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04_02_2025 DAILY CURRENT AFFAIRS

TOPICS COVERED (GS Paper I: History, Society and Geography)

1. Anti-conversion Bill tabled in Rajasthan House by govt / राजस्थान विधानसभा में सरकार द्वारा धर्मांतरण विरोधी विधेयक पेश

Anti-conversion Bill tabled in Rajasthan House by govt.

Anti-conversion Bill tabled in Rajasthan House by govt

राजस्थान विधानसभा में सरकार द्वारा धर्मांतरण विरोधी विधेयक पेश

The Hindu Bureau

JAIPUR

GS Paper I: Society

The Bharatiya Janata Party government in Rajasthan on Monday introduced a Bill to prevent religious conversions carried out by force, fraud or inducement in the State Assembly during the budget session. The Prohibition of Unlawful Conversion of Religion Bill, 2025, has made a provision for imprisonment of up to 10 years and a fine of up to ₹50,000 for various offences. The State Cabinet had approved the draft of the Bill in November 2024.

The Opposition Congress strongly opposed the Bill, saying it formed part of the BJP's propaganda to mislead the people.

- The Bharatiya Janata Party government in Rajasthan on Monday introduced a Bill to prevent religious conversions carried out by force, fraud, or inducement in the State Assembly during the budget session.
- राजस्थान में भारतीय जनता पार्टी सरकार ने सोमवार को धर्मांतरण विरोधी विधेयक पेश किया, जो बल, धोखाधड़ी, या प्रलोभन के माध्यम से किए गए धार्मिक धर्मांतरण को रोकने के लिए विधानसभा में बजट सत्र के दौरान प्रस्तुत किया गया।
- The **Prohibition of Unlawful Conversion of Religion Bill, 2025**, has made a provision for imprisonment of up to 10 years and a fine of up to ₹50,000 for various offences.
- अवैध धर्मांतरण निषेध विधेयक, 2025 में अधिकतम 10 वर्ष की सजा और ₹50,000 तक के जुर्माने का प्रावधान किया गया है, जो विभिन्न अपराधों के लिए लागू होगा।
- The **State Cabinet** had approved the draft of the Bill in **November 2024**.
- राज्य कैबिनेट ने इस विधेयक के मसौदे को नवंबर 2024 में मंजूरी दी थी।
- The **Opposition Congress** strongly opposed the Bill, saying it formed part of the **BJP's propaganda** to mislead the people.
- विपक्षी कांग्रेस ने इस विधेयक का कड़ा विरोध किया, यह कहते हुए कि यह भाजपा के प्रचार अभियान का हिस्सा है, जिसका उद्देश्य लोगों को गुमराह करना है।

DETAILS

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TOPICS COVERED (GS Paper II: Polity, Governance, and International Relations)

1. Amid global tumult, rupee breaches 87 against dollar / वैश्विक उथल-पुथल के बीच रुपया 87 के स्तर को पार कर गया
2. Jharkhand Congress pushes for municipal polls on party lines / झारखंड कांग्रेस ने पार्टी आधार पर नगर निकाय चुनाव कराने की मांग की
3. Tariff turmoil / तारि की उथल-पुथल
4. Manipur Congress apprises Governor of Biren's 'threat' against no-trust motion / मणिपुर कांग्रेस ने राज्यपाल को अविश्वास प्रस्ताव के खिलाफ बीरेन की 'धमकी' से अवगत कराया
5. Trump pauses Mexico tariffs, but Canada and China to pay / ट्रम्प ने मेक्सिको पर टैरिफ़ रोक दिया, लेकिन कनाडा और चीन को भुगतान करना होगा
6. China will be laughing, says EU Foreign Minister on trade war / चीन हंसेगा, यूरोपीय संघ के विदेश मंत्री ने व्यापार युद्ध पर कहा

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Amid global tumult, rupee breaches 87 against dollar

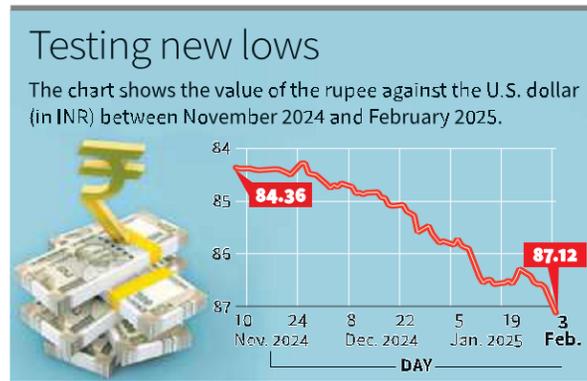
Indian unit slumps 49 paise on first day of trading after **Trump's tariffs on Canada, Mexico and China**; Finance Ministry official hints Centre is unfazed, terms it an uncertainty to be dealt with

GS Paper II: US

Vikas Dhoot
 NEW DELHI

The Indian rupee slumped almost 0.6% or 49 paise to breach the 87 mark against the U.S. dollar on Monday, amid a meltdown for most emerging market currencies and stock markets across Asia and Europe on the first day of trading after President Donald Trump imposed higher tariffs on Canada, Mexico and China. The rupee, which had crossed the 86 mark vis-à-vis the dollar on January 10, closed at 87.11 after slipping close to 87.3 during the day.

A top Finance Ministry official signalled the government was unfazed by the currency's trajectory, terming it a global uncertainty that has to be dealt



with and stressing that India does not believe in using "exchange rate policy" to push trade and the key is to manage volatility, not to attain a specified level for the currency.

'Dollar Index is high'

"What is happening over the last couple of months is that the dollar is appreciating. The Dollar Index is

pretty high, and against all currencies... it is not just the emerging markets, but even with the developed countries. Today, the Dollar Index has picked up again and is above 109," Economic Affairs Secretary Ajay Seth told *The Hindu*.

The index had risen over 1% through the day, to 109.7.

"As per our policy that

we know the Reserve Bank of India follows, is to take care of the volatility at any level of dollar. At any level, if the dollar is appreciating, that means our imports become a little costlier, but our exports become competitive," he noted.

"However, India has never used exchange rate policies to promote exports. That is not our policy. That's not a sustainable way to keep growing so we believe in strengthening our export competitiveness through better quality," Mr. Seth emphasised, adding that India can only envisage ways to handle the uncertainty that any move by the U.S. to raise tariffs will trigger.

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Amid global tumult, rupee breaches 87 against dollar

वैश्विक उथल-पुथल के बीच रुपया 87 के स्तर को पार कर गया

- The Indian rupee slumped almost **0.6% or 49 paise** to breach the **87 mark** against the **U.S. dollar** on Monday, **amid a meltdown for most emerging market currencies and stock markets across Asia and Europe** on the first day of trading after **President Donald Trump** imposed higher tariffs on **Canada, Mexico, and China**.
- भारतीय रुपया लगभग **0.6%** या **49 पैसे** गिरकर सोमवार को अमेरिकी डॉलर के मुकाबले **87 के स्तर को पार कर गया**, क्योंकि एशिया और यूरोप के अधिकांश उभरते बाजारों की



मुद्राओं और शेयर बाजारों में गिरावट आई, जब राष्ट्रपति डोनाल्ड ट्रंप ने कनाडा, मैक्सिको और चीन पर उच्च शुल्क लगाया।

- The rupee, which had **crossed the 86 mark vis-à-vis the dollar on January 10**, closed at **87.11** after slipping close to **87.3** during the day.
 - रुपया, जिसने 10 जनवरी को 86 के स्तर को पार किया था, दिन के दौरान 87.3 के करीब गिरने के बाद 87.11 पर बंद हुआ।
- A top Finance Ministry official signaled that the government was unfazed by the currency's trajectory, terming it a **global uncertainty that has to be dealt with**.
 - वित्त मंत्रालय के एक वरिष्ठ अधिकारी ने संकेत दिया कि सरकार मुद्रा के इस उतार-चढ़ाव से अप्रभावित है, इसे एक वैश्विक अनिश्चितता बताया, जिसे संभालना आवश्यक है।
- The official also stressed that **India does not believe in using "exchange rate policy" to push trade** and that the key is to **manage volatility, not to attain a specified level for the currency**.
 - अधिकारी ने यह भी जोर दिया कि भारत व्यापार को बढ़ावा देने के लिए "विनिमय दर नीति" का उपयोग करने में विश्वास नहीं करता और मुख्य बात यह है कि मुद्रा के लिए किसी निश्चित स्तर को प्राप्त करने के बजाय अस्थिरता को प्रबंधित किया जाए।

'Dollar Index is high'

'डॉलर इंडेक्स ऊँचाई पर है'

- "What is happening over the last couple of months is that the dollar is **appreciating**. The **Dollar Index is pretty high**, and against all currencies... it is not just the **emerging markets, but even developed countries**. Today, the **Dollar Index has picked up again and is above 109**," Economic Affairs Secretary **Ajay Seth** told *The Hindu*.
 - "पिछले कुछ महीनों में जो हो रहा है, वह यह है कि डॉलर मजबूत हो रहा है। डॉलर इंडेक्स काफी ऊँचा है, और यह सिर्फ उभरते बाजारों के खिलाफ ही नहीं, बल्कि विकसित देशों के खिलाफ भी है। आज, डॉलर इंडेक्स फिर से बढ़ा है और 109 के ऊपर पहुंच गया है," आर्थिक मामलों के सचिव अजय सेठ ने द हिंदू को बताया।
- The index had risen over 1% through the day, to 109.7.
 - दिनभर में इंडेक्स 1% से अधिक बढ़कर 109.7 तक पहुंच गया।
- "As per our policy, the Reserve Bank of India takes care of volatility at any level of the dollar. If the dollar appreciates, our imports become costlier, but our exports become competitive," he noted.
 - "हमारी नीति के अनुसार, भारतीय रिजर्व बैंक किसी भी स्तर पर डॉलर की अस्थिरता को नियंत्रित करता है। अगर डॉलर मजबूत होता है, तो हमारे आयात महंगे हो जाते हैं, लेकिन हमारे निर्यात प्रतिस्पर्धी हो जाते हैं," उन्होंने कहा।
- "However, India has never used exchange rate policies to promote exports. That is not a **sustainable way to keep growing**. Instead, we believe in **strengthening export competitiveness through better quality**," Mr. Seth emphasized.



- "हालांकि, भारत ने कभी भी निर्यात को बढ़ावा देने के लिए विनिमय दर नीतियों का उपयोग नहीं किया है। यह टिकाऊ विकास का तरीका नहीं है। इसके बजाय, हम बेहतर गुणवत्ता के माध्यम से निर्यात प्रतिस्पर्धात्मकता को मजबूत करने में विश्वास रखते हैं," श्री सेठ ने जोर दिया।
- He added that **India can only envisage ways to handle the uncertainty that any move by the U.S. to raise tariffs will trigger.**
 - उन्होंने कहा कि भारत केवल उन तरीकों की कल्पना कर सकता है जिनसे अमेरिकी टैरिफ बढ़ाने से उत्पन्न अनिश्चितता को संभाला जा सके।

Jharkhand Congress pushes for municipal polls on party lines

GS Paper II: Local Bodies

The Congress in Jharkhand has demanded civic polls on party lines instead of following the non-party system. State party in-charge and national general secretary Ghulam Ahmad Mir brought up the issue and a resolution was passed at a meeting with district presidents in Ranchi on Monday.

"Many States are conducting the municipal elections on party basis. In Jharkhand, the elections are held on non-party basis, the government should take a collective decision on it. It would be good if the polls are held on party lines," Mr. Mir told reporters after the meeting.

In 2018, councillors were elected on non-party

basis while the Mayor and the Deputy Mayor were elected on party basis. Later, the State government decided to conduct the elections on non-party basis for all posts and seats.

This year the election is likely to be held in May-June following the order of the Jharkhand High Court.

There are 49 municipal bodies in Jharkhand and in 13 such bodies elections are pending since 2020. Polls are also due in the remaining municipal corporations since 2022.

Congress leader and former MLA Amba Prasad said, "Our organisation is strong everywhere and we have passed a resolution that municipal elections should be held on party basis. With this, the party will become stronger and we can perform better."

Jharkhand Congress pushes for municipal polls on party lines

झारखंड कांग्रेस ने पार्टी आधार पर

नगर निकाय चुनाव कराने की मांग की

- The **Congress in Jharkhand** has demanded **civic polls on party lines** instead of following the **non-party system**.
- झारखंड कांग्रेस ने गैर-दलीय प्रणाली के बजाय पार्टी आधार पर नगर निकाय चुनाव कराने की मांग की।
- **State party incharge and national general secretary Ghulam Ahmad Mir** brought up the issue, and a **resolution was passed at a meeting with district presidents in Ranchi on Monday**.
- प्रदेश प्रभारी और राष्ट्रीय महासचिव गुलाम अहमद मीर ने यह मुद्दा उठाया, और सोमवार को रांची में जिला अध्यक्षों की बैठक में एक प्रस्ताव पारित किया गया।
- "**Many States are conducting the municipal elections on a party basis**. In Jharkhand, the elections are held on a **non-party basis**. The government should take a **collective decision** on it. It would be good if the polls are held on **party lines**," Mr. Mir told reporters after the meeting.
- "कई राज्यों में पार्टी आधार पर नगर निकाय चुनाव कराए जा रहे हैं। झारखंड में, चुनाव गैर-दलीय आधार पर कराए जाते हैं। सरकार को इस पर सामूहिक निर्णय लेना चाहिए। अगर चुनाव पार्टी आधार पर हों, तो यह बेहतर होगा," बैठक के बाद मीर ने पत्रकारों से कहा।



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- In 2018, councillors were **elected on a non-party basis** while the **Mayor and the Deputy Mayor** were elected on a party basis. Later, the **State government** decided to conduct elections on a non-party basis for all posts and seats.
 - 2018 में, पार्षदों का चुनाव गैर-दलीय आधार पर हुआ था, जबकि महापौर और उपमहापौर का चुनाव पार्टी आधार पर हुआ था। बाद में, राज्य सरकार ने सभी पदों और सीटों के लिए गैर-दलीय आधार पर चुनाव कराने का निर्णय लिया।
- This year, the election is likely to be held in **May-June** following the order of the **Jharkhand High Court**.
 - इस वर्ष, झारखंड उच्च न्यायालय के आदेश के अनुसार, चुनाव मई-जून में होने की संभावना है।
- There are **49 municipal bodies in Jharkhand**, and in **13 such bodies**, elections are pending since 2020. Polls are also due in the remaining municipal corporations since 2022.
 - झारखंड में 49 नगर निकाय हैं, और इनमें से 13 नगर निकायों में 2020 से चुनाव लंबित हैं। शेष नगर निगमों में 2022 से चुनाव नहीं हुए हैं।
- Congress leader and former MLA **Amba Prasad** said, "**Our organisation is strong everywhere**, and we have passed a resolution that **municipal elections should be held on a party basis**. With this, the **party will become stronger**, and we can perform better."
 - कांग्रेस नेता और पूर्व विधायक अंबा प्रसाद ने कहा, "हमारा संगठन हर जगह मजबूत है, और हमने एक प्रस्ताव पारित किया है कि नगर निकाय चुनाव पार्टी आधार पर कराए जाएं। इससे पार्टी और मजबूत होगी और हम बेहतर प्रदर्शन कर सकेंगे।"

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GS Paper II: Trade War

Tariff turmoil

Donald Trump is triggering a trade war over unrelated bilateral issues

President Donald Trump set the cat among the pigeons globally when he introduced a slew of punishing tariffs on trade with Canada, Mexico, and China, with even more taxes promised for other trading partners in the months ahead. Markets in Japan, South Korea and across Asia were roiled as fears peaked of the fallout on supply chains for North America, particularly in sectors such as automobiles, which have enjoyed the strong presence of foreign investment for decades. Over the weekend, Mr. Trump signed three executive orders that slapped Canadian and Mexican goods with a tariff of 25%. Only Canadian energy products were spared – a 10% tax will be applied. The White House further announced, in line with the promises Mr. Trump made on the campaign trail, a 10% tax on goods from China. Beijing responded angrily, saying that it would file a lawsuit with the WTO against the U.S. for “wrongful practice”, even as it said that it would take “necessary countermeasures...” While Ottawa and Mexico City warned that retaliatory tariffs would be coming soon, Mr. Trump’s subsequent calls to Mexican President Claudia Sheinbaum led to a one-month pause before the tariffs kicked in, and the White House appeared to strike a conciliatory note with Mr. Trump speaking to Canadian Prime Minister Justin Trudeau as well. Meanwhile Mr. Trump has suggested that the EU was next in the firing line, even though the U.K. appeared to win a modicum of a reprieve for issues with Washington.

While tariffs are traditionally applied sparingly, and mostly in cases of trade imbalances in the context of artificial price barriers imposed by one country that impact its trading partners, the official reasoning supplied by the Trump White House for its tariff plan was that it would serve to address the “national emergency” resulting from “the extraordinary threat posed by illegal aliens and drugs, including deadly fentanyl”. On one hand, this opens the floodgates to other nations retaliating to U.S. tariffs and dampening world trade at a time when global economic growth prospects are precarious. The move also signals that it is acceptable for nations to weaponise tariffs as a countermeasure against unrelated inter-country disputes. Few would deny Mr. Trump’s administration the prerogative that it enjoys to crackdown on the U.S.’s “ridiculous Open Borders” – but most would have imagined that this process would entail intensified law enforcement activity rather than internecine tariffs. The tariffs will almost certainly have a deleterious effect on the prices that American consumers pay for imported products, besides a broader inflationary impact through higher input prices across industries. Perhaps it will take a full four years of economic pain in the U.S. before the realisation dawns that tariffs are hardly a panacea to curb immigration and drug inflows.

Tariff turmoil

तारि की उथल-पुथल

- President Donald Trump's Trade Tariffs

राष्ट्रपति डोनाल्ड ट्रंप के व्यापार टैरिफ़

- President **Donald Trump** set the cat among the pigeons globally when he introduced a slew of **punishing tariffs** on trade with **Canada, Mexico, and China**, with even more taxes promised for other trading partners in the months ahead.

