों के भीतर समन्वय स्थापित करते समय आदान-प्रदान करती हैं।
- The **codas also vary in their acoustic structure in ways that resemble patterns found in human speech.**
कोडा अपनी ध्वनिक संरचना में भी ऐसे परिवर्तन प्रदर्शित करते हैं जो मानव भाषण में पाए जाने वाले पैटर्न से मिलते-जुलते हैं।
- While a **5R coda contains five evenly spaced clicks.**
जबकि **5R कोडा** में समान अंतराल पर स्थित पाँच क्लिक होते हैं।
- In human linguistics, such peaks are known as **formants** — the resonant frequencies that allow us to distinguish an “ah” sound from an “ee.”
मानव भाषाविज्ञान में ऐसे शिखरों को **फॉर्मैंट्स** कहा जाता है — वे अनुनादी आवृत्तियाँ जो हमें “आ” और “ई” जैसी ध्वनियों में अंतर करने की अनुमति देती हैं।
- **Consequently, the authors label these whale categories “a” and “i.”**
फलस्वरूप, लेखकों ने व्हेल की इन श्रेणियों को “a” और “i” नाम दिया।

GS Paper III: Internal Security		21 May 2026
TOPICS COVERED		
21M	13-nation military exercise commences in Meghalaya मेघालय में 13 देशों का सैन्य अभ्यास प्रारंभ	
21M	Drone mania, separating hype from battlefield reality ड्रोन उन्माद : प्रचार और युद्धक्षेत्र की वास्तविकता को अलग करना	



GS III: Internal Security: Defence

13-nation military exercise commences in Meghalaya

A 13-nation military exercise began at the Umroi Military Station in Meghalaya on Wednesday. Apart from host India, soldiers from “12 friendly nations” are participating in the PRAGATI 2026. They are Bhutan, Cambodia, Indonesia, Laos, Malaysia, Maldives, Myanmar, Nepal, Philippines, Seychelles, Sri Lanka, and Vietnam. The exercise seeks to provide a common platform for participating armies to engage in professional exchange and build closer military-to-military ties, the Defence Ministry said.

21M. 13-nation military exercise commences in Meghalaya

मेघालय में 13 देशों का सैन्य अभ्यास प्रारंभ

- A 13-nation military exercise began at the **Umroi Military Station in Meghalaya** on Wednesday.
बुधवार को मेघालय के उमरोई मिलिट्री स्टेशन में 13 देशों का सैन्य अभ्यास शुरू हुआ।
- Apart from host **India**, soldiers from “12 friendly nations” are participating in the **PRAGATI 2026**.
मेजबान **भारत** के अलावा “12 मित्र देशों” के सैनिक **प्रगति 2026** में भाग ले रहे हैं।
- They are **Bhutan, Cambodia, Indonesia, Laos, Malaysia, Maldives, Myanmar, Nepal, Philippines, Seychelles, Sri Lanka, and Vietnam**.
इन देशों में **भूटान, कंबोडिया, इंडोनेशिया, लाओस, मलेशिया, मालदीव, म्यांमार, नेपाल, फिलीपींस, सेशेल्स, श्रीलंका और वियतनाम** शामिल हैं।
- The exercise seeks to provide a common platform for participating armies to engage in professional exchange and build closer military-to-military ties, the **Defence Ministry** said.
रक्षा मंत्रालय ने कहा कि इस अभ्यास का उद्देश्य भाग लेने वाली सेनाओं को पेशेवर आदान-प्रदान तथा आपसी सैन्य संबंधों को मजबूत करने के लिए



एक साझा मंच प्रदान करना है।

Drone mania, separating hype from battlefield reality

GS III: Internal Security: Defence

Operation Sindoor started with a bang at 1.02 a.m. on May 7, 2025 and the surprise ceasefire at 3.30 p.m. on May 10, 2025, was akin to an “out-of-syllabus” event. On the first anniversary, discussion of the four-day engagement between India and Pakistan has been dominated by events concerning India’s long-range strikes on Pakistani terrorist and air force infrastructure; what has been missed out, however, has been the use by both sides of small unmanned aerial vehicles (UAVs), including loitering kamikaze munitions, colloquially referred to as drones.