राष्ट्रपति डोनाल्ड ट्रंप ने कनाडा, मेक्सिको, और चीन के साथ व्यापार पर सख्त टैरिफ़ लागू करके वैश्विक स्तर पर हलचल मचा दी, और अगले महीनों में अन्य व्यापारिक भागीदारों के लिए भी अधिक टैक्स लगाने का वादा किया।

- Markets in **Japan, South Korea**, and across **Asia** were roiled as fears peaked of the fallout on **supply chains** for **North America**, particularly in sectors such as **automobiles**, which have enjoyed the strong presence of foreign investment for decades.

जापान, दक्षिण कोरिया, और एशिया में बाजारों में हड़कंप मच गया, क्योंकि उत्तर अमेरिका के सप्लाई चेन पर प्रभाव और विशेष रूप से ऑटोमोबाइल जैसे क्षेत्रों में विदेशी निवेश के मजबूत होने के डर से चिंताएं बढ़ गईं।

- Over the weekend, Mr. Trump signed three **executive orders that slapped Canadian and Mexican goods** with a tariff of **25%**.

सप्ताहांत में, श्री ट्रंप ने तीन कार्यकारी आदेश पर हस्ताक्षर किए, जिनमें कनाडाई और मेक्सिकन वस्तुओं पर 25% का टैरिफ़ लगाया गया।

- **Only Canadian energy products** were spared — a **10% tax** will be applied.

केवल कनाडाई ऊर्जा उत्पाद बचाए गए हैं – उन पर 10% टैक्स लागू होगा।

- The **White House** further announced, in line with the promises Mr. Trump made on the campaign trail, a **10% tax** on goods from **China**.

व्हाइट हाउस ने आगे घोषणा की, जैसा कि श्री ट्रंप ने अभियान के दौरान वादा किया था, चीन से आने वाली वस्तुओं पर 10% टैक्स लागू किया जाएगा।

- **Beijing** responded angrily, saying that it would file a lawsuit with the **WTO against the U.S.** for “**wrongful practice**”, even as it said that it would take “**necessary countermeasures...**”

बीजिंग ने गुस्से में प्रतिक्रिया दी, यह कहते हुए कि वह WTO में अमेरिका के खिलाफ “गलत अभ्यास” के लिए मुकदमा दायर करेगा, और साथ ही कहा कि वह “आवश्यक प्रतिकार उपाय” करेगा...

- While **Ottawa and Mexico City** warned that retaliatory tariffs would be coming soon, Mr. Trump’s subsequent calls to **Mexican President Claudia Sheinbaum** led to a **one-month pause** before the



tariffs kicked in, and the **White House** appeared to strike a conciliatory note with Mr. Trump speaking to **Canadian Prime Minister Justin Trudeau** as well.

जबकि ऑटावा और मेक्सिको सिटी ने चेतावनी दी कि प्रतिकारात्मक टैरिफ़ जल्द ही आने वाले हैं, श्री ट्रंप की मेक्सिकन राष्ट्रपति क्लाउडिया शीनबाउम से बाद की कॉल ने टैरिफ़ लागू होने से पहले एक महीने की राहत दी, और व्हाइट हाउस ने एक समन्वयात्मक स्वर अपनाया, श्री ट्रंप ने कनाडाई प्रधानमंत्री जस्टिन टूडो से भी बात की।

- Meanwhile Mr. Trump has suggested that the **EU** was next in the firing line, even though the **U.K.** appeared to win a modicum of a reprieve for issues with **Washington**. इस बीच श्री ट्रंप ने सुझाव दिया कि अगला लक्ष्य **EU** हो सकता है, हालांकि **यू.के.** ने **वाशिंगटन** के साथ मुद्दों के लिए थोड़ी राहत प्राप्त की लगती है।
- While tariffs are traditionally applied sparingly, and mostly in cases of **trade imbalances** in the context of **artificial price barriers** imposed by one country that impact its trading partners, the official reasoning supplied by the Trump White House for its tariff plan was that it would serve to address the “**national emergency**” resulting from “the extraordinary threat posed by **illegal aliens and drugs**, including deadly **fentanyl**.” जबकि सामान्यतः टैरिफ़ को कम ही लागू किया जाता है और यह प्रायः **व्यापार संतुलन** के मामलों में होता है, एक देश द्वारा अपने व्यापारिक भागीदारों पर प्रभाव डालने वाले **कृत्रिम मूल्य अवरोधों** के संदर्भ में, ट्रंप **व्हाइट हाउस** द्वारा दिए गए आधिकारिक कारण के अनुसार इसका उद्देश्य “**राष्ट्रीय आपातकाल**” को संबोधित करना था, जो “**अवैध प्रवासियों और नशीले पदार्थों**, जिनमें घातक **फेंटैनिन** शामिल हैं, से उत्पन्न हुआ है।”
- On one hand, this opens the floodgates to other nations retaliating to U.S. tariffs and dampening world trade at a time when global economic growth prospects are precarious. एक ओर, इससे अन्य देशों को अमेरिकी टैरिफ़ के खिलाफ प्रतिकार करने और वैश्विक आर्थिक विकास के जोखिमपूर्ण समय में वैश्विक व्यापार को मंद करने का अवसर मिल जाता है।
- The move also signals that it is acceptable for nations to weaponize tariffs as a countermeasure against unrelated intercountry disputes. यह कदम यह भी संकेत देता है कि देशों के लिए टैरिफ़ का इस्तेमाल अन्य देशी विवादों के खिलाफ प्रतिकार उपाय के रूप में करना स्वीकार्य है।
- Few would deny Mr. Trump’s administration the prerogative that it enjoys to crack down on the U.S.’s “ridiculous Open Borders” — but most would have imagined that this process would entail intensified **law enforcement activity** rather than internecine tariffs. कई लोग श्री ट्रंप की प्रशासन की इस अधिकार का विरोध नहीं करेंगे कि वह **अमेरिका** के “मूर्खतापूर्ण खुले सीमाओं” पर कड़ी कार्रवाई कर रहा है – लेकिन अधिकांश ने यह सोचा होगा कि यह प्रक्रिया **कानून प्रवर्तन गतिविधियों** को बढ़ावा देती है न कि आंतरिक टैरिफ़।
- The tariffs will almost certainly have a **deleterious effect** on the prices that **American consumers** pay for **imported products**, besides a broader **inflationary impact** through higher input prices across industries. टैरिफ़ **अमेरिकी उपभोक्ताओं** द्वारा **आयातित उत्पादों** की कीमतों पर लगभग निश्चित रूप से एक



हानिकारक प्रभाव डालेगा, इसके अलावा यह उद्योगों में उच्च इनपुट कीमतों के माध्यम से एक व्यापक मुद्रास्फीति प्रभाव भी डालेगा।

- Perhaps it will take a full **four years** of economic pain in the **U.S.** before the realization dawns that tariffs are hardly a panacea to curb immigration and drug inflows.

शायद अमेरिका में चार साल का आर्थिक दर्द लगेगा इससे पहले कि यह एहसास हो कि टैरिफ वास्तव में प्रवासन और नशीली दवाओं की आवक को रोकने के लिए कोई समाधान नहीं है।

Manipur Congress apprises Governor of Biren's 'threat' against no-trust motion

GS Paper II: Polity

The Hindu Bureau
GUWAHATI

The Manipur unit of the Congress on Monday alleged that Chief Minister Nongthombam Biren Singh threatened the MLAs against moving a no-trust motion against his government in the upcoming session of the 60-member State Assembly.

A Congress delegation led by former Chief Minister Okram Ibobi Singh met Governor Ajay Kumar Bhalla at the Raj Bhavan in Imphal and handed over a memorandum.

Later, the Congress leaders told journalists that the party apprised the Governor of the threat.

"There was an event organised by the BJP at its head office (in Imphal) on January 14. During that meeting, Chief Minister N. Biren Singh mentioned



Okram Ibobi Singh led the delegation that met Governor Ajay Kumar Bhalla in Imphal.

that any MLA who moves a no-confidence motion will not be able to stay in the house as he will be chased by the people," Mr. Ibobi Singh, the Manipur Congress Legislature Party leader, said.

He said Mr. Biren Singh's statement did not behove of a Chief Minister.

"The statement is uncivilised and unbecoming of a leader. Moving a no-trust

motion falls within the rights and privileges of the members given by the Constitution," he said.

Mr. Ibobi Singh said that the Congress requested the Governor to advise the State government, particularly the Chief Minister.

"If something goes wrong during the Assembly session, it will be the sole responsibility of the State government," the former Chief Minister said.

He added that the Congress would consult its MLAs to decide whether or not to move a non-confidence motion.

The Assembly session is scheduled to begin on February 10.

Ten Kuki MLAs, who have stayed away from Imphal since the ethnic conflict broke out in May 2023, are unlikely to attend it. Seven of them are from the Bharatiya Janata Party.

Manipur Congress apprises Governor of Biren's 'threat' against no-trust motion

मणिपुर कांग्रेस ने राज्यपाल को अविश्वास प्रस्ताव के खिलाफ बीरेन की 'धमकी' से अवगत कराया

Congress Alleges Threat from Manipur CM

कांग्रेस ने मणिपुर के मुख्यमंत्री पर धमकी देने का आरोप लगाया

- The Manipur unit of the Congress on Monday alleged that Chief Minister Nongthombam Biren Singh threatened the MLAs against moving a **no-trust motion** against his government in the upcoming session of the **60-member State Assembly**.

सोमवार को कांग्रेस की मणिपुर इकाई ने आरोप लगाया कि मुख्यमंत्री नॉगथोम्बम बिरेन सिंह ने

आगामी 60 सदस्यीय राज्य विधानसभा सत्र में अपनी सरकार के खिलाफ विश्वासघात प्रस्ताव लाने के लिए विधायकों को धमकी दी।

- A Congress delegation led by former Chief Minister Okram Ibobi Singh met Governor Ajay Kumar Bhalla at the Raj Bhavan in Imphal and handed over a memorandum.



पूर्व मुख्यमंत्री ओक्राम इबोबी सिंह द्वारा नेतृत्व किए गए कांग्रेस प्रतिनिधिमंडल ने गवर्नर अजय कुमार भल्ला से राज भवन में इंफाल में मुलाकात की और एक ज्ञापन सौंपा।

- Later, the **Congress leaders** told journalists that the party apprised the Governor of the threat.

बाद में, कांग्रेस नेताओं ने पत्रकारों से कहा कि पार्टी ने गवर्नर को धमकी के बारे में सूचित किया।

- “There was an event organised by the **BJP** at its head office (in Imphal) on **January 14**. During that meeting, **Chief Minister N. Biren Singh** mentioned that any **MLA** who moves a **no-confidence motion** will not be able to stay in the house as he will be chased by the people,” Mr. Ibobi Singh, the **Manipur Congress Legislature Party leader**, said.

“भा.ज.पा. द्वारा इंफाल में अपने मुख्यालय में 14 जनवरी को एक कार्यक्रम आयोजित किया गया था। उस बैठक के दौरान, मुख्यमंत्री एन. बिरेन सिंह ने कहा कि जो भी विधायक विश्वासघात प्रस्ताव लाएगा, वह सदन में नहीं रह पाएगा क्योंकि उसे लोग पीछे करेंगे,” श्री इबोबी सिंह, मणिपुर कांग्रेस विधानसभा पार्टी नेता, ने कहा।

- He said Mr. **Biren Singh’s statement** did not behove of a **Chief Minister**. उन्होंने कहा कि श्री बिरेन सिंह का बयान एक मुख्यमंत्री के लिए असंगत था।
- “The statement is **uncivilised** and **unbecoming of a leader**. Moving a **no-trust motion** falls within the **rights and privileges** of the members given by the **Constitution**,” he said.

“यह बयान असभ्य और नेता के लिए अपमानजनक है। विश्वासघात प्रस्ताव लाना संविधान द्वारा सदस्यों को दिए गए अधिकारों और विशेषाधिकारों के भीतर आता है,” उन्होंने कहा।

- Mr. Ibobi Singh said that the **Congress** requested the **Governor** to advise the **State government**, particularly the **Chief Minister**. श्री इबोबी सिंह ने कहा कि कांग्रेस ने गवर्नर से राज्य सरकार, विशेष रूप से मुख्यमंत्री, को सलाह देने का अनुरोध किया।
- “If something goes wrong during the **Assembly session**, it will be the sole responsibility of the **State government**,” the former **Chief Minister** said.
“अगर विधानसभा सत्र के दौरान कुछ गलत होता है, तो उसकी पूरी जिम्मेदारी राज्य सरकार की होगी,” पूर्व मुख्यमंत्री ने कहा।

- He added that the **Congress** would consult its **MLAs** to decide whether or not to move a **no-confidence motion**.

उन्होंने जोड़ा कि कांग्रेस अपने विधायकों से परामर्श करेगी ताकि यह तय किया जा सके कि विश्वासघात प्रस्ताव लाना है या नहीं।

- The **Assembly session** is scheduled to begin on **February 10**. विधानसभा सत्र की शुरुआत 10 फरवरी को निर्धारित है।
- **Ten Kuki MLAs**, who have stayed away from **Imphal** since the ethnic conflict broke out in **May 2023**, are unlikely to attend it. Seven of them are from the **Bharatiya Janata Party**.

दस कूकी विधायक, जो मई 2023 में जातीय संघर्ष शुरू होने के बाद से इंफाल से दूर रहे हैं, उनके विधानसभा सत्र में भाग लेने की संभावना नहीं है। इनमें से सात भारतीय जनता पार्टी से हैं।



Trump pauses Mexico tariffs, but Canada and China to pay

Mexico to reinforce the northern border with 10,000 members of the National Guard immediately, to stop drug trafficking from Mexico to the U.S., says President Claudia Sheinbaum

GS Paper II: North America

Associated Press
WASHINGTON

Mexican President Claudia Sheinbaum said on Monday after a conversation with U.S. President Donald Trump that the planned tariffs are on hold for a month, a statement confirmed by the White House.

"Mexico will reinforce the northern border with 10,000 members of the National Guard immediately, to stop drug trafficking from Mexico to the United States, in particular fentanyl," Ms. Sheinbaum posted on X. "The United States commits to work to stop the trafficking of high



Minor relief: Mexico and the U.S. will continue talks on security and trade while tariffs are put on pause for a month. REUTERS

powered weapons to Mexico."

The Mexican President added that the two countries would continue talks on security and trade and that "the tariffs are put on

pause for a month from now."

The pause added to the drama as Mr. Trump's tariffs against Canada and China are still slated to go into effect on Tuesday.

Mr. Trump posted on social media that he spoke Monday morning with Canadian Prime Minister Justin Trudeau and would "be speaking to him again at 3:00 P.M." Both Canada and Mexico had plans to levy their own tariffs in response to U.S. actions, but Mexico is holding off for the moment.

Tariff split-up

Mexico is facing a 25% tariff, while Canada would be charged 25% on its imports to the United States and 10% on its energy products. China is facing a 10% additional tariff due to its role in the making and selling of fentanyl, the Trump White House said.

Trump pauses Mexico tariffs, but Canada and China to pay

ट्रम्प ने मेक्सिको पर टैरिफ़ रोक दिया, लेकिन कनाडा और चीन को भुगतान करना होगा

Mexico to reinforce the northern border with 10,000 members of the National Guard immediately, to stop drug tracking from Mexico to

the U.S., says President Claudia Sheinbaum

मेक्सिको की राष्ट्रपति क्लाउडिया शिनबाम ने कहा कि मेक्सिको से अमेरिका में मादक पदार्थों की तस्करी को रोकने के लिए राष्ट्रीय गार्ड के 10,000 सदस्यों के साथ उत्तरी सीमा को तत्काल मजबूत किया जाएगा।

Mexican President Claudia Sheinbaum on Tariffs

मेक्सिको की राष्ट्रपति क्लाउडिया शीनबाउम पर शुल्क पर बयान

- Mexican President Claudia Sheinbaum said on Monday after a conversation with U.S. President Donald Trump that the planned tariffs are on hold for a month, a statement confirmed by the White House.

मेक्सिको की राष्ट्रपति क्लाउडिया शीनबाउम ने सोमवार को अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप से बातचीत के बाद कहा कि योजनाबद्ध शुल्क एक महीने के लिए स्थगित कर दिए गए हैं, यह बयान व्हाइट हाउस द्वारा पुष्टि की गई।

- "Mexico will reinforce the northern border with 10,000 members of the National Guard immediately, to stop drug trafficking from Mexico to the United States, in particular fentanyl," Ms. Sheinbaum posted on X.

"मेक्सिको अपने उत्तरी सीमा को तुरंत 10,000 राष्ट्रीय गार्ड के सदस्यों से सुदृढ़ करेगा, ताकि



मेक्सिको से संयुक्त राज्य अमेरिका में नशीली दवाओं की तस्करी, विशेष रूप से फेंटानिल को रोका जा सके,” श्रीमती शीनबाउम ने X पर पोस्ट किया।

- “The **United States** commits to work to stop the trafficking of high-powered weapons to **Mexico**.”

“संयुक्त राज्य अमेरिका मेक्सिको में उच्च क्षमता वाले हथियारों की तस्करी को रोकने के लिए काम करने का वचन देता है।”

- The **Mexican President** added that the two countries would continue talks on **security and trade** and that “the tariffs are put on pause for a month from now.”

मेक्सिको की राष्ट्रपति ने जोड़ा कि दोनों देश सुरक्षा और व्यापार पर वार्ता जारी रखेंगे और “शुल्क अब से एक महीने के लिए स्थगित कर दिए गए हैं।”

- The **pause** added to the drama as Mr. Trump’s tariffs against **Canada** and **China** are still slated to go into effect on **Tuesday**.

रोक ने नाटक को बढ़ा दिया क्योंकि श्री ट्रंप के कनाडा और चीन के खिलाफ शुल्क अभी भी मंगलवार को लागू होने वाले थे।

- Mr. Trump posted on social media that he spoke Monday morning with **Canadian Prime Minister Justin Trudeau** and would “be speaking to him again at **3:00 P.M.**”

श्री ट्रंप ने सोशल मीडिया पर पोस्ट किया कि उन्होंने कनाडाई प्रधानमंत्री जस्टिन ट्रूडो से सोमवार सुबह बात की और “फिर से **3:00 बजे अपराह्न** को उनसे बात करेंगे।”

- Both **Canada** and **Mexico** had plans to levy their own tariffs in response to U.S. actions, but **Mexico** is holding off for the moment.

कनाडा और मेक्सिको दोनों ने अमेरिकी कार्रवाइयों के जवाब में अपने खुद के शुल्क लगाने की योजना बनाई थी, लेकिन मेक्सिको इस समय इसे स्थगित कर रहा है।

Tariff Split-Up

शुल्क का विभाजन

- **Mexico** is facing a **25% tariff**, while **Canada** would be charged **25%** on its imports to the **United States** and **10%** on its **energy products**.

मेक्सिको को 25% शुल्क का सामना करना पड़ रहा है, जबकि कनाडा पर संयुक्त राज्य अमेरिका में अपने आयातों पर 25% और अपनी ऊर्जा उत्पादों पर 10% शुल्क लगेगा।

- **China** is facing a **10% additional tariff** due to its role in the making and selling of **fentanyl**, the **Trump White House** said.

चीन को फेंटानिल के निर्माण और बिक्री में उसकी भूमिका के कारण 10% अतिरिक्त शुल्क का सामना करना पड़ रहा है, यह ट्रंप व्हाइट हाउस ने कहा।



China will be laughing, says EU Foreign Minister on trade war

China will be laughing, says EU Foreign Minister on trade war

GS Paper II: Global World Order

Sriram Lakshman
LONDON

Reacting to U.S. President Donald Trump's remarks on Sunday evening that tariffs against the EU were "definitely" on the cards, the EU's top foreign affairs and security official, Kaja Kallas, said China would stand to benefit from any U.S.-EU trade war. Ms. Kallas was speaking to a group of reporters on Monday morning, prior to addressing a conference of EU Ambassadors in Brussels.

"If the United States starts the trade war [sic], then the one laughing on the side is China. We are very interlinked. We need America, and America needs us as well," she said, adding that tariffs increased costs and were detrimental for consumers as well as for the job market.



Kaja Kallas

Mr. Trump had announced tariffs on Canada, China and Mexico on Saturday. Asked about which country would be next to face U.S. tariffs, and specifically about the U.K., Mr. Trump shifted the focus of his response to the EU, saying the bloc would "definitely" face tariffs.

"It might happen with that (the U.K.), but it will definitely happen with the EU," Mr. Trump said, claiming that the EU ran a

trade surplus of over \$300 billion with the U.S.

Mr. Trump's numbers are at odds with EU official data. The bloc had a €155.8 billion (\$159.9 billion) trade surplus in goods with the U.S. in 2023 as per these data. It ran a trade deficit in services of €104 billion.

Mr. Trump on Sunday, named automobiles and farm products as particular industries of concern, calling the EU's trade position an "atrocious" and alleging that the bloc was "taking advantage" of the U.S. On the U.K., he said it was "out of line". "I think that one can be worked out," he added.

In Brussels, Ms. Kallas said the EU was carefully listening to Mr. Trump's remarks and "preparing". "But what is clear, there are no winners in trade wars."

चीन हंसेगा, यूरोपीय संघ के विदेश मंत्री ने व्यापार युद्ध पर कहा

EU Reacts to U.S. President Donald Trump's Tariff Remarks

यू.एस. राष्ट्रपति डोनाल्ड ट्रंप की शुल्क टिप्पणी पर यूरोपीय संघ की प्रतिक्रिया

• Reacting to U.S. President Donald Trump's remarks on Sunday evening that tariffs against the EU were "definitely" on the cards, the EU's top foreign affairs and security official, Kaja Kallas, said China would stand to benefit from any U.S.-EU trade war.

यू.एस. राष्ट्रपति डोनाल्ड ट्रंप की टिप्पणियों पर प्रतिक्रिया करते हुए कि

रविवार शाम ईयू के खिलाफ शुल्क "निश्चित रूप से" तय हैं, ईयू के शीर्ष विदेश मामलों और सुरक्षा अधिकारी, काजा कालास ने कहा कि चीन किसी भी यू.एस.-ईयू व्यापार युद्ध से लाभान्वित होगा।

- Ms. Kallas was speaking to a group of reporters on Monday morning, prior to addressing a conference of EU Ambassadors in Brussels.

श्रीमती कालास सोमवार सुबह एक रिपोर्टरों के समूह से बात कर रही थीं, ब्रुसेल्स में ईयू दूतों के सम्मेलन को संबोधित करने से पहले।

- "If the United States starts the trade war [sic], then the one laughing on the side is China. We are very interlinked. We need America, and America needs us as well," she said, adding that tariffs increased costs and were detrimental for consumers as well as for the job market.

"अगर संयुक्त राज्य अमेरिका व्यापार युद्ध शुरू करता है [sic], तो चीन ही है जो इस पर हंस रहा होगा। हम बहुत जुड़े हुए हैं। हमें अमेरिका की जरूरत है, और अमेरिका को भी हमारी जरूरत है," उन्होंने कहा, और जोड़ा कि शुल्क लागत को बढ़ाते हैं और यह उपभोक्ताओं और नौकरी बाजार के लिए हानिकारक होते हैं।



- **Mr. Trump** had announced **tariffs** on **Canada, China, and Mexico** on **Saturday**. Asked about which country would be next to face U.S. tariffs, and specifically about the **U.K.**, **Mr. Trump** shifted the focus of his response to the **EU**, saying the **bloc** would “definitely” face tariffs.

श्री ट्रंप ने शनिवार को कनाडा, चीन और मेक्सिको पर शुल्क की घोषणा की थी। जब उनसे पूछा गया कि यू.के. के बारे में क्या, और विशेष रूप से यू.के. के बारे में, तो श्री ट्रंप ने अपनी प्रतिक्रिया का ध्यान ईयू पर केंद्रित किया, कहते हुए कि ब्लॉक पर “निश्चित रूप से” शुल्क लागू होगा।

- “It might happen with that (the **U.K.**), but it will definitely happen with the **EU**,” **Mr. Trump** said, claiming that the **EU** ran a **trade surplus** of over **\$300 billion** with the **U.S.** “यह (यू.के.) के साथ हो सकता है, लेकिन यह ईयू के साथ निश्चित रूप से होगा,” श्री ट्रंप ने कहा, यह दावा करते हुए कि ईयू का संयुक्त राज्य अमेरिका के साथ व्यापार अधिशेष **\$300 बिलियन** से अधिक था।

- **Mr. Trump’s numbers** are at odds with **EU official data**. The **bloc** had a **€155.8 billion** (**\$159.9 billion**) **trade surplus** in goods with the **U.S.** in **2023** as per these data. It ran a **trade deficit** in services of **€104 billion**.

श्री ट्रंप के आंकड़े ईयू आधिकारिक आंकड़ों से असहमत हैं। ब्लॉक के पास 2023 में संयुक्त राज्य अमेरिका के साथ **€155.8 बिलियन** (**\$159.9 बिलियन**) का व्यापार अधिशेष था। इसके अलावा, यह सेवाओं में **€104 बिलियन** का व्यापार घाटा चला रहा था।

- **Mr. Trump** on **Sunday**, named **automobiles** and **farm products** as particular industries of concern, calling the **EU’s trade position** an “**atrocitiy**” and alleging that the **bloc** was “taking advantage” of the **U.S.** On the **U.K.**, he said it was “**out of line**”. “I think that one can be worked out,” he added.

श्री ट्रंप ने रविवार को ऑटोमोबाइल्स और कृषि उत्पादों को चिंता की विशेष उद्योगों के रूप में नामित किया, और ईयू के व्यापार स्थिति को “अत्याचार” करार दिया और यह आरोप लगाया कि ब्लॉक संयुक्त राज्य अमेरिका का “फायदा उठा रहा है।” यू.के. पर, उन्होंने कहा कि यह “गलत दिशा में है।” “मुझे लगता है कि इसे सुलझाया जा सकता है,” उन्होंने जोड़ा।

- In **Brussels**, **Ms. Kallas** said the **EU** was carefully listening to **Mr. Trump’s** remarks and “preparing”.

ब्रुसेल्स में, श्रीमती कालास ने कहा कि ईयू श्री ट्रंप की टिप्पणियों को ध्यान से सुन रहा है और “तैयारी कर रहा है।”

- “But what is clear, there are no winners in **trade wars**.”

“लेकिन यह स्पष्ट है, व्यापार युद्धों में कोई विजेता नहीं होते।”



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8. The promises and problems of using bacteria against plastic / प्लास्टिक के खिलाफ बैक्टीरिया के उपयोग के वादे और समस्याएँ
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THE HINDU
GS Paper III: Industry

Green and clean

India must formulate a critical minerals framework that is just and equitable

India has come a long way in its attempt to transition to cleaner forms of power in the past decade. This is partly reflected in the budgetary allocation to the Ministry of New and Renewable Energy between fiscal years 2015 (BE ₹1,535 crore) and 2025 (BE ₹32,626 crore). But these allocations, other than in 2015 and 2023, have been underutilised, leading to lower revised estimates (REs). However, this does not fully reflect the clean energy journey. India attempted a major leap with the PM-KUSUM scheme in 2019, a year ahead of the COVID-19 disruptions, with an outlay of ₹34,422 crore. The scheme envisaged having off-grid solar irrigation pumps and grid-connected solar plants on fallow farmlands. While PM-KUSUM has received a tepid response, with less than half a gigawatt of installed capacity, the realisation that energy transition is both a desirable outcome and a requirement occurred during the COVID-19 years, when there were major supply chain disruptions to coal, oil and gas. This led to India pledging to produce half its energy requirements from renewables in about five years from now, at COP26 in 2021.

It was the 2021 Budget that heralded the clean energy shift, with ₹18,100 crore for a PLI scheme for advanced chemistry cell manufacturing to augment India's grid-scale battery storage capacity. A ₹4,500 crore PLI scheme for solar photovoltaic modules went up to ₹19,500 crore in 2022. But the government also decided to levy a 40% basic customs duty (BCD) on solar modules and 25% on solar cells to reduce the overwhelming import dependence on China. However, this slowed solar power installations nationwide with prices rising. And even while renewables constitute 46% of India's total installed capacity (October 2024), 70% of its power output is from coal. Experts have pointed to the need for grid-scale battery storage technology to augment India's renewables output, as intermittent RE production leads to the continued reliance on fossil-fuel based power. With the realisation that steep BCDs could be inflationary and counterproductive to localising production, particularly in the capital-intensive lithium-ion battery technology sector, the government has announced that it will exempt 12 critical minerals and 35 capital goods from BCDs. But reducing dependence on China for energy transition resources and technology would also require India showing leadership in formulating a critical minerals framework, that is socially and environmentally just during extraction, and equitable in its distribution. With the U.S. withdrawing its leadership position in these areas, India must aim to play a bigger role.

Green and Clean India

हरित और स्वच्छ भारत

India must formulate a **critical minerals framework** that is just and equitable.

भारत को एक न्यायसंगत और समान **Critical Minerals Framework** तैयार करना चाहिए।

• India has come a long way in its attempt to transition to cleaner forms of power in the past decade.

पिछले एक दशक में, भारत ने स्वच्छ ऊर्जा की ओर संक्रमण करने में लंबी दूरी तय की है।

• **This is partly reflected in the budgetary allocation to the Ministry of New and Renewable Energy between fiscal years 2015 (BE ₹1,535 crore) and 2025 (BE ₹32,626 crore).

यह आंशिक रूप से वित्तीय वर्ष 2015 (BE ₹1,535 करोड़) से 2025 (BE ₹32,626 करोड़) के बीच नवीन और नवीकरणीय ऊर्जा मंत्रालय को आवंटित बजट में देखा जा सकता है।

• But these allocations, other than in 2015 and 2023, have been underutilized, leading to lower revised estimates (REs).

लेकिन 2015 और 2023 को छोड़कर, ये आवंटन कम उपयोग किए गए, जिससे संशोधित अनुमान (REs) कम हो गए।

• However, this does not fully reflect the clean energy journey. हालांकि, यह पूरी तरह से स्वच्छ ऊर्जा यात्रा को प्रतिबिंबित नहीं करता।

• India attempted a major leap with the **PM-KUSUM scheme in 2019**, a year ahead of the COVID-19 disruptions, with an outlay of ₹34,422 crore.

भारत ने 2019 में PM-KUSUM योजना के साथ एक बड़ा कदम उठाया, जो COVID-19 व्यवधानों से एक साल पहले था, जिसमें ₹34,422 करोड़ का आवंटन था।

• The scheme envisaged having off-grid solar irrigation pumps and grid-connected solar plants on fallow farmlands.

योजना में ऑफ-ग्रिड सौर सिंचाई पंप और परती कृषि भूमि पर ग्रिड से जुड़े सौर संयंत्रों की परिकल्पना की गई थी।

• While PM-KUSUM has received a tepid response, with less than half a gigawatt of installed capacity.

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हालांकि, PM-KUSUM को धीमी प्रतिक्रिया मिली, और इसकी स्थापित क्षमता आधे गीगावाट से भी कम है।

- The realization that energy transition is both a desirable outcome and a requirement occurred during the COVID-19 years.

COVID-19 के दौरान यह महसूस किया गया कि ऊर्जा संक्रमण न केवल एक वांछनीय परिणाम है बल्कि एक आवश्यकता भी है।

- Major supply chain disruptions to coal, oil, and gas led to India pledging to produce half its energy requirements from renewables in about five years from now at COP26 in 2021.

कोयला, तेल और गैस की आपूर्ति श्रृंखला में बड़े व्यवधानों के कारण, भारत ने COP26 (2021) में यह संकल्प लिया कि वह लगभग 5 वर्षों में अपनी आधी ऊर्जा आवश्यकताओं को नवीकरणीय स्रोतों से पूरा करेगा।

- The 2021 Budget heralded the clean energy shift, with ₹18,100 crore for a PLI scheme for advanced chemistry cell manufacturing to augment India's grid-scale battery storage capacity.

भारत के 2021 के बजट ने स्वच्छ ऊर्जा परिवर्तन की दिशा में कदम बढ़ाया, जिसमें उन्नत रसायन कोशिका निर्माण के लिए ₹18,100 करोड़ की PLI योजना थी, जिससे भारत की ग्रिड-स्तरीय बैटरी भंडारण क्षमता बढ़ाई जा सके।

- **A ₹4,500 crore PLI scheme for solar photovoltaic modules went up to ₹19,500 crore in 2022.**

सौर फोटोवोल्टिक मॉड्यूल के लिए ₹4,500 करोड़ की PLI योजना 2022 में ₹19,500 करोड़ तक बढ़ा दी गई।

- But the government also decided to levy a **40% basic customs duty (BCD)** on solar modules and 25% on solar cells to reduce overwhelming import dependence on China.

लेकिन सरकार ने चीन पर अत्यधिक आयात निर्भरता को कम करने के लिए सौर मॉड्यूल पर 40% बेसिक कस्टम ड्यूटी (BCD) और सौर सेल पर 25% ड्यूटी लगाने का निर्णय लिया।

- However, this slowed solar power installations nationwide with prices rising.

हालांकि, इससे देशभर में सौर ऊर्जा संयंत्रों की स्थापना की गति धीमी हो गई और कीमतें बढ़ गईं।

- Even while renewables constitute 46% of India's total installed capacity (October 2024), 70% of its power output is from coal.

अक्टूबर 2024 तक, भारत की कुल स्थापित क्षमता में नवीकरणीय ऊर्जा का योगदान 46% है, लेकिन अब भी 70% बिजली उत्पादन कोयले से होता है।

- Experts have pointed to the need for grid-scale battery storage technology to augment India's renewables output.

विशेषज्ञों ने भारत के नवीकरणीय ऊर्जा उत्पादन को बढ़ाने के लिए ग्रिड-स्तरीय बैटरी भंडारण प्रौद्योगिकी की आवश्यकता पर जोर दिया है।



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- Intermittent RE production leads to the continued reliance on fossil-fuel-based power.
अंतराल वाली नवीकरणीय ऊर्जा उत्पादन प्रणाली के कारण जीवाश्म ईंधन-आधारित बिजली पर निर्भरता बनी रहती है।
- With the realization that steep BCDs could be inflationary and counterproductive to localizing production, particularly in the capital-intensive lithium-ion battery technology sector, the government has announced that it will exempt 12 critical minerals and 35 capital goods from BCDs.
यह समझ आने के बाद कि ऊंची BCDs महंगाई बढ़ा सकती हैं और उत्पादन के स्थानीयकरण के लिए प्रतिकूल हो सकती हैं, खासकर पूंजी-गहन लिथियम-आयन बैटरी प्रौद्योगिकी क्षेत्र में, सरकार ने 12 महत्वपूर्ण खनिजों और 35 पूंजीगत वस्तुओं को BCD से मुक्त करने की घोषणा की।
- But reducing dependence on China for energy transition resources and technology would also require India showing leadership in formulating a critical minerals framework.
लेकिन ऊर्जा संक्रमण संसाधनों और प्रौद्योगिकी के लिए चीन पर निर्भरता कम करने के लिए भारत को महत्वपूर्ण खनिज ढांचे के निर्माण में नेतृत्व दिखाना होगा।
- India must ensure this framework is socially and environmentally just during extraction and equitable in its distribution.
भारत को यह सुनिश्चित करना होगा कि यह ढांचा खनन के दौरान सामाजिक और पर्यावरणीय रूप से न्यायसंगत हो और इसके वितरण में समानता बनी रहे।
- With the U.S. withdrawing its leadership position in these areas, India must aim to play a bigger role.
अमेरिका द्वारा इन क्षेत्रों में नेतृत्व की भूमिका से पीछे हटने के बाद, भारत को एक बड़ी भूमिका निभाने की दिशा में प्रयास करना चाहिए।

Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM KUSUM) is a scheme launched by the Government of India in 2019 to provide financial assistance to farmers for the installation of solar pumps and grid-connected solar power plants. The scheme aims to reduce the dependence on conventional power sources and promote the use of renewable energy in the agriculture sector.

Key Objectives:

- **Solarization of agricultural pumps:** The scheme aims to solarize existing agricultural pumps, which will reduce the dependence on grid power.
- **Creation of decentralized solar power plants:** It encourages farmers to set up small-scale solar power plants and sell surplus power to the grid, generating additional income.
- **Boost renewable energy adoption:** The initiative seeks to increase the share of renewable energy in the agricultural sector.