Drones have acquired an outsized image for three reasons. First, there is their aura of being relatively ‘unstoppable’ because their small size makes detection difficult. Second, their relatively low cost *vis-à-vis* a manned aircraft makes them very appealing to number-crunchers. Lastly, the fact that they do not place a combatant in harm’s way is an argument that undercuts most of their limitations. In the recent past, the advent of fibre-optic-guided first-person-view drones used by Hezbollah against Israel has further added to the hype.

So, the question whether drones have revolutionised warfare needs a professional analysis *vis-à-vis* the basic tenets of warfare through a prism of doctrine and strategy.

Doctrinal issues

The first question is whether the arrival of drones represents a revolutionary change in warfare or merely an evolution enabled by new technology. Evolutionary developments merely enhance existing capabilities, whereas revolutionary technologies fundamentally reshape warfare by opening up new domains. The advent of the air domain was transformational because it revolutionised warfare. UAVs, however, are merely another weapon system – albeit one with unique advantages – that has evolved within the



Manmohan Bahadur

Retired Air Vice Marshal and a former Additional Director General of the Centre for Air Power Studies

Drone technology is advancing rapidly, alongside equally important counter measures

air domain. Second, since drones fly at low altitudes, some strategists have coined the term “air littoral”, suggesting the creation of another domain of warfare unique to drone operations. This is misleading because drones operate within a restricted airspace layer – from the ground up to the coordinating altitude, a pre-designated level that separates fast-moving conventional airpower from slower-moving assets such as helicopters and UAVs. This has forced surface forces to devise methods to protect themselves. In effect, as an essay in the *Air & Space Forces Magazine* argues, drones are not reshaping air warfare but are actually reshaping ground combat. The importance of attainment and maintenance of air superiority through manned systems, therefore, remains undiminished.

Strategic considerations

First, the innovative strike by Ukraine, deep in the interior of Russia through drones inserted in specially constructed containers as part of its Operation Spider’s Web, points to a new strategic requirement of possessing good counterintelligence to thwart such long-term strategies in the adversary’s planning stage itself. In the event, the strategic air fleet of Russia had lost many costly assets.

Second, such innovative use has shifted the boundaries of kinetic warfare hundreds of kilometres inland. This is akin to a cyberattack that can be launched by anyone, from anywhere in the world, against any target globally. Consequently, a new requirement has emerged to protect assets located deep within a nation’s interior on a 24X7 basis. Incidentally, the United States has introduced new laws restricting the purchase of land by foreign entities near military bases and critical infrastructure.

Third, the field of unmanned flight is, in many ways, still developing. The integration of artificial intelligence will bring about an exponential

increase in capabilities, leading to fully autonomous operations. Allowing a machine to make life-and-death decisions comes with enormous consequences, and a United Nations committee is currently examining the ethical and moral issues involved.

Counter UAS strategy

In warfare, a new weapon brings in counter-measures and counter counter-measures. As more counter unmanned aerial systems (CUAS) are fielded, the drone threat would be addressable to a great extent.

In Operation Sindoor, waves of individual drones that had been sent into India by Pakistan were neutralised by an integrated CUAS network. On the other hand, drone swarms that are being developed would be an integration of multiple drones to overwhelm air defence systems by sheer numbers. This is the next challenge, and counter-measures under development would basically be directed energy weapons such as the Israeli Iron Beam laser system which ensures rapid engagement at just \$2-\$3.50 per laser shot instead of the \$40,000 to \$50,000 per missile of its Iron Dome system.

The Europeans are launching a drone-wall initiative which will use a layered mesh of detection and interception capabilities of drones of European Union member states. The U.S. is planning its Golden Dome system with space based and hypersonic interceptors to address incoming projectiles.

It is good that India too is envisaging a nationwide terrestrial and space-based ‘Sudarshan Chakra’ to be in place by 2035 for addressing multifarious air defence threats. That is still at least a decade away and, therefore, such a system would require phase-wise operationalisation along with enormous and committed funding. It is imperative that New Delhi finds the monies to support it.