Components of PM KUSUM:

1. **Component A: Solarization of existing agricultural pumps** – Farmers are provided with financial assistance for installing solar pumps to replace existing diesel pumps.

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2. **Component B: Installation of standalone solar pumps** – This component aims to provide new standalone solar pumps to farmers who are not connected to the grid.
3. **Component C: Grid-connected solar power plants** – Farmers can set up grid-connected solar power plants of up to 2 MW capacity and sell the generated power to the grid.

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Some wind behind the sails of India's shipping industry

GS Paper III: Industry

The government deserves credit for its commitment to develop the maritime sector, largely neglected by predecessor governments. This is reflected in the expenditure on the **government's flagship programme, Sagarmala**, which, as on September 2024, had outlined 839 projects requiring an investment of ₹5.8 lakh crore by 2035. Of these, 241 projects, worth ₹1.22 lakh crore, have been completed, while 234 projects, valued at ₹1.8 lakh crore, are under implementation. Additionally, 364 projects, with an estimated investment of ₹2.78 lakh crore, are in various stages of development.

Within Sagarmala, ₹2.91 lakh crore (over 50%) is allocated for port modernisation; ₹2.06 lakh crore (more than 35%) for port connectivity; ₹55.8 thousand crore (10%) for port-led industrialisation, the remaining 5% distributed between coastal community development, infrastructure for coastal shipping (not ship acquisition) and inland water transport.

India's economy has seen GDP rising from ₹153 trillion in 2016-17 to ₹272 trillion in 2022-23 – an increase of 43%, growing at a CAGR of 7%, despite two years of COVID-19 related setbacks. The economy is projected to reach \$3.7 trillion this year, \$5 trillion by 2027, and \$7 trillion by 2030.

During this period, India's EXIM trade has also grown from \$66 billion in 2016-17 to \$116 billion in 2022, a cumulative increase of over 77% and an annual growth rate of 12.83%. India aims to boost exports to \$2 trillion by 2030, to strengthen its global trade position.

The industry continues to face stagnation

Despite high economic growth and increased investments in the maritime sector, the Indian shipping industry has remained stagnant. According to statistics by the Ministry of Ports, Shipping and Waterways, the cargo handled at major ports has only marginally increased from 1,071.76 million tons in 2016-17 to 1,249.99 million tons in 2020-21 – a cumulative growth of 14.26% or an annual increase of just 2.85%. In contrast, the number of vessels handled at these ports has actually declined by 5.93%, from 21,655 vessels in 2016-17 to 20,371 in 2020-21.

In terms of Indian-registered ships, the number has increased from 1,313 in 2016-17 to 1,526 in September 2024 – a cumulative rise of 16.77% and an average annual growth of 2.4%. Over the same period, gross tonnage has grown from 11,547,576 GT in 2016-17 to 13,744,897 GT – a cumulative increase of 17.44% and an annual average growth of 2.5%.

A major concern has been the aging Indian fleet, with the average vessel age rising to 26 years in 2022-23. However, this has now improved to 21 years, with the addition of 34 relatively younger vessels (average age of 14 years)



Amitabh Kumar

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in 2024. In comparative terms, India's global ranking in ship ownership declined from 17 to 19, highlighting the need for reforms.

Clearly, the assumption that increased investment in ports would automatically drive growth in Indian shipping has been proven wrong.

In reality, Indian shipping has continued to lose market to foreign-flag vessels carrying Indian EXIM cargo and to rail and road transport for domestic cargo. The reason is simple: the needs of shipowners and shipbuilders are vastly different from those of port and terminal operators.

Multiple challenges such as in shipbuilding

Indian shipping faces multiple challenges hindering its competitiveness: lack of capital and high borrowing costs; short loan tenures, rigid collateral requirements requiring shipowners additional security instead of using ships as collateral; limited understanding of the industry's cyclical nature, leading to inflexible loan restructuring policies; unfavourable taxation laws often favouring foreign-flag vessels over Indian vessels even within Indian waters; delays in repatriating funds for ship acquisitions; stringent regulatory requirements, and additional financial burdens on mandatory training of Indian seafarers and higher port charges, further eroding competitiveness.

In contrast, ships registered in tax havens or flags of convenience – benefit from easier access to capital, lower borrowing costs, lenient regulatory standards, concealed ownership structures, and minimal regulatory oversight. This makes Indian-flagged vessels significantly less competitive in global shipping markets.

Beyond capital constraints, India's shipbuilding industry also struggles with: inadequate infrastructure for constructing large vessels; high input costs, particularly on steel; a weak ancillary industry leading to dependency on imports; customs duties on imported machinery and spare parts, increasing production costs, and skill gaps that limit workforce efficiency.

Additionally, funding challenges for shipowners and delays in new-build vessel deliveries deter potential buyers from investing in Indian shipyards, further weakening the domestic shipbuilding sector.

The Indian National Shipowners Association has for long advocated measures to ease capital constraints and eliminate discriminatory tax policies. Two key recommendations, i.e., the creation of a Maritime Development Fund (MDF) and granting infrastructure status to ships, were incorporated into the Maritime India Vision 2030.

Additionally, industry stakeholders have been pushing for the removal of the 5% IGST on ship capital costs and the exemption of Indian seafarers from TDS requirements.

Except for tax-related relief, most of the industry's long-standing demands appear to have been addressed in the Union Budget.

The government has announced: a ₹25,000 crore MDF; Infrastructure status for large vessels; facilitation of shipbuilding clusters; a 10-year extension of the basic customs duty exemption on shipbuilding spares and equipment; a revamped financial assistance policy for shipbuilding; credit incentives for shipbreaking in Indian yards, and an extension of the tonnage tax scheme to inland vessels.

However, the devil lies in the details. The government's contribution to the MDF will only be 49%, with the remainder to come from major ports. It is unclear whether the ₹25,000 crore will be mobilised in a single year or over multiple years. Given the high capital intensity of shipping, shipbuilding, and port sectors, this amount may still fall short of industry needs.

The aging Indian shipping fleet requires urgent replacement, and greenhouse gas emissions reduction targets will necessitate investments in green technology. The sector requires long-term financing with lower interest rates and repayment tenures of 7-10 years. Additionally, India needs new shipyards to build large vessels and the expansion and modernisation of existing ones. Although Sagarmala has infused funds in ports, additional funds may still be necessary for modernisation, despite transitioning to a landlord model.

If the MDF is strategically utilised to attract external commercial borrowings (ECBs) at lower interest rates, it could help bridge the funding gap across the maritime sector.

Glaring tax disparities

The Budget appears to have missed a crucial opportunity to address the tax disparities that put Indian ships at a comparative disadvantage to foreign ships, even when operating along the Indian coast. Indian-flagged vessels are subject to a 5% IGST on purchase price, a levy not imposed on foreign-flagged ships. Additionally, Indian shipping companies must deduct tax at source (TDS) on seafarers' salaries, whereas foreign vessels employing Indian seafarers face no such obligation.

The Budget 2025 is a promising step but must not become another half-measure in the name of shipping reforms. The industry needs decisive action, not just incremental progress.

The views expressed are personal



The Union Budget appears to have met most of the shipping industry's demands; but it has missed an opportunity to address tax disparities

Some wind behind the sails of India's shipping industry

भारत के शिपिंग उद्योग के विकास में कुछ प्रगति

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The government deserves credit for its commitment to develop the maritime sector, largely neglected by predecessor governments.

सरकार को समुद्री क्षेत्र के विकास के लिए उसकी प्रतिबद्धता के लिए सराहना मिलनी चाहिए, जिसे पूर्ववर्ती सरकारों द्वारा काफी हद तक नजरअंदाज किया गया था।

- This is reflected in the expenditure on the government's flagship programme, Sagarmala, which, as on **September 2024**, had outlined **839 projects** requiring an investment of **₹5.8 lakh crore** by **2035**.
यह सरकार के प्रमुख कार्यक्रम, सागरमाला पर खर्च में परिलक्षित होता है, जो **सितंबर 2024** तक **839 परियोजनाओं** को निर्धारित करता है, जिसके लिए **2035** तक **₹5.8 लाख करोड़** का निवेश आवश्यक है।
- Of these, **241 projects**, worth **₹1.22 lakh crore**, have been completed, while **234 projects**, valued at **₹1.8 lakh crore**, are under implementation.
इनमें से **241 परियोजनाएं**, जिनकी कीमत **₹1.22 लाख करोड़** है, पूरी हो चुकी हैं, जबकि **234 परियोजनाएं**, जिनकी कीमत **₹1.8 लाख करोड़** है, क्रियान्वयन के अधीन हैं।
- Additionally, **364 projects**, with an estimated investment of **₹2.78 lakh crore**, are in various stages of development.
इसके अतिरिक्त, **364 परियोजनाएं**, जिनकी अनुमानित निवेश राशि **₹2.78 लाख करोड़** है, विकास के विभिन्न चरणों में हैं।
- Within Sagarmala, **₹2.91 lakh crore** (over **50%**) is allocated for port modernisation; **₹2.06 lakh crore** (more than **35%**) for port connectivity; **₹55.8 thousand crore** (**10%**) for port-led industrialisation, the remaining **5%** distributed between coastal community development, infrastructure for coastal shipping (not ship acquisition) and inland water transport.
सागरमाला के तहत, **₹2.91 लाख करोड़** (50% से अधिक) का आवंटन बंदरगाह आधुनिकीकरण के लिए किया गया है; **₹2.06 लाख करोड़** (35% से अधिक) का आवंटन बंदरगाह कनेक्टिविटी के लिए किया गया है; **₹55.8 हजार करोड़** (10%) का आवंटन बंदरगाह-आधारित औद्योगिकीकरण के लिए किया गया है, शेष 5% तटीय समुदाय विकास, तटीय शिपिंग (जहाज अधिग्रहण नहीं) और अंतर्देशीय जल परिवहन के लिए वितरित किया गया है।
- India's economy has seen **GDP rising from ₹153 trillion in 2016-17 to ₹272 trillion in 2022-23** — an increase of **43%**, growing at a **CAGR of 7%**, despite two years of COVID-19 related setbacks.
भारत की अर्थव्यवस्था ने **2016-17** में **₹153 ट्रिलियन** से बढ़कर **2022-23** में **₹272 ट्रिलियन** हो गई है — इसमें **43%** की वृद्धि हुई है, और यह **7%** के सीएजीआर (कंपाउंड एनुअल ग्रोथ रेट) से बढ़ी है, जबकि दो वर्षों तक COVID-19 से संबंधित व्यवधानों का सामना करना पड़ा।
- The economy is projected to reach **\$3.7 trillion** this year, **\$5 trillion by 2027**, and **\$7 trillion by 2030**.



अर्थव्यवस्था का अनुमान है कि यह इस वर्ष **\$3.7 ट्रिलियन**, 2027 तक **\$5 ट्रिलियन**, और 2030 तक **\$7 ट्रिलियन** तक पहुँच जाएगी।

- During this period, India's **EXIM trade** has also grown from **\$66 billion in 2016-17** to **\$116 billion in 2022**, a cumulative increase of over **77%** and an annual growth rate of **12.83%**.

इस अवधि के दौरान, भारत का **EXIM व्यापार** भी 2016-17 में **\$66 बिलियन** से बढ़कर 2022 में **\$116 बिलियन** हो गया है, जो **77%** से अधिक की संचयी वृद्धि और **12.83%** की वार्षिक वृद्धि दर दर्शाता है।

- India aims to boost exports to **\$2 trillion by 2030**, to strengthen its global trade position. भारत का लक्ष्य 2030 तक **\$2 ट्रिलियन** तक निर्यात बढ़ाना है, ताकि वह अपनी वैश्विक व्यापार स्थिति को मजबूत कर सके।

The industry continues to face stagnation

उद्योग अभी भी ठहराव का सामना कर रहा है

- Despite high economic growth and increased investments in the maritime sector, the Indian shipping industry has remained stagnant.

उच्च आर्थिक वृद्धि और समुद्री क्षेत्र में बढ़ते निवेश के बावजूद, भारतीय शिपिंग उद्योग ठहरा हुआ है।

- According to statistics by the Ministry of Ports, Shipping and Waterways, the cargo handled at major ports has only marginally increased from **1,071.76 million tons in 2016-17** to **1,249.99 million tons in 2020-21** — a cumulative growth of **14.26%** or an annual increase of just **2.85%**.

समुद्र, पोर्ट और जलमार्ग मंत्रालय के आंकड़ों के अनुसार, प्रमुख बंदरगाहों पर हैंडल किए गए कार्गो में केवल मामूली वृद्धि हुई है, 2016-17 में **1,071.76 मिलियन टन** से बढ़कर 2020-21 में **1,249.99 मिलियन टन** हो गई है – जिसमें **14.26%** की संचयी वृद्धि और केवल **2.85%** की वार्षिक वृद्धि हुई है।

- In contrast, the number of vessels handled at these ports has actually declined by **5.93%**, from **21,655 vessels in 2016-17** to **20,371 in 2020-21**.

इसके विपरीत, इन बंदरगाहों पर हैंडल किए गए जहाजों की संख्या **5.93%** कम हो गई है, 2016-17 में **21,655 जहाजों** से घटकर 2020-21 में **20,371 जहाज** रह गई है।

- In terms of Indian-registered ships, the number has increased from **1,313 in 2016-17** to **1,526 in September 2024** — a cumulative rise of **16.77%** and an average annual growth of **2.4%**.

भारतीय पंजीकृत जहाजों के मामले में, संख्या 2016-17 में **1,313** से बढ़कर सितंबर 2024 में **1,526** हो गई है – जिसमें **16.77%** की संचयी वृद्धि और **2.4%** की औसत वार्षिक वृद्धि दर है।

- Over the same period, gross tonnage has grown from **11,547,576 GT in 2016-17** to **13,744,897 GT** — a cumulative increase of **17.44%** and an annual average growth of **2.5%**.



इसी अवधि के दौरान, कुल गनटेज 2016-17 में 11,547,576 GT से बढ़कर 13,744,897 GT हो गई है – जो 17.44% की संचयी वृद्धि और 2.5% की वार्षिक औसत वृद्धि है।

- A major concern has been the aging Indian fleet, with the average vessel age rising to **26 years in 2022-23**. However, this has now improved to **21 years**, with the addition of **34 relatively younger vessels** (average age of **14 years**) in 2024.

एक प्रमुख चिंता भारतीय बेड़े की पुरानी अवस्था रही है, जिसमें 2022-23 में जहाजों की औसत आयु 26 साल हो गई थी। हालांकि, अब यह 2024 में 34 अपेक्षाकृत नए जहाजों (जो औसतन 14 साल पुराने हैं) के जुड़ने के साथ 21 साल तक सुधर गया है।

- In comparative terms, India's global ranking in ship ownership declined from **17 to 19**, highlighting the need for reforms.

तुलनात्मक दृष्टिकोण से, भारत की जहाज स्वामित्व में वैश्विक रैंकिंग 17 से घटकर 19 हो गई है, जो सुधारों की आवश्यकता को दर्शाता है।

- Clearly, the assumption that increased investment in ports would automatically drive growth in Indian shipping has been proven wrong.

स्पष्ट रूप से, यह धारणा कि बंदरगाहों में बढ़े हुए निवेश से भारतीय शिपिंग में स्वचालित रूप से वृद्धि होगी, गलत साबित हुई है।

- In reality, Indian shipping has continued to lose market to foreign-flag vessels in carrying Indian **EXIM cargo** and to rail and road transport for domestic cargo.

वास्तव में, भारतीय शिपिंग ने भारतीय EXIM कार्गो को विदेशी ध्वज वाले जहाजों और घरेलू कार्गो के लिए रेल और सड़क परिवहन को खो दिया है।

- The reason is simple: the needs of shipowners and shipbuilders are vastly different from those of port and terminal operators.

कारण सरल है: जहाज मालिकों और शिपबिल्डरों की आवश्यकताएँ बंदरगाह और टर्मिनल ऑपरेटरों से पूरी तरह अलग हैं।

Multiple challenges such as in shipbuilding

भारतीय शिपबिल्डिंग में कई चुनौतियाँ

- Indian shipping faces multiple challenges hindering its competitiveness: **lack of capital and high borrowing costs; short loan tenures, rigid collateral requirements** requiring shipowners additional security instead of using ships as collateral.

भारत का शिपिंग क्षेत्र अपनी प्रतिस्पर्धात्मकता में कई चुनौतियों का सामना कर रहा है: पूंजी की कमी और उच्च उधारी लागत, कम अवधि वाले ऋण, कठोर संपार्श्विक आवश्यकताएँ, जो जहाज मालिकों से अतिरिक्त सुरक्षा की मांग करती हैं, बजाय इसके कि वे जहाजों को संपार्श्विक के रूप में उपयोग करें।

- **Limited understanding of the industry's cyclical nature**, leading to **inflexible loan restructuring policies**.

उद्योग की चक्रीय प्रकृति की सीमित समझ के कारण ऋण पुनर्संरचना नीतियाँ लचीली नहीं हैं।



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- **Unfavourable taxation laws** often favouring foreign-flag vessels over Indian vessels even within Indian waters.
अप्रिय कर कानून, जो अक्सर भारतीय जल में भी भारतीय जहाजों के मुकाबले विदेशी-ध्वज वाले जहाजों को प्राथमिकता देते हैं।
- **Delays in repatriating funds** for ship acquisitions; stringent regulatory requirements, and additional financial burdens on **mandatory training of Indian seafarers** and higher **port charges**, further eroding competitiveness.
जहाज अधिग्रहण के लिए धन के प्रत्यावृत्ति में देरी; कड़े नियामक आवश्यकताएँ, और भारतीय समुद्री कर्मचारियों के अनिवार्य प्रशिक्षण और उच्च बंदरगाह शुल्क पर अतिरिक्त वित्तीय बोझ, जो प्रतिस्पर्धात्मकता को और कम कर रहे हैं।
- Ships registered in **tax havens** or **flags of convenience** benefit from **easier access to capital, lower borrowing costs, lenient regulatory standards, concealed ownership structures, and minimal regulatory oversight.**
टैक्स हेवन्स या सुविधाजनक ध्वज वाले जहाजों को पूंजी तक आसान पहुँच, कम उधारी लागत, लचीले नियामक मानक, छिपे हुए स्वामित्व संरचनाएँ, और न्यूनतम नियामक निगरानी का लाभ मिलता है।
- This makes **Indian-flagged vessels** significantly less competitive in global shipping markets.
इससे भारतीय ध्वज वाले जहाजों की वैश्विक शिपिंग बाजारों में प्रतिस्पर्धात्मकता काफी कम हो जाती है।
- Beyond **capital constraints**, India's shipbuilding industry also struggles with: **inadequate infrastructure** for constructing large vessels; **high input costs**, particularly on **steel**; a **weak ancillary industry** leading to dependency on imports; **customs duties** on imported machinery and spare parts, increasing production costs; and **skill gaps** that limit workforce efficiency.
पूंजी संबंधी प्रतिबंधों के अलावा, भारत का शिपबिल्डिंग उद्योग भी struggles करता है: बड़ी जहाजों के निर्माण के लिए अपर्याप्त बुनियादी ढाँचा; उच्च इनपुट लागतें, विशेषकर स्टील पर; कमजोर सहायक उद्योग जो आयातों पर निर्भरता बढ़ाता है; आयातित मशीनरी और स्पेयर पार्ट्स पर कस्टम ड्यूटी, जो उत्पादन लागत को बढ़ाती है; और कौशल अंतर जो श्रमिकों की दक्षता को सीमित करता है।
- Additionally, **funding challenges** for shipowners and delays in **new-build vessel deliveries** deter potential buyers from investing in **Indian shipyards**, further weakening the domestic shipbuilding sector.
इसके अतिरिक्त, जहाज मालिकों के लिए वित्तपोषण संबंधी समस्याएँ और नई जहाजों की डिलीवरी में देरी संभावित खरीदारों को भारतीय शिपयार्डों में निवेश करने से हतोत्साहित करती हैं, जिससे घरेलू शिपबिल्डिंग क्षेत्र और कमजोर हो जाता है।
- The **Indian National Shipowners Association** has long advocated measures to ease capital constraints and eliminate discriminatory tax policies.

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भारतीय राष्ट्रीय शिपओनर्स संघ ने लंबे समय से पूंजी प्रतिबंधों को आसान बनाने और भेदभावपूर्ण कर नीतियों को समाप्त करने के उपायों का समर्थन किया है।

- Two key recommendations, i.e., the creation of a **Maritime Development Fund (MDF)** and granting **infrastructure status** to ships, were incorporated into the **Maritime India Vision 2030**.

दो प्रमुख सिफारिशें, यानी, **समुद्री विकास कोष (MDF)** का निर्माण और जहाजों को **बुनियादी ढाँचा स्थिति** प्रदान करना, को **समुद्री भारत दृष्टि 2030** में शामिल किया गया।

- The government has announced: a **₹25,000 crore MDF**; **Infrastructure status** for large vessels; facilitation of **shipbuilding clusters**; a **10-year extension** of the basic **customs duty exemption** on shipbuilding spares and equipment; a revamped **financial assistance policy** for shipbuilding; **credit incentives** for shipbreaking in Indian yards, and an extension of the **tonnage tax scheme** to inland vessels.

सरकार ने घोषणा की है: **₹25,000 करोड़ MDF**; बड़ी जहाजों के लिए **बुनियादी ढाँचा स्थिति**;

शिपबिल्डिंग क्लस्टर की सुविधा; शिपबिल्डिंग स्पेयर्स और उपकरणों पर **कस्टम ड्यूटी छूट में 10 साल का विस्तार**; शिपबिल्डिंग के लिए **पुनः व्यवस्थित वित्तीय सहायता नीति**; भारतीय यार्ड्स में शिपब्रेकिंग के लिए **क्रेडिट प्रोत्साहन**, और **टोनज टैक्स योजना** का आंतरिक जलमार्ग जहाजों के लिए विस्तार।

- The **government's contribution** to the MDF will only be **49%**, with the remainder to come from **major ports**.

सरकार का योगदान MDF में केवल **49%** होगा, बाकी का योगदान **बड़े बंदरगाहों** से आएगा।

- The **₹25,000 crore** will be mobilized either in a single year or over multiple years. **₹25,000 करोड़** को एक वर्ष में या कई वर्षों में जुटाया जाएगा।

- Given the **high capital intensity** of shipping, shipbuilding, and port sectors, this amount may still fall short of industry needs.

शिपिंग, शिपबिल्डिंग, और पोर्ट सेक्टरों की **उच्च पूंजी तीव्रता** को देखते हुए, यह राशि अभी भी उद्योग की जरूरतों को पूरा करने के लिए अपर्याप्त हो सकती है।

- The **aging Indian shipping fleet** requires urgent replacement, and greenhouse gas emissions reduction targets will necessitate investments in **green technology**.

बुजुर्ग भारतीय शिपिंग बेड़ा को तत्काल प्रतिस्थापन की आवश्यकता है, और ग्रीनहाउस गैस उत्सर्जन में कमी के लक्ष्य **हरे प्रौद्योगिकी** में निवेश की आवश्यकता होगी।

- The sector requires **long-term financing** with **lower interest rates** and **repayment tenures of 7-10 years**.

इस क्षेत्र को **दीर्घकालिक वित्तपोषण** की आवश्यकता है, जिसमें **निम्न ब्याज दरें** और **7-10 वर्षों का पुनर्भुगतान काल** हो।

- Additionally, India needs new **shipyards** to build large vessels and the expansion and **modernisation of existing ones**.

इसके अतिरिक्त, भारत को बड़े जहाजों के निर्माण के लिए नए **शिपयार्डों** की आवश्यकता है और मौजूदा शिपयार्डों का **विस्तार और आधुनिकीकरण**।

- Although **Sagarmala** has infused funds in ports, additional funds may still be necessary for modernisation.



हालांकि सागरमाला ने बंदरगाहों में धन लगाया है, फिर भी आधुनिकीकरण के लिए अतिरिक्त धन की आवश्यकता हो सकती है।

- If the **MDF** is strategically utilised to attract **external commercial borrowings (ECBs)** at lower interest rates, it could help bridge the funding gap across the maritime sector.
यदि **MDF** को रणनीतिक रूप से **बाहरी वाणिज्यिक उधारी (ECBs)** को कम ब्याज दरों पर आकर्षित करने के लिए उपयोग किया जाता है, तो यह समुद्री क्षेत्र में वित्तीय अंतर को पाटने में मदद कर सकता है।
- **Tax disparities** put Indian ships at a comparative disadvantage to foreign ships even when operating along the Indian coast.
कर असमानताएँ भारतीय जहाजों को विदेशी जहाजों की तुलना में भारतीय तट के साथ संचालन करते समय भी तुलनात्मक रूप से नुकसान में डालती हैं।
- Indian-flagged vessels are subject to a **5% IGST** on purchase price, a levy not imposed on foreign-flagged ships.
भारतीय ध्वज वाले जहाजों पर **5% IGST** लागू होता है, जो विदेशी ध्वज वाले जहाजों पर लागू नहीं होता।
- Indian shipping companies must deduct **TDS on seafarers' salaries**, whereas foreign vessels employing Indian seafarers face no such obligation.
भारतीय शिपिंग कंपनियों को **समुद्री कर्मचारियों के वेतन पर TDS** काटना पड़ता है, जबकि विदेशी जहाजों पर काम करने वाले भारतीय समुद्री कर्मचारियों के लिए ऐसी कोई बाध्यता नहीं है।
- The **Budget 2025** must not become another **half-measure** in the name of shipping reforms.
बजट 2025 को शिपिंग सुधारों के नाम पर **आधे उपायों** में न बदलें।
- The industry needs **decisive action**, not just incremental progress.
उद्योग को **निर्णायक कार्रवाई** की आवश्यकता है, न कि केवल वृद्धिशील प्रगति।

The **Sagarmala Programme** is a flagship initiative of the Ministry of Ports, Shipping, and Waterways, Government of India, aimed at promoting port-led development by harnessing the country's extensive coastline of approximately 7,500 kilometers and its vast network of around 14,500 kilometers of potentially navigable waterways. Launched in 2015, the programme seeks to enhance the performance of the logistics sector, thereby contributing to the nation's economic growth.

Key Objectives of the Sagarmala Programme:

- **Port Modernization and New Port Development:** Upgrading existing ports and developing new ones to meet global standards.
- **Port Connectivity Enhancement:** Improving connectivity between ports and the hinterland through road, rail, and inland waterways.



- **Port-led Industrialization:** Establishing Coastal Economic Zones (CEZs) and industrial clusters to promote manufacturing and job creation.
- **Coastal Community Development:** Focusing on skill development, fisheries, and other activities to uplift coastal communities.

Financial Assistance and Project Implementation:

Under the Sagarmala Scheme, the Ministry provides financial assistance to State and Union Territory Governments for various projects, including:

- Port infrastructure development
- Coastal berth projects
- Road and rail connectivity projects
- Fish harbors
- Skill development initiatives
- Coastal community development
- Cruise terminals
- Roll-on/Roll-off (Ro-Pax) ferry services

As of the latest available data, a total of 130 projects have been sanctioned under the Sagarmala Scheme, with a cumulative project cost of ₹9,580 crore. Out of these, 62 projects worth ₹3,999 crore have been completed, 16 projects worth ₹326 crore are under development, and 52 projects worth ₹5,255 crore are under implementation.

State-wise Project Distribution:

The distribution of projects and funds across various states is as follows:

- **Andhra Pradesh:** 13 projects with a total project cost of ₹2,483 crore; 7 projects completed, 1 under development, and 5 under implementation.
- **Gujarat:** 10 projects with a total project cost of ₹1,422 crore; 3 projects completed, 1 under development, and 6 under implementation.
- **Maharashtra:** 30 projects with a total project cost of ₹1,905 crore; 16 projects completed and 14 under implementation.
- **Karnataka:** 18 projects with a total project cost of ₹537 crore; 3 projects completed, 10 under development, and 5 under implementation.

Focus on Karnataka:

In Karnataka, the Ministry has sanctioned projects related to port modernization, coastal shipping and inland waterways transport (IWT), and coastal community development. Some notable projects include:

- **Construction of Coastal Cargo Berth at Old Mangaluru Port:** Aimed at enhancing cargo handling capacity; currently under implementation with a project cost of ₹65 crore.
- **Development of Fishing Harbour at Kulai:** Focused on improving facilities for the fishing community; under implementation with a project cost of ₹197 crore.



- **Modernization of Existing Fishing Harbour at Malpe in Udupi District:** Completed project with a cost of ₹50 crore, enhancing the infrastructure for fishing activities

The kind of jobs needed for the 'Viksit Bharat' goal

GS Paper III: Employment

The Union Budget has been presented, and this is the right time to outline the three kinds of jobs this writer believes India must create. Beyond reviving private consumption in urban areas, we must continue to strengthen long-term job creation and real wage growth across India.

The 2024 Budget had introduced Employment Linked Incentives (ELI) under the Prime Minister's five-scheme initiative, designed to create over four crore jobs over five years with a central outlay of ₹2 lakh crore. The Prime Minister's internship scheme saw significant traction in 2024, with 6.21 lakh applications for 1.27 lakh opportunities. The outcomes on the rest four – beyond a draft Cabinet note on ELI and meetings by DPIIT with the Ministry of Labour and CII, remain to be seen. But there must be more deliberation on the kind of jobs we wish to create for a Viksit Bharat.

Impact of climate change

First, climate-resilience. India was the seventh most-affected country by climate change in 2019, having suffered an income loss of \$159 billion in 2021, and according to the Reserve Bank of India, will face adaptation costs of nearly \$1 trillion by 2030. The impact on agricultural and labour productivity and also livelihoods requires exponentially higher levels of funding for building rural and urban adaptation capabilities and the rejuvenation of local ecosystems to boost job creation.

To meet the net-zero targets by 2070, the Government must create and incentivise jobs which are "climate-resilient" by maximising all "co-benefits" (IPCC). This could mean providing three to four state-subsidised e-rickshaws in about 6,00,000 villages to create about two million jobs (focused on women drivers), also improving last-mile mobility. Or, there can be new ways to enable private investment in



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Long-term structural reforms must result in climate-resilient, AI-resilient and aspiration-centric jobs

compressed biogas plants to bridge the gap of 82 plants set-up versus the target of 5,000 set (for FY23-24) in 2018. Or, even accelerating achieving the 500GW non-fossil energy capacity target to create over one million jobs, with stronger support for decentralised and rooftop solar which can be seven times more labour-intensive (CEEW).

On AI resilience

Second, Artificial Intelligence (AI)-resilience. With the rise of generative AI, numerous jobs now have 50-plus% automation potential. Scenarios by McKinsey Global Institute show that 50% automation adoption in India can happen in the next 10 years. India's IT and business services, which comprised 70-plus% of services exports (Economic Survey 2021), hope to create millions skilled talent exports. But their employment potential can be limited in the gen AI-era as labour gets costlier relative to capital. With the launch of metaGPT simulating software companies, AI writing 25% of Google's code, and layoffs due to chatbots even in India, new jobs will also need to prioritise physical engagement and utilise our human 'creativity', which this writer terms as AI-resilience. This can take the form of larger education and health budgets to plug the deficit of millions of health-care professionals and teachers across states or dedicated financing for the National Rural Livelihood Mission to facilitate global and urban market linkages of local products, crafts, and knowledge of farmers and artisans in rural India.

Being aspiration-centric

Third, being aspiration centric. Despite their growing engagement with the startup culture, rural youth continue to have low confidence due to deeper insecurities from poor foundational

education (this includes English) and resource-deprived upbringing. This can reinforce dependency on government jobs and 'coaching' to 'crack' entrance exams. As their aspirations are shaped by their socio-economic backgrounds, digital media, and interaction of the 'Samaaj, Sarkaar, and Bazaar', the slow growth of non-farm jobs warrants off-farm job-creation which responds to these dynamic aspirations.

This can take the form of rapid infrastructure development such as building around 70,000 integrated pack-houses, plugging the 95-plus% infrastructure gap, to create over two million jobs. Or, boosting productivity and value-addition for high import/export-share items and tech-enabled local manufacturing of agri-inputs.

Greater use of tech, social media, and rebranding the 'rural' can also help make off-farm jobs aspirational for India's youth. One clear avenue is accelerating the 'National Mission on Edible Oils - Oilseeds' to reduce India's 57% import-dependence of edible-oil back to the pre-WTO levels with the revitalised rural processing of native oilseeds like soybean, sunflower (about 40% of edible-oil imports), and boosting retail of in-vogue cold-pressed oils. Enabling creation of many such large-scale businesses with private-public partnerships and investments, can address economic aspirations of our disheartened youth protesting examination leaks and low recruitment vacancies.

While tax relief may temporarily boost urban consumer demand, amidst growing household indebtedness and suboptimal private investment trends, the Centre can demonstrate greater commitment for long-term structural reforms which create these climate-resilient, AI-resilient and aspiration-centric jobs. Many opportunities exist as we embark towards our shared vision of a Viksit Bharat.



The kind of jobs needed for the 'Viksit Bharat' goal

‘विकसित भारत’ लक्ष्य के लिए आवश्यक नौकरियाँ

The Union Budget 2024 introduced Employment Linked Incentives (ELI) to create over four crore jobs over five years with a central outlay of ₹2 lakh crore.