21M. Drone mania, separating hype from battlefield reality

ड्रोन उन्माद : प्रचार और युद्धक्षेत्र की वास्तविकता को अलग करना

- **Operation Sindoor** started with a bang at **1.02 a.m. on May 7, 2025** and the surprise **ceasefire** at **3.30 p.m. on May 10, 2025**, was akin to an “out-of-syllabus” event.

ऑपरेशन सिंदूर की शुरुआत 7 मई 2025 को प्रातः 1.02 बजे अत्यंत तीव्रता के साथ हुई और 10 मई 2025 को अपराह्न 3.30 बजे घोषित अप्रत्याशित युद्धविराम एक “पाठ्यक्रम से बाहर” घटना के समान था।

- What has been missed out, however, has been the use by both sides of small **unmanned aerial vehicles (UAVs)**, including loitering kamikaze munitions, colloquially referred to as **drones**.

किन्तु, जिस पहलू की उपेक्षा हुई है, वह दोनों पक्षों द्वारा छोटे मानवरहित हवाई वाहनों (UAVs), जिनमें घूमते रहने वाले आत्मघाती हथियार भी शामिल थे, का उपयोग है, जिन्हें सामान्यतः ड्रोन कहा जाता है।

- First, there is their aura of being relatively ‘unstoppable’ because their small size makes **detection difficult**.

प्रथम, उनके छोटे आकार के कारण उनका पता लगाना कठिन होता है, जिससे उन्हें अपेक्षाकृत ‘अवरोधन से परे’ माना जाता है।

- Second, their relatively low cost *vis-à-vis* a manned aircraft makes them very appealing to **number-crunchers**.



द्वितीय, मानव-संचालित विमानों की तुलना में उनकी अपेक्षाकृत कम लागत उन्हें आँकड़ों पर आधारित विश्लेषकों के लिए अत्यंत आकर्षक बनाती है।

- Lastly, the fact that **they do not place a combatant in harm's way is an argument that undercuts most of their limitations.**
अंततः, यह तथ्य कि वे किसी सैनिक को प्रत्यक्ष जोखिम में नहीं डालते, उनकी अधिकांश सीमाओं को गौण बना देता है।
- In the recent past, the advent of **fibre-optic-guided first-person-view drones used by Hezbollah** against **Israel** has further added to the hype.
हाल के समय में, हिज़्बुल्लाह द्वारा इज़राइल के विरुद्ध उपयोग किए गए फाइबर-ऑप्टिक निर्देशित प्रथम-व्यक्ति-दृष्टि ड्रोन के आगमन ने इस प्रचार को और बढ़ा दिया है।
- So, the question **whether drones have revolutionised warfare** needs a professional analysis vis-à-vis the basic tenets of warfare through a prism of doctrine and strategy.
अतः, यह प्रश्न कि क्या ड्रोन ने युद्धकला में क्रांति ला दी है, सिद्धांत और रणनीति के दृष्टिकोण से युद्ध के मूल सिद्धांतों के संदर्भ में पेशेवर विश्लेषण की मांग करता है।

Doctrinal issues

सैद्धांतिक मुद्दे

- **Evolutionary developments merely enhance existing capabilities, whereas revolutionary technologies fundamentally reshape warfare by opening up new domains.**
क्रमिक विकास केवल विद्यमान क्षमताओं को सुदृढ़ करते हैं, जबकि क्रांतिकारी तकनीकें नए आयाम खोलकर युद्धकला की मूल संरचना को परिवर्तित कर देती हैं।
- The **advent of the air domain was transformational because it revolutionised warfare.**
वायु क्षेत्र का उदय परिवर्तनकारी था क्योंकि उसने युद्धकला में क्रांति ला दी थी।
- **UAVs, however, are merely another weapon system — albeit one with unique advantages — that has evolved within the air domain.**
किन्तु, यूएवी केवल एक अन्य हथियार प्रणाली हैं — यद्यपि उनमें विशिष्ट लाभ मौजूद हैं — जो वायु क्षेत्र के भीतर विकसित हुई हैं।
- Second, **since drones fly at low altitudes, some strategists have coined the term “air littoral”, suggesting the creation of another domain of warfare unique to drone operations.**
द्वितीय, चूंकि ड्रोन निम्न ऊँचाई पर उड़ते हैं, इसलिए कुछ रणनीतिकारों ने “एयर लिटोरल” शब्द गढ़ा है, जो ड्रोन अभियानों के लिए विशिष्ट युद्ध क्षेत्र के निर्माण का संकेत देता है।