2024 का केंद्रीय बजट में नौकरी से जुड़े प्रोत्साहन (ELI) की घोषणा की गई, जिससे अगले पांच वर्षों में चार करोड़ से अधिक नौकरियाँ बनाई जाएँगी, जिसमें ₹2 लाख करोड़ का केंद्रीय आवंटन है।

- The **Prime Minister's internship scheme** received significant traction in 2024, with **6.21 lakh applications** for **1.27 lakh opportunities**.
प्रधानमंत्री की इंटर्नशिप योजना को 2024 में महत्वपूर्ण सफलता मिली, जिसमें **6.21 लाख आवेदनों** के लिए **1.27 लाख अवसर** थे।
- The article emphasizes the need for **climate-resilient jobs** to meet the **net-zero targets** by **2070**, including job creation in areas like **e-rickshaws, biogas plants, and non-fossil energy capacity**.
लेख में **जलवायु-लचीली** नौकरियों की आवश्यकता को रेखांकित किया गया है ताकि **2070 तक नेट-जीरो लक्ष्य** प्राप्त किए जा सकें, जिसमें **ई-रिक्शा, बायोगैस संयंत्र और गैर-फॉसिल ऊर्जा क्षमता** जैसे क्षेत्रों में नौकरियों का सृजन शामिल है।
- India was the **7th most affected** country by climate change in **2019**, suffering an **income loss of \$159 billion** in **2021**.
भारत **2019** में जलवायु परिवर्तन से **सातवां सबसे अधिक प्रभावित** देश था, और **2021** में **\$159 बिलियन** का आय हानि हुआ।
- The Reserve Bank of India estimates **adaptation costs** of **nearly \$1 trillion** by **2030** due to climate change.
भारतीय रिजर्व बैंक का अनुमान है कि जलवायु परिवर्तन के कारण **2030 तक लगभग \$1 ट्रिलियन** का अनुकूलन खर्च आएगा।
- The creation of jobs in **solar energy, compressed biogas plants, and e-rickshaws** could lead to the creation of millions of jobs.
सौर ऊर्जा, संपीड़ित बायोगैस संयंत्रों और ई-रिक्शा में नौकरियों का सृजन मिलियनों नौकरियों का निर्माण कर सकता है।
- On Artificial Intelligence (AI)-resilience, **McKinsey Global Institute** predicts **50% automation** adoption in India within the next **10 years**.
आर्टिफिशियल इंटेलिजेंस (AI)-लचीलापन पर, **McKinsey Global Institute** ने भविष्यवाणी की है कि अगले **10 वर्षों** में भारत में **50% स्वचालन** अपनाया जाएगा।
- The IT and business services sector, which makes up **70+% of services exports**, faces job limitations due to AI.
IT और व्यवसाय सेवाओं का क्षेत्र, जो **सेवाओं के निर्यात का 70+% बनाता** है, AI के कारण नौकरियों की सीमाओं का सामना कर रहा है।
- New jobs should focus on human **creativity** and physical engagement, with stronger support for education, health budgets, and rural livelihoods.
नई नौकरियाँ मानव **रचनात्मकता** और शारीरिक सहभागिता पर ध्यान केंद्रित करनी चाहिए, साथ ही शिक्षा, स्वास्थ्य बजट, और ग्रामीण आजीविका के लिए मजबूत समर्थन होना चाहिए।



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- Rural youth still have **low confidence** due to poor education, leading to dependence on **government jobs** and **coaching** for entrance exams.
ग्रामीण युवा अभी भी खराब शिक्षा के कारण **कम आत्मविश्वास** रखते हैं, जिससे **सरकारी नौकरियों** और **प्रवेश परीक्षा के लिए कोचिंग** पर निर्भरता बढ़ती है।
- The creation of **off-farm jobs**, infrastructure development like **integrated pack-houses**, and support for rural **agri-businesses** can help address these challenges.
कृषि-के-बाहर नौकरियाँ, एकीकृत पैक-हाउस जैसे बुनियादी ढांचे का विकास, और ग्रामीण **कृषि-व्यवसायों** को समर्थन देने से इन चुनौतियों का समाधान किया जा सकता है।
- **70,000 integrated pack-houses** are needed to fill the **95% infrastructure gap**, potentially creating over **2 million jobs**.
70,000 एकीकृत पैक-हाउस की आवश्यकता है ताकि **95% बुनियादी ढांचा अंतर** को भरा जा सके, जिससे **2 मिलियन से अधिक नौकरियाँ** बन सकती हैं।
- The **National Mission on Edible Oils – Oilseeds** aims to reduce **57% import-dependence** on edible oils.
राष्ट्रीय मिशन-खाद्य तेल - तिलहन का उद्देश्य खाद्य तेलों पर **57% आयात-निर्भरता** को कम करना है।
- Promoting rural **processing of native oilseeds** like **soybean, sunflower** can reduce dependency on imports.
सोयाबीन, सूरजमुखी जैसे स्वदेशी तिलहनों की ग्रामीण **प्रसंस्करण** को बढ़ावा देना आयात पर निर्भरता को कम कर सकता है।
- The article emphasizes the need for **long-term structural reforms** to create **climate-resilient, AI-resilient, and aspiration-centric jobs**.
लेख में **दीर्घकालिक संरचनात्मक सुधारों** की आवश्यकता पर जोर दिया गया है ताकि **जलवायु-लचीली, AI-लचीली, और आकांक्षा-केंद्रित नौकरियाँ** बनाई जा सकें।
- **Private-public partnerships** can play a significant role in creating large-scale businesses to meet **economic aspirations** of youth.
निजी-सरकारी साझेदारियाँ बड़ी-स्तरीय व्यवसायों को बनाने में महत्वपूर्ण भूमिका निभा सकती हैं ताकि युवाओं की **आर्थिक आकांक्षाओं** को पूरा किया जा सके।

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Delhi's gender budget: its decline and impact

While freebies and cash transfers, just before the election, can bring in immediate relief to families, what the women voters of Delhi really need are concrete steps that can enable systematic growth in the economic and social empowerment of women

GS Paper III: Gender Budget

ECONOMIC NOTES

Shabana Mitra
Cledwyn Fernandez
Anjhana Ramesh

There are 71 lakh women voters in Delhi, which is nearly half of the total electorate. Further, women have a high turnout rate as well. So, it is no surprise that all contesting parties provide incentives tailored towards women. These incentives then come to light through the budget. Over the last decade, the overall budget for Delhi has increased from ₹271 billion to ₹760 billion. But, how much of this budget is reserved for women?

Investing in women

Overall, the gender budget of Delhi has witnessed a seven-fold increase from ₹10 billion in 2011-12 to ₹71 billion in 2024-25 (Figure 1). While providing financial assistance to women and child development is essential to reduce the gender gap, it is equally important to invest in other components like, education and health. Investments in education have multiplier effects and lead to long term benefits by generating a highly literate and skilled workforce for the country. Education of women, particularly, can bridge the gender gap in employment and achieve wage parity. What is needed is not freebies but concrete steps that can enable systematic growth in the economic and social empowerment of women.

The neglect towards the education of women by Delhi is concerning. The spending on women's education in the gender budget stood at ₹2 billion in 2011-12, which increased to ₹18 billion in 2024-25. This budget reached its peak in 2017-18 touching ₹24 billion. Since then, the budget allocated for women's education has steadily declined. For the last five years, the education budget has reported a negative growth, with exceptions for 2019-20 and 2023-24

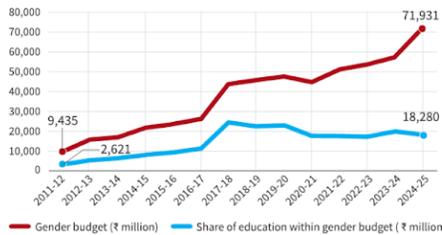
Need to focus on education

The neglect towards the education of women by Delhi is concerning. The spending on women's education in the gender budget stood at ₹2 billion in 2011-12, which increased to ₹18 billion in 2024-25. This budget reached its peak in 2017-18. Since then, the budget allocated for women's education has steadily declined.



KUMAR SS

Chart 1: Total gender budget and its share of education



(Figure 2). Another surprising fact is that the education budget made up 54% of the gender budget in 2017-18, but steadily declined to a mere 27% in 2024-25 (Figure 3). Concerningly, there was a massive decline of 9% in the education budget in just the past one year. The decrease is not just in the share, but also in the amount allocated to education (see figure 1), indicating that cash transfers and freebies have become the focus of gender budgets.

Priority for women's education

Education and technical training are major pillars for sustainable long-term growth. A lack of investment in the education sector can have negative spillovers into the labour market. According to the Periodic Labour Force Survey (PLFS, 2023-24), compared to the national average of 45.2%, Delhi's female labour force participation stands at 21%, the lowest in India. While most people in

Delhi hold regular salaried jobs according to PLFS (2023-24), most women are working as house helps or cleaners, and men as shopkeepers or salespeople. Clearly, women are working in the lowest end of the skill spectrum. These jobs offer poor pay and low standard of living. Thus, low investments in female education lead to a relatively smaller female workforce, lower skill levels and low paying jobs. Secondly, the lack of a skilled women workforce can also lead to high gender inequalities in the labour force. As of 2023-24, the gender gap in labour force participation for Delhi stands at 51.6 percentage points. Moreover, the gender gap in top roles – legislators, senior managers, and CEOs – is stark, with 94% of these positions being held by men. Women are also under-represented in high skilled jobs, such as technicians and associate professionals. Only 3.8% of the female labour force are in these jobs

compared to 10.34% of the male labour force. This points to the fact that investments in education are needed to bridge the gap in the high skilled workforce.

Third, the lack of technical and professional education of women has led to the concentration of women in certain fields. Most women professionals are in the teaching and health sector. It is crucial, therefore, to promote technical education training and professional courses among women to close the gender gaps in various sectors.

Cash transfers are necessary for relief but for empowerment of women, education and training are of utmost importance. Improving the budget for women's education would greatly reduce the gap in the long run.

The writers are with ICRIER, an economic think tank based in Delhi. The views expressed are personal.

Chart 2: % change in the share of education in the gender budget

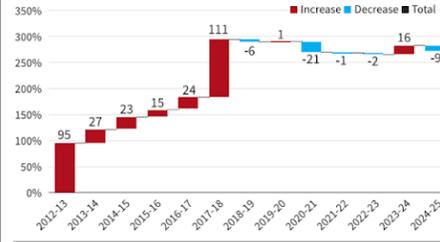
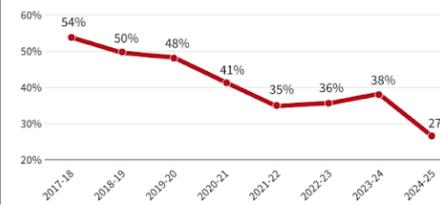


Chart 3: Proportion of education in the gender budget



THE GIST

While providing financial assistance to women and child development is essential to reduce the gender gap, it is equally important to invest in other components like, education and health.

The budget allocated for women's education in Delhi has steadily declined. For the last five years, the education budget has reported a negative growth, with the exceptions for 2019-20 and 2023-24.

The lack of technical and professional education of women has led to the concentration of women in certain fields. Most women professionals are in the teaching and health sector.

Delhi's gender budget: its decline and impact

दिल्ली का जेंडर बजट: इसका गिरावट और प्रभाव

There are 71 lakh women voters in Delhi, nearly half of the total electorate. Women have a high turnout rate as well.

दिल्ली में 71 लाख महिला मतदाता हैं, जो कुल चुनावी मतदाताओं का लगभग आधा हैं। महिलाओं की उच्च मतदान दर भी है।



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- Over the last decade, the overall **budget for Delhi** has increased from **₹271 billion to ₹760 billion**.
पिछले दशक में, दिल्ली का कुल बजट ₹271 अरब से ₹760 अरब तक बढ़ा है।
- The **gender budget** of Delhi has witnessed a seven-fold increase from **₹10 billion in 2011-12 to ₹71 billion in 2024-25**.
दिल्ली का जेंडर बजट 2011-12 में ₹10 अरब से बढ़कर 2024-25 में ₹71 अरब हो गया है, जो सात गुना बढ़ा है।
- Investments in education and health are essential for reducing the **gender gap**, not just providing **financial assistance**.
लिंग अंतर को कम करने के लिए शिक्षा और स्वास्थ्य में निवेश करना आवश्यक है, न कि सिर्फ वित्तीय सहायता प्रदान करना।
- The spending on women's **education** in the **gender budget** stood at **₹2 billion in 2011-12**, which increased to **₹18 billion in 2024-25**.
महिलाओं की शिक्षा पर खर्च 2011-12 में ₹2 अरब था, जो बढ़कर 2024-25 में ₹18 अरब हो गया है।
- The education budget reached its peak in **2017-18**, touching **₹24 billion**.
शिक्षा बजट 2017-18 में अपने उच्चतम स्तर पर पहुंचकर ₹24 अरब तक पहुंच गया।
- Since 2017-18, the budget allocated for **women's education** has steadily declined.
2017-18 के बाद, महिलाओं की शिक्षा के लिए आवंटित बजट में निरंतर गिरावट आई है।
- For the last five years, the education budget has reported **negative growth**, with exceptions for **2019-20** and **2023-24**.
पिछले पांच वर्षों में शिक्षा बजट में नकारात्मक वृद्धि देखी गई है, 2019-20 और 2023-24 को छोड़कर।
- The education budget made up **54% of the gender budget in 2017-18**, but steadily declined to **27% in 2024-25**.
शिक्षा बजट ने 2017-18 में जेंडर बजट का 54% हिस्सा बनाया था, लेकिन यह 2024-25 में घटकर 27% रह गया।
- The education budget witnessed a massive decline of **9%** in just the past year.
पिछले एक साल में शिक्षा बजट में 9% की भारी गिरावट आई है।
- Low investments in female **education** lead to a relatively smaller female workforce, lower skill levels, and **low-paying jobs**.
महिला शिक्षा में कम निवेश के कारण महिलाओं की कार्यबल में कमी, कौशल स्तर में गिरावट और कम वेतन वाली नौकरियों की समस्या उत्पन्न होती है।
- According to the **PLFS 2023-24**, compared to the national average of **45.2%**, Delhi's **female labour force participation** stands at **21%**, the lowest in India.
PLFS 2023-24 के अनुसार, राष्ट्रीय औसत 45.2% के मुकाबले दिल्ली में महिला श्रम बल भागीदारी 21% है, जो भारत में सबसे कम है।
- **Women** are mostly working in the lowest skill spectrum as **house helps or cleaners**, with **men as shopkeepers or salespeople**.

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महिलाएं मुख्य रूप से सबसे निम्न कौशल श्रेणी में घरेलू सहायिका या सफाईकर्मों के रूप में काम कर रही हैं, जबकि पुरुष दुकान मालिक या बिक्री कर्मचारी के रूप में काम करते हैं।

- **Investments in education** are needed to bridge the gender gap in the **high-skilled workforce**.

शिक्षा में निवेश की आवश्यकता है ताकि उच्च कौशल वाले श्रमिक बल में लिंग अंतर को पाटा जा सके।

- The lack of **technical and professional education** has led to a concentration of women in fields such as **teaching and health**.

तकनीकी और पेशेवर शिक्षा की कमी के कारण महिलाएं शिक्षा और स्वास्थ्य जैसे क्षेत्रों में संकेंद्रित हो गई हैं।

- Cash transfers are necessary for **relief**, but for **empowerment of women**, education and training are of utmost importance.

राहत के लिए नकद हस्तांतरण आवश्यक हैं, लेकिन महिलाओं की **सशक्तिकरण** के लिए शिक्षा और प्रशिक्षण अत्यधिक महत्वपूर्ण हैं।

-
- Improving the **budget for women's education** would greatly reduce the gap in the long run.

महिलाओं की शिक्षा के लिए बजट में सुधार दीर्घकालिक रूप से इस अंतर को काफी हद तक कम कर देगा।

Gender Budgeting refers to the process of integrating gender equality and women's empowerment into the planning, implementation, and evaluation of government budgets. It involves the analysis of government policies, programs, and budgets to assess their impact on gender equality and ensure that resources are allocated in a way that promotes the welfare and development of women and other marginalized genders.

Objectives of Gender Budgeting:

1. **Promote Gender Equality:** Ensure that both men and women benefit equally from government policies and programs.
2. **Address Gender Disparities:** Focus on reducing gender disparities in areas such as education, health, employment, and access to resources.
3. **Empower Women:** Create policies that empower women economically, socially, and politically.
4. **Support Inclusive Growth:** Foster inclusive development where both men and women have equal opportunities to contribute to and benefit from economic growth.

Key Features of Gender Budgeting:

1. **Gender-Responsive Allocation:** Budget allocations are made specifically for initiatives that promote gender equality and women's empowerment.
2. **Assessment of Gender Impact:** Analyzing the gender-specific outcomes of existing programs to see how they affect men and women differently.



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3. **Integration into Government Schemes:** Ensuring that gender considerations are included in all major government schemes and policies, such as health, education, and agriculture.

Steps Involved in Gender Budgeting:

1. **Gender Analysis:** Understanding the gender gaps in various sectors (e.g., health, education, employment).
2. **Gender-Specific Budgeting:** Allocating funds specifically for programs aimed at addressing gender issues, such as women's health, education, and safety.
3. **Monitoring and Evaluation:** Tracking the effectiveness of gender-responsive programs and assessing their impact on reducing gender inequalities.

Gender Budgeting in India:

In India, gender budgeting was introduced in the **2005-06 Union Budget** by the Ministry of Finance under the leadership of then-Finance Minister, P. Chidambaram. The key initiatives under gender budgeting in India include:

- **Gender Budgeting Statement:** A statement is presented in the Union Budget, highlighting the allocation of funds for gender-specific programs.
- **Nirbhaya Fund:** Established to address issues of women's safety and empowerment.
- **Mahila Coir Yojana:** To encourage women's participation in the coir industry.
- **Beti Bachao Beti Padhao Scheme:** Aimed at addressing female foeticide and promoting the education of girls.

Challenges:

- **Lack of Comprehensive Data:** Inadequate sex-disaggregated data makes it difficult to fully assess the gender impact of policies and programs.
- **Resistance to Change:** There is often institutional resistance to adopting gender-sensitive approaches to budgeting.
- **Limited Capacity:** Lack of adequate knowledge and capacity in the ministries and departments to implement gender budgeting effectively.

Importance:

- **Economic Empowerment:** Gender budgeting plays a crucial role in reducing gender-based economic disparities by directing resources toward improving women's access to resources.
- **Social Transformation:** It helps in changing societal norms and attitudes by ensuring that both men and women are given equal opportunities.
- **Better Policy Outcomes:** Gender-sensitive budgets lead to more effective policies that cater to the needs of the entire population.

Government's Plan to Achieve 20% Ethanol Blending

सरकार की 20% इथेनॉल मिश्रण लक्ष्य प्राप्त करने की योजना

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How will the govt. produce the required fuel ethanol?

Does India's ethanol distillery industry have the capacity to produce nearly 1,100 crore litres of fuel ethanol?

Why have maize imports increased substantially in the past year?

GS Paper III: Ethanol

M. Kalyanaraman

The story so far:

Union Minister Nitin Gadkari said that India will achieve its target of 20% ethanol blending of petrol in the next two months, at least a year ahead of what was originally planned. This would entail the production of nearly 1,100 crore litres of fuel ethanol in one year.

Where will this come from?

The 1,100 crore litres of fuel ethanol will come from sugar and high grade molasses, Food Corporation of India (FCI) rice, broken rice, and maize. India's ethanol distillery capacity has ramped up to 1,600 crore litres, driven by a range of government incentives and the promise of a stable, lucrative market.

Sugar is expected to provide some 400 crore litres this ethanol year, according to

Deepak Ballani, director general of Indian Sugar and Bio-energy Manufacturers Association. India had closing sugar stocks of around 80 lakh tonnes in October 2024. The projected sugar production for next year is around 315 lakh tonnes out of which 40 lakh tonnes will go to fuel ethanol. Mr. Ballani said that ethanol for non-fuel uses will come from low grade molasses called C Heavy that don't go into sugar production.

The government recently decided to reduce the price of FCI rice to distilleries from ₹28 to ₹22.5 per kg. The government handout states that some 110 crore litres of ethanol will be produced from FCI rice this ethanol year. This means almost 400 crore litres of fuel ethanol should come from maize. For context, India was producing little or no ethanol from maize until 2020. Besides pure-play grain-based distilleries coming up, some sugar distilleries have modified to dual-feed so

in the off-season they can use other feedstock (maize) to produce ethanol.

How is maize playing a role?

India's maize production is just about enough for traditional needs such as for the poultry sector, livestock feed, starch production and some 10% for human consumption. As the government had imposed curbs on allowing sugar and high quality molasses for ethanol production, maize imports started ramping up in April 2024. From April to June, approx. ₹100 crore worth of maize was imported while, for 2023-24, maize imports were approx. \$33 million. Ministry of Commerce figures show that a total of \$188 million worth of maize was imported from April to November 2024.

The promise of a steady, lucrative ethanol market has meanwhile goaded many farmers to take to maize cultivation across India. The major maize producing

States are Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan, Bihar, and Uttar Pradesh. For the 2024-25 ethanol year, maize output would be some 42 million tonnes out of which nine million can go towards producing the 350 to 400 crore litres of ethanol. H. S. Jat, director ICAR Indian Institute of Maize Research, Ludhiana, said. Citing good prospects for kharif this year, he said importing maize will not be necessary.

Since 2020-21, when ethanol production was almost all sugar-based, maize production had increased by nearly six million tonnes in three years, for potential ethanol use.

As things stand now, maize is cultivated in 10% more area at a higher yield, says Mr. Jat who also expects some diversion from traditional maize uses since supplying to ethanol is more lucrative for farmers. On whether that won't disrupt the market, Mr. Jat says DDGS (Distiller's Dried Grains with Solubles), a byproduct of ethanol, can be used for poultry. The long-term sustainability of fuel ethanol would depend on whether the switch to ethanol and stress on maize has a negative impact on production of other foodgrains. Mr. Jat estimates that 100 crore litres of fuel ethanol translates to ₹6,000 crore savings on oil imports and the money going into the internal economy including to farmers. For context, India's yearly oil import bill is some ₹10.5 lakh crore.

THE GIST

Union Minister Nitin Gadkari said that India will achieve its target of 20% ethanol blending of petrol in the next two months.

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As the government had imposed curbs on allowing sugar and high quality molasses for ethanol production, maize imports started ramping up in April 2024.

Union Minister Nitin Gadkari announced that India will achieve its target of 20% ethanol blending in petrol in the next two months, a year ahead of the original schedule.

केंद्रीय मंत्री नितिन गडकरी ने घोषणा की कि भारत अगले दो महीनों में पेट्रोल में 20% इथेनॉल मिश्रण के अपने लक्ष्य को प्राप्त कर लेगा, जो मूल रूप से निर्धारित समय से एक वर्ष पहले है।

- This will require the production of nearly **1,100 crore litres** of fuel ethanol annually. इसके लिए 1100 करोड़ लीटर ईंधन इथेनॉल का उत्पादन annually आवश्यक होगा।

Sources of Ethanol Production

इथेनॉल उत्पादन के स्रोत

- The **1,100 crore litres of fuel ethanol** will come from sugar, high-grade molasses, **FCI rice**, broken rice, and maize. 1100 करोड़ लीटर ईंधन इथेनॉल चीनी, उच्च गुणवत्ता वाले गुड़, एफसीआई चावल, टूटे चावल और मक्का से प्राप्त होगा।



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- **India's ethanol distillery capacity** has increased to **1,600 crore litres**, driven by government incentives and a stable market.
भारत की इथेनॉल डिस्टिलरी क्षमता बढ़कर **1600 करोड़ लीटर** हो गई है, जो सरकारी प्रोत्साहन और स्थिर बाजार से प्रेरित है।
- **Sugar production** for this year is projected at **315 lakh tonnes**, with **40 lakh tonnes** going towards fuel ethanol.
इस वर्ष चीनी उत्पादन का अनुमान **315 लाख टन** है, जिसमें से **40 लाख टन** ईंधन इथेनॉल के लिए जाएगा।

Ethanol from FCI Rice and Maize

एफसीआई चावल और मक्का से इथेनॉल

- The government has reduced the price of **FCI rice** to distilleries from **₹28 to ₹22.5 per kg**, leading to **110 crore litres of ethanol** from FCI rice this year.
सरकार ने एफसीआई चावल की कीमत डिस्टिलरी को **₹28** से घटाकर **₹22.5 प्रति किलो** कर दी है, जिसके परिणामस्वरूप इस वर्ष **110 करोड़ लीटर इथेनॉल** एफसीआई चावल से प्राप्त होगा।
- Approximately **400 crore litres** of ethanol is expected to come from maize.
लगभग **400 करोड़ लीटर इथेनॉल** मक्का से आने की उम्मीद है।

Maize Imports and Role

मक्का आयात और भूमिका

- India was producing little or no ethanol from maize until **2020**.
भारत **2020** तक मक्का से बहुत कम या कोई इथेनॉल उत्पादन नहीं कर रहा था।
- From April to June **2024**, **₹100 crore worth of maize** was imported, and for **2023-24**, total imports amounted to **\$33 million**.
अप्रैल से जून **2024** तक, **₹100 करोड़ का मक्का** आयात किया गया था, और **2023-24** में कुल आयात **\$33 मिलियन** तक पहुंच गया था।
- Maize imports surged to **\$188 million** from April to November **2024**.
2024 के अप्रैल से नवंबर तक मक्का आयात **\$188 मिलियन** तक बढ़ गया।

Increased Maize Production for Ethanol

इथेनॉल के लिए मक्का उत्पादन में वृद्धि

- Farmers are encouraged to cultivate more maize due to the promise of a steady ethanol market, especially in **Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan, Bihar, and Uttar Pradesh**.
कर्नाटका, मध्य प्रदेश, महाराष्ट्र, आंध्र प्रदेश, राजस्थान, बिहार और उत्तर प्रदेश में किसानों को स्थिर इथेनॉल बाजार का वादा होने के कारण मक्का की खेती बढ़ाने के लिए प्रेरित किया जा रहा है।

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- For the **2024-25 ethanol year**, **maize output** is projected at **42 million tonnes**, with **9 million tonnes** allocated for ethanol production.

2024-25 इथेनॉल वर्ष के लिए **मक्का उत्पादन** का अनुमान **42 मिलियन टन** है, जिसमें से **9 मिलियन टन इथेनॉल उत्पादन** के लिए निर्धारित है।

Impact of Maize Diversion and Sustainability

मक्का के उपयोग में बदलाव और स्थिरता पर प्रभाव

- Since **2020-21**, when ethanol production was almost entirely sugar-based, maize production has increased by **6 million tonnes** over three years.
2020-21 से, जब इथेनॉल उत्पादन लगभग पूरी तरह से चीनी-आधारित था, मक्का उत्पादन में तीन वर्षों में **6 मिलियन टन** की वृद्धि हुई है।
- Maize is now cultivated on **10% more area**, with **higher yields**, as supplying to ethanol production is more lucrative for farmers.
अब मक्का को **10% अधिक क्षेत्र** में उगाया जा रहा है, जिसमें **उच्च उपज** हो रही है, क्योंकि इथेनॉल उत्पादन को आपूर्ति करना किसानों के लिए अधिक लाभकारी है।

Byproduct Use and Economic Impact

उपोत्पाद उपयोग और आर्थिक प्रभाव

- The byproduct **DDGS** (Distiller's Dried Grains with Solubles) can be used in poultry, preventing a negative market impact.
उपोत्पाद **DDGS** (डिस्टिलर की सूखी अनाज घुलनशील पदार्थ) को मुर्गीपालन में उपयोग किया जा सकता है, जिससे बाजार पर नकारात्मक प्रभाव को रोका जा सकता है।
- The estimated savings from producing **100 crore litres** of ethanol is around **₹6,000 crore** in reduced oil imports.
100 करोड़ लीटर इथेनॉल उत्पादन से **₹6,000 करोड़** की बचत होती है, जो तेल आयात में कमी के रूप में होती है।

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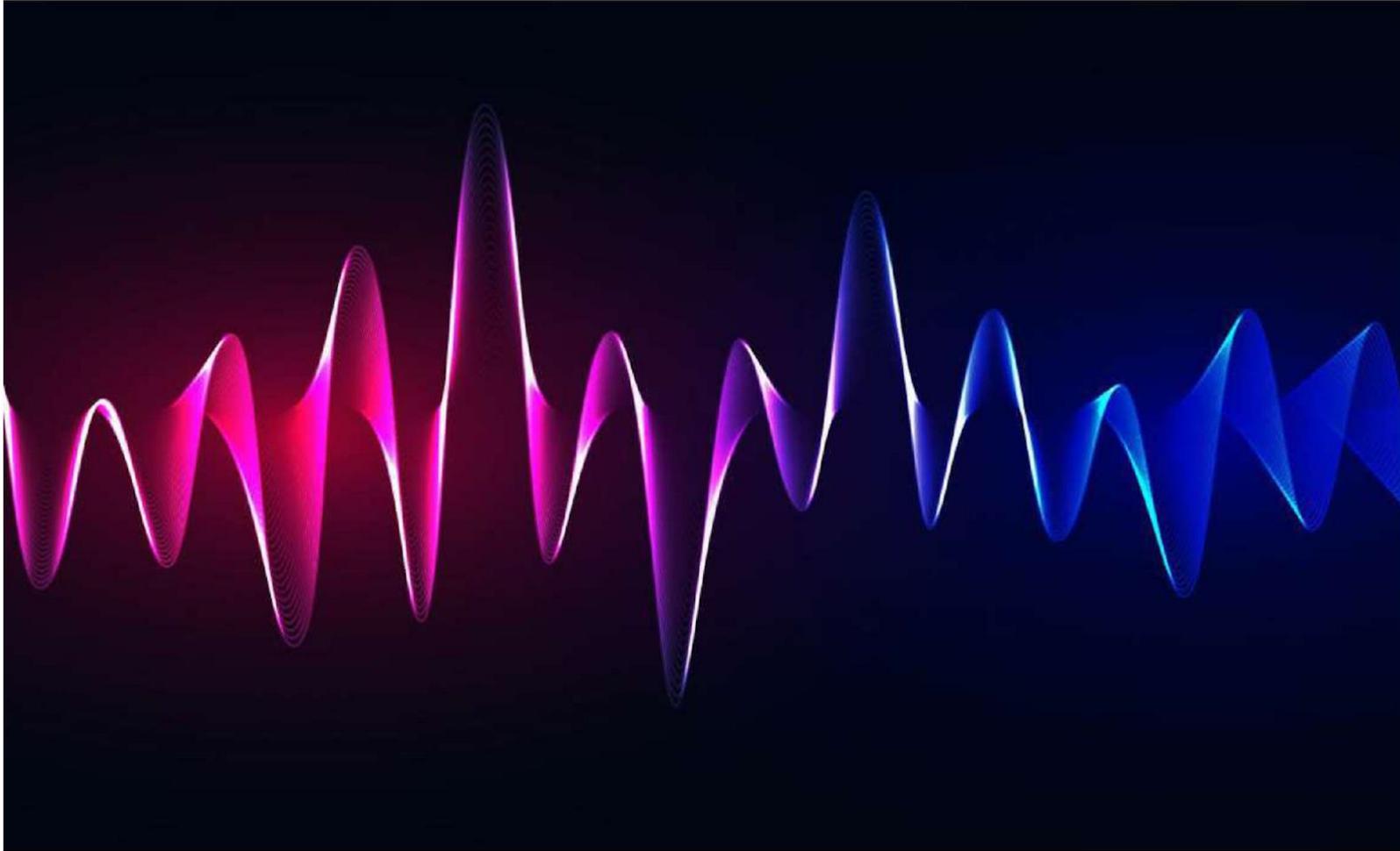


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- India's annual **oil import bill** is approximately **₹10.5 lakh crore**.
भारत का वार्षिक तेल आयात बिल लगभग ₹10.5 लाख करोड़ है।



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On amplifiers: how do they work and what are the different kinds?

Amplifiers have transformed entertainment, astronomy, search and rescue, medical diagnostics, and every human endeavour where some physical change can be converted to an electric signal. Power amplifiers come in multiple classes, each for specific applications

GS Paper III: S&T

Vasudevan Mukunth

The amplifier remains a transformative invention for being able to receive the human voice and boost it so thousands of people can hear it at once. Without the microphone, politics itself may have evolved differently; the device has been ubiquitous in everything from public protests to political rallies. Amplifiers have also transformed entertainment, astronomy, search and rescue, medical diagnostics, and every human endeavour where some physical change can be converted to an electric signal. For simplicity's sake, let's focus here on audio signals.

What is a microphone?

A microphone is a type of transducer – a device that converts energy in one form to another, in this case from sound to electrical. There are different microphones for use in specific contexts, varying in terms of how they collect sound energy and how they convert it to electric signals.

Microphones in telephones and voice recorders are also called condenser microphones because they use capacitors to transduce audio signals ('condenser' is an old name for capacitors). A simple capacitor consists of two plates facing each other, separated in between by an air gap – or any suitable dielectric material – but connected on either side to a common circuit, including a power source. As the current enters one plate

and builds up, it becomes depleted from the other. The difference creates an electric field between the plates that stores energy within the dielectric medium.

The ability of a capacitor to store energy is called its capacitance. A condenser microphone replaces one of the plates with a vibrating diaphragm. When a person speaks into the microphone, the diaphragm vibrates, altering the capacitance, which is converted to audio signals.

How is the sound amplified?

Once an audio signal is available, it is transported to a preamplifier (or preamp). Say there is an audio signal in the form of a varying voltage.

The preamp will acquire the voltage and supply it with more energy from an external power source while minimising noise. The ratio of the output of this process to the input is called the preamp's gain.

The key to minimising noise is a step called impedance-matching. Impedance is a measure of how much a given circuit resists, or impedes, the flow of electric current (in a direct-current circuit, the impedance is equal to the resistance.)

During impedance-matching, the impedance of the preamp's circuit is matched to that of the circuit that emitted the audio signal. If there is a mismatch, the signal will become noisy, reducing the preamp's gain.

The amplification itself is performed by an active component like a transistor.

How is voltage amplified?

A bipolar junction NPN transistor consists of a base, a collector, and an emitter.

First, the small incoming voltage is applied between the base and the emitter – that is, the transistor is forward-biased – such that electrons flow out of the emitter.

The base is configured so that most of the electrons diffuse into the collector, leading to a large collector current. In a typical transistor, the collector current is at least 50-times higher than the base current.

Next, the collector is supplied with a high voltage from an external source, like a battery, through a resistor. When the collector current flows across this resistor, it creates a strong voltage. This voltage when measured at the collector is the output voltage, that is, the amplified version of the input signal.

A signal can be drawn as a sinusoidal wave; an amplified signal will have the same shape but bigger, in this case meaning the voltage swing will be higher.

Before the preamplified signal goes to a loudspeaker, it also passes through the driver and power stages. The driver stage uses transistors to keep the voltage constant while increasing the current while the power stage further increases both the voltage and the current.

Power amplifiers come in multiple classes, each for specific applications. Class A and B amplifiers are used in basic sound systems and small studios. Home theatres and more intensive use cases prefer Class AB amplifiers. Antennae

emitting radio-frequency signals at a single carrier frequency use Class C amplifiers whereas public announcement systems use Class D amplifiers.

Some of these groups have sub-classes that, while sharing many of the same features, deviate in particular ones like being able to handle very high power or enabling high-frequency signals.

How is loud sound produced?

The loudness of the sound produced at the loudspeaker is a function of the power of the input signal.

The loudspeaker has three basic components: voice coil, external magnet, and diaphragm. The voice coil is a coil of wire placed within the magnet. When the input voltage is applied across the wire, a large current is produced, which in turn produces a strong magnetic field around the coil. This field interacts with that of the external magnet, causing the coil to move as the input voltage varies.

The coil is connected to the diaphragm and the coil's motion vibrates the diaphragm's membrane, producing sound. The higher the power of the input signal, the louder the sound produced by the diaphragm.

To further enhance this process, the external magnetic field is made stronger, the diaphragm larger, and the input signal more powerful. Loudspeakers can also be built with smaller diaphragms with faster-moving membranes to facilitate high frequency sounds and larger diaphragms to facilitate low frequency ones.

Amplifiers: How Do They Work and What Are the Different Kinds?

अम्पलीफायर: वे कैसे काम करते हैं और इसके विभिन्न प्रकार क्या हैं?

Amplifiers have transformed entertainment, astronomy, search and rescue, medical diagnostics, and any human endeavor where a physical change can be converted into an electric signal.