Strategic considerations

रणनीतिक विचार

- First, the **innovative strike by Ukraine, deep in the interior of Russia** through drones inserted in specially constructed containers as part of its **Operation Spider's Web**, points to a new strategic requirement of possessing good **counterintelligence** to thwart such long-term strategies in the adversary's planning stage itself.
प्रथम, यूक्रेन द्वारा ऑपरेशन स्पाइडर'स वेब के अंतर्गत विशेष रूप से निर्मित कंटेनरों में रखे गए ड्रोन के माध्यम से रूस के आंतरिक क्षेत्रों में किए गए अभिनव हमले ने इस नई रणनीतिक आवश्यकता की ओर संकेत किया है कि शत्रु की ऐसी दीर्घकालिक योजनाओं को प्रारंभिक चरण में ही विफल करने हेतु प्रभावी प्रति-गुप्तचर व्यवस्था आवश्यक है।
- This is akin to a **cyberattack** that can be launched by anyone, from anywhere in the world, against any target globally.
यह एक ऐसे साइबर हमले के समान है जिसे विश्व के किसी भी स्थान से कोई भी व्यक्ति किसी भी वैश्विक लक्ष्य के विरुद्ध प्रारंभ कर सकता है।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- As more **counter unmanned aerial systems (CUAS)** are • elded, the drone threat would be addressable to a great extent.
जैसे-जैसे अधिक प्रतिरोधी मानवरहित हवाई प्रणालियाँ (CUAS) तैनात की जाएँगी, ड्रोन से उत्पन्न खतरे का काफी हद तक समाधान संभव होगा।
- On the other hand, **drone swarms** that are being developed would be an integration of multiple drones to overwhelm air defence systems by sheer numbers.
दूसरी ओर, विकसित किए जा रहे ड्रोन स्वार्म अनेक ड्रोन के एकीकृत समूह होंगे, जिनका उद्देश्य केवल संख्या बल के माध्यम से वायु रक्षा प्रणालियों को अभिभूत करना होगा।
- This is the next challenge, and counter-measures under development would basically be **directed energy weapons** such as the Israeli **Iron Beam laser system** which ensures rapid engagement at just **\$2-\$3.50 per laser shot** instead of the **\$40,000 to \$50,000 per missile** of its **Iron Dome system**.
यह अगली बड़ी चुनौती है, और वर्तमान में विकसित किए जा रहे प्रतिरोधी उपाय मुख्यतः निर्देशित ऊर्जा हथियारों पर आधारित होंगे, जैसे इज़राइल की **आयरन बीम लेज़र प्रणाली**, जो अपने **आयरन डोम प्रणाली** की प्रति मिसाइल **40,000 से 50,000 डॉलर** की लागत के स्थान पर केवल **2 से 3.50 डॉलर प्रति लेज़र प्रहार** में तीव्र प्रतिक्रिया सुनिश्चित करती है।
- It is good that **India** too is envisaging a nationwide terrestrial and space-based **'Sudarshan Chakra'** to be in place by **2035** for addressing multifarious air defence threats.
यह सकारात्मक है कि **भारत** भी विविध प्रकार के वायु रक्षा खतरों का सामना करने हेतु **2035** तक राष्ट्रव्यापी स्थलीय एवं अंतरिक्ष-आधारित **'सुदर्शन चक्र'** प्रणाली स्थापित करने की परिकल्पना कर रहा है।