अम्पलीफायर ने मनोरंजन, खगोलशास्त्र, खोज और बचाव, चिकित्सा निदान और हर मानव प्रयास में क्रांति ला दी है जहाँ किसी भौतिक परिवर्तन को इलेक्ट्रिकल सिग्नल में बदला जा सकता है।

- Power amplifiers come in multiple **classes**, each for specific **applications**. पावर एम्पलीफायर कई कक्षाओं में आते हैं, प्रत्येक विशेष अनुप्रयोगों के लिए।



- The amplifier is a **transformative invention** that can **boost human voices** so that **thousands of people** can hear them.
एम्पलीफायर एक रूपांतरक आविष्कार है जो मानव आवाजों को इस तरह से बढ़ा सकता है कि हजारों लोग उन्हें सुन सकें।
- **Microphones** convert sound into **electrical signals**.
माइक्रोफोन ध्वनि को इलेक्ट्रिकल सिग्नल्स में परिवर्तित करते हैं।
- A **microphone** is a type of **transducer** that converts energy from one form to another (sound to electrical).
माइक्रोफोन एक प्रकार का संवेदनशील उपकरण है जो ऊर्जा को एक रूप से दूसरे रूप में (ध्वनि से इलेक्ट्रिकल) परिवर्तित करता है।
- **Condenser microphones** use **capacitors** to transduce audio signals.
कंडेन्सर माइक्रोफोन कैपेसिटर का उपयोग करते हैं ताकि वे ऑडियो सिग्नल्स को परिवर्तित कर सकें।
- A **capacitor** consists of two plates facing each other, separated by an air gap or dielectric material.
एक कैपेसिटर दो प्लेटों से बना होता है जो एक-दूसरे के सामने होती हैं, और एक वायु गैप या डाईइलेक्ट्रिक सामग्री द्वारा अलग की जाती हैं।
- **Capacitance** is the ability of a **capacitor** to store energy.
कैपेसिटेंस वह क्षमता है जिससे कैपेसिटर ऊर्जा को संग्रहीत कर सकता है।**
- **Impedance-matching** is the process to minimize noise during amplification.
इम्पेडेंस-मैचिंग वह प्रक्रिया है जिससे वृद्धि के दौरान शोर को न्यूनतम किया जा सकता है।
- **Transistors** perform the amplification in a circuit.
ट्रांजिस्टर सर्किट में वृद्धि की प्रक्रिया करते हैं।
- **Bipolar junction NPN transistor** has a **base, collector, and emitter**.
बाइपोलर जंक्शन NPN ट्रांजिस्टर में बेस, कलेक्टर, और एमिटर होते हैं।
- **Class A and B amplifiers** are used in basic sound systems and small studios.
क्लास A और B एंपलीफायर का उपयोग बुनियादी ध्वनि प्रणालियों और छोटे स्टूडियो में किया जाता है।
- **Class AB amplifiers** are used in **home theatres** and **intensive applications**.
क्लास AB एंपलीफायर का उपयोग होम थिएटर और गहन अनुप्रयोगों में किया जाता है।
- **Class C amplifiers** are used for **radio-frequency signals**.
क्लास C एंपलीफायर रेडियो-आवृत्ति सिग्नल्स के लिए उपयोग किए जाते हैं।
- **Class D amplifiers** are used in **public announcement systems**.
क्लास D एंपलीफायर सार्वजनिक उद्घोषणा प्रणालियों में उपयोग किए जाते हैं।
- Loudness is a function of the **input signal's power**.
ध्वनि की तीव्रता इनपुट सिग्नल की शक्ति का कार्य है।
- The loudspeaker has three basic components: **voice coil, external magnet, and diaphragm**.
ध्वनिक उपकरण में तीन मुख्य घटक होते हैं: वॉयस कॉइल, बाहरी चुंबक, और डायफ्राम।



- The **coil** produces a **strong magnetic field**, causing the diaphragm to vibrate and produce sound.
कॉइल एक मजबूत चुंबकीय क्षेत्र उत्पन्न करता है, जिससे डायफ्राम कंपन करता है और ध्वनि उत्पन्न होती है।
- Higher **input signal power** leads to louder sound produced by the diaphragm.
उच्च इनपुट सिग्नल पावर के कारण डायफ्राम द्वारा तेज ध्वनि उत्पन्न होती है।

Do not reduce forest land for linear projects, says SC

If any area is used for projects, the same amount of land must be given for compensatory afforestation; court was hearing pleas challenging amendments made in 2023 to the Forest Act

**GS Paper III:
Environment**

NEW DELHI

The Supreme Court made it clear to the Union government and States on Monday that no steps will be taken by them to reduce forest land unless compensatory land is provided by them for afforestation.

“We will not allow you to reduce the forest area... You cannot use any forest land for linear projects. If you are using any area for these projects, the same amount of land must be given for compensatory afforestation,” a Bench of Justices B.R. Gavai and K. Vinod Chandran addressed Additional Solicitor-General Aishwarya Bhati, appearing for the Centre.

The court was hearing a clutch of petitions challenging amendments made in 2023 to the Forest (Conservation) Act, 1980. The 1980 statute was enacted to check further deforestation leading to ecological imbalance.

In February last year, the top court significantly declared in an order that



Green cover: The top court had said that the term ‘forest’ would include 1.97 lakh square km of undeclared forest land.

the expression ‘forest’ would continue to have a “broad and all-encompassing” meaning and include 1.97 lakh square km of undeclared forest lands.

The petitions had argued that Section 1A introduced through the amended Act had “circumscribed or substantially diluted” the definition of forest to two categories – declared forests and lands recorded as forests in ‘government records’ after 1980. The Centre, however, had denied using the amendments to reduce the forest cover. It pointed to the ‘explanation’ to Section 1A,

which expanded the term ‘government records’ contained in the provision to include lands recognised as forest by any State or Union Territory authority, local body, council or recognised communities.

Meaning of ‘forest’

However, the court had directed the government, for clarity’s sake, to revert to the “dictionary meaning” of ‘forest’ as upheld in a 1996 Supreme Court decision in the *TN Godavarman Thirumulpad* case. The term ‘forest’ had been given a broad meaning by the court then to preserve

these green expanses, irrespective of their nature, classification or ownership.

“The adoption of this dictionary meaning to forests was made to align with the intent of the Forest Conservation Act, 1980. It is clarified that the expression ‘forest’ will cover but not be confined to lands recorded as forests in the government records,” the court had noted last year.

The Bench had clarified that the “all-encompassing” dictionary meaning upheld by the Supreme Court in the *Godavarman Thirumulpad* case over 25 years ago would continue to hold field till the States and Union territories prepare a “consolidated record” of all the lands recorded as “forest” in government records, including forest-like areas, unclassified and community forest lands.

The court said the exercise to prepare such a consolidated record was part of Rule 16 of a notification issued by the Environment Ministry on November 29, 2023, and would take a year.



Do not reduce forest land for linear projects, says SC अदालत का कहना है कि रैखिक परियोजनाओं के लिए वनभूमि को घटित न किया जाए

The Supreme Court directed the Union government and States on Monday that no steps will be taken to reduce forest land unless compensatory land is provided for afforestation.

****सुप्रीम कोर्ट ने सोमवार को केंद्रीय सरकार और राज्यों को निर्देश दिया कि वे वनभूमि को घटित करने के लिए कोई कदम नहीं उठाएंगे, जब तक कि वृक्षारोपण के लिए प्रतिपूरक भूमि प्रदान नहीं की जाती।**

- “We will not allow you to reduce the **forest area**. You cannot use any forest land for **linear projects**. If you are using any area for these projects, the same amount of land must be given for compensatory afforestation,” said the court.
“हम आपको वन क्षेत्र को घटित करने की अनुमति नहीं देंगे। आप किसी भी रैखिक परियोजना के लिए वनभूमि का उपयोग नहीं कर सकते। यदि आप इन परियोजनाओं के लिए कोई क्षेत्र उपयोग कर रहे हैं, तो उतनी ही मात्रा में भूमि को वृक्षारोपण के लिए प्रदान किया जाना चाहिए,” अदालत ने कहा।
- The court was hearing petitions challenging the amendments made in **2023** to the **Forest (Conservation) Act, 1980**.
अदालत **2023** में वन (संरक्षण) अधिनियम, 1980 में किए गए संशोधनों को चुनौती देने वाली याचिकाओं की सुनवाई कर रही थी।
- The **1980** statute was enacted to check further **deforestation**, leading to **ecological imbalance**.
1980 का कानून आगे की वृक्षच्छेदन को रोकने के लिए बनाया गया था, जो पारिस्थितिकी असंतुलन की ओर ले जाता है।
- In **February** last year, the **Supreme Court** declared that the expression ‘forest’ would continue to have a **broad** and **all-encompassing** meaning, covering **1.97 lakh square km** of undeclared forest lands.
पिछले साल फरवरी में, सुप्रीम कोर्ट ने यह घोषणा की थी कि ‘वन’ शब्द का विस्तृत और सभी-समावेशी अर्थ रहेगा, जो **1.97 लाख वर्ग किमी** अनघोषित वन भूमि को कवर करेगा।
- The petitions argued that **Section 1A** of the amended Act **circumscribed** or **substantially diluted** the definition of forest to two categories: declared forests and lands recorded as forests in **government records** after **1980**.
याचिकाओं ने तर्क किया कि संशोधित कानून के धारा 1A ने वन की परिभाषा को दो श्रेणियों में सीमित या महत्वपूर्ण रूप से कमजोर कर दिया है: घोषित वन और **1980** के बाद सरकारी रिकॉर्ड में वन के रूप में दर्ज भूमि।



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- The **Centre** denied using the amendments to reduce the **forest cover**.
केंद्र ने वनावरण को घटाने के लिए संशोधनों के उपयोग से इंकार किया।
- The court directed the government to revert to the “**dictionary meaning**” of ‘**forest**’ as upheld in the **1996 TN Godavarman Thirumulpad case**.
अदालत ने सरकार को ‘वन’ के “शब्दकोश अर्थ” पर लौटने का निर्देश दिया, जैसा कि 1996 के TN गोदावरमन थिरुमलपद मामले में समर्थन किया गया था।
- The court had previously given a **broad meaning** to ‘forest’ to preserve these green expanses, irrespective of their **nature, classification, or ownership**.
अदालत ने पहले ‘वन’ को एक विस्तृत अर्थ दिया था ताकि इन हरे विस्तारों को बचाया जा सके, चाहे उनका स्वभाव, वर्गीकरण, या स्वामित्व कुछ भी हो।
- The **dictionary meaning** of forest was made to align with the **Forest Conservation Act, 1980**.
वन संरक्षण अधिनियम, 1980 के साथ तालमेल बैठाने के लिए वन के शब्दकोश अर्थ को अपनाया गया था।
- The court clarified that the **all-encompassing** dictionary meaning upheld in the **Godavarman Thirumulpad case** will continue to hold till the **States and Union Territories** prepare a “consolidated record” of all the lands recorded as **forest** in **government records**.
अदालत ने स्पष्ट किया कि गोदावरमन थिरुमलपद मामले में समर्थित सभी-समावेशी शब्दकोश अर्थ तब तक लागू रहेगा जब तक कि राज्य और संघ राज्य क्षेत्र “संवर्धित रिकॉर्ड” तैयार नहीं करते जो सभी भूमि को सरकारी रिकॉर्ड में वन के रूप में दर्ज करती है।
- The preparation of the consolidated record was part of **Rule 16** of a **November 29, 2023** notification issued by the **Environment Ministry**, and it would take a **year**.
संवर्धित रिकॉर्ड की तैयारी पर्यावरण मंत्रालय द्वारा 29 नवंबर 2023 को जारी की गई अधिसूचना के नियम 16 का हिस्सा थी, और यह एक वर्ष में पूरी होगी।

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The promises and problems of using bacteria against plastic

Plastic waste has driven biologists to look for sustainable solutions. Some of them study **bacteria that can chew up plastics**; others work directly with **enzymes that can clean up the waste**. Multiple scientists have turned into entrepreneurs, starting companies to use their solutions on a larger scale

GS Paper III: S&T

Rohini Subrahmanyam

During her time in a drug discovery lab, structural biologist Kavyashree Manjunath first started thinking about how much plastic her group used, even for a single experiment. From the smallest of tips used to draw solutions to pipettes, bottles, and more – the plastic waste from her lab alone was enough to shock the average environment-friendly scientist. If they stopped to think about it the way she had.

One slightly comforting thought is that the plastic is recycled. But Manjunath found that that's not always the case. "Over a period of 65 years, since the large-scale production of plastic started, almost 8.3 billion tonnes of plastic has been produced," she said, quoting a 2017 *Science Advances* study. "Out of this, less than 10% alone is recycled. Almost 4.9 billion tonnes are there in the environment, in some form or other."

In their own fields

The immense amounts of plastics lying around choking our planet has driven multiple biologists to look for sustainable solutions in their own fields. Some of them are working on bacteria that can chew up plastics; others work directly with enzymes that can clean up the waste. Multiple scientists, including Manjunath, have turned into entrepreneurs, starting companies to use their solutions on a larger scale.

But the field is still very nascent, with most labs and companies still in the early discovery process. Biodegrading the tonnes of plastic we have generated – and will generate in the years to come – is the goal. But like most things in science, the path to success is long and arduous. How long the methods take to degrade plastic and the kinds of plastic they can act on remain some of the major bottlenecks to get across.

Delving into past work, Manjunath discovered there are **natural enzymes** that can break down the highly abundant **polyethylene terephthalate (PET)**, a polyester found in many kinds of plastic items. Since Kohei Oda and his team at the Kyoto Institute of Technology first discovered the bacterium *Ideonella sakaiensis*, which breaks PET down using two enzymes, multiple groups have worked on isolating and improving those enzymes to try and degrade plastic efficiently.

But most of these natural enzymes take several months to years to work. "I thought, 'can these enzymes be engineered to break down PET much faster so that it can be used at a large scale in industry?'" Manjunath said.

To develop these enzymes, she founded Apratima Biosolutions, a start-up incubated at the Centre for Cellular and Molecular Platforms (CCAMP), Bengaluru. One enzyme they developed can break

down 90% of PET waste in 17 hours, into products like terephthalic acid and ethylene glycol, which can be purified and used again.

She and her team are now working on making the enzymes even faster and cheaper. Once the technology is ready, her plan is to partner with the PET recycling industry to help scale it up. "The main thing is the speed, because if it takes some 10 days or something, it's not feasible, right?"

'Really fascinated'

Degrading PET waste as quickly as possible is one part of the problem; there are many other kinds of problematic plastics out there. Some scientists are using microbes to directly degrade the plastic. These methods are slower but, depending on the versatility of the microbes involved, can offer some advantages.

Sukanya Punthambaker and Vaskar Gnyawali, former researchers at the Wyss Institute at Harvard University and co-founders and CEO and Chief Scientific Officer of Breaking Inc., developed such an approach. They discovered a bacterium called X-32 that degrades PET as well as polyolefins, found in some packaging materials and polyamides like nylon.

"Polyolefins have one of the toughest carbon-carbon bonds to break, so we were really fascinated that this one microbe can do all three major plastic types," Punthambaker said.

As of now, it takes the microbe 22 months to reduce these forms of plastic to carbon dioxide, water, and biomass. They are currently working on figuring out the enzymes involved so they can isolate them and edit their genes in a way to improve their speed and efficiency.

They also plan to test whether their microbe can be scaled up for use at an industrial level.

The biological approach

Apart from companies, academic researchers are also finding biological solutions to get rid of plastic. University of California San Diego nanoengineering professor Jon Pokorski is one of them. He is studying ways to make biodegradable plastic from scratch. He recently reported a method to make thermoplastic polyurethane (TPU), a commercial plastic found in memory foam, footwear, and foot mats, but infused with heat-resistant bacterial spores.

Pokorski and his team first evolved heat-resistant spores, made of *Bacillus subtilis* bacteria, in the lab. Then they incorporated the spores into the plastic; the spores can survive the high temperatures of plastic production and remain dormant in normal conditions. But as soon as the plastic is in a compost, the spores become active and start eating. Based on their findings, the



Over a period of 65 years, since the large-scale production of plastic started, almost 8.3 billion tonnes of plastic has been produced. Out of this, less than 10% has been recycled. Almost 4.9 billion tonnes are present in the environment, in some form or other

bacteria took about five months to degrade 90% of the strips of TPU when they were in a moist, nutrient-rich compost environment ideal for their activation.

The longer time may be a trade-off but Pokorski believes using the live-bacteria approach to degrade plastic is more amenable to scaling up than using pure enzymes.

"Purifying an enzyme is quite a challenge, especially purifying enough of it to satisfy the problem of millions of tonnes of plastic every year," Pokorski said. "I would argue that our solution is a much more viable solution for scaling. Because you're not relying on a single enzyme to perform its function; you're relying on something that's going to replicate."

Currently, at the academic lab scale they have tested, they needed very small amounts of spores for about a kilogram of plastic, and adding the spores improved the mechanical properties of the plastic as well.

"Like rebar reinforces concrete, the spores serve as a reinforcing additive to the polymer," Pokorski explained. "Ideally the plastic will either last longer or you could use less plastic because it's a better product."

However, he thinks consumer acceptance could be a challenge. "I don't know how regulatory agencies would feel about bacteria in plastics," he said. "The bacteria that are used are pretty harmless, but you never know, right?"

The rate-limiting step

Another advantage of using bacteria to break down plastic, according to biomolecular engineer Nathan Crook, is one can then evolve them to become more efficient. At North Carolina State University, Crook discovered a way to attach the two previously discovered PET-degrading enzymes onto the surface of a very fast-growing bacteria called *Vibrio natriegens* and use it to eat up plastic as it would eat any other carbon source. They are now working on evolving it in the lab in a way that it can break plastics down faster.

"The enzymes that break down the plastic are the rate-limiting step," Crook said. "If you have an organism where the only way it can survive is to break down plastic, it's going to find a way to mutate

its enzyme so that they're really good at breaking down plastic."

But Manjunath, who works with enzymes, thinks scaling them up is not an issue. "There are a lot of fermentation industries which can produce the enzyme in large quantities," she said. The challenges she anticipates instead are whether the enzyme can be reused and the amount of PET waste loading they will need to optimise.

"For example, if you have a 10-litre reactor, how much PET waste can you load into it?" she asked. "Because the less you load, the more expensive it becomes, so you have to make sure the technology is able to handle large quantities of PET waste at a given time."

Another major challenge is to make sure the enzymes can degrade different kinds of PET waste – even the highly crystalline variety. Most enzymes in use now target PET used in packaging materials, but not the ones found in the pesky plastic bottles.

'See the plastic gone'

Despite its challenges, some leading scientists and companies still prefer the enzyme approach. Greg Beckham, a senior researcher at the National Renewable Energy Laboratory in the US and his team worked on improving one of the PET-degrading enzymes, such that it could also degrade the crystalline PET in water bottles.

Carbios, a French company that's one of the giants in the plastic-degrading business, has also engineered a highly efficient and heat-stable PET-degrading enzyme. Heating the plastic makes it easier to degrade, so the company worked on making the enzymes heat-stable to increase its speed of action.

According to a 2020 *Nature* paper, their enzyme takes 10 hours to degrade 90% of PET waste. The broken-down components can also be used as raw materials for fresh bottles, leading to a circular PET economy. They are now planning on building a large PET recycling plant to degrade plastic at a much larger scale but have now postponed it due to a delay in funding.

"It takes time because this is a very new technology in this particular domain, right?" said Manjunath. "But I think these kinds of solutions are very essential."

According to Crook, it need not only be a company that does the job of clearing up the plastic polluting the environment. "Maybe there's a non-profit that takes on this thing and tries to clean things up, or a governmental organisation that does this at a loss, because it's so expensive to clean up all the plastic," he said.

"I want to see the plastic gone in some way. Maybe it's our [bacterial] strain or somebody else's. At the moment, we're open to a variety of things."

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The promises and problems of using bacteria against plastic प्लास्टिक के खिलाफ बैक्टीरिया के उपयोग के वादे और समस्याएँ

Plastic waste has driven biologists to look for sustainable solutions.
प्लास्टिक कचरा ने जीवविज्ञानी को सतत समाधान की तलाश करने के लिए प्रेरित किया है।

- Some of them study **bacteria** that can chew up plastics; others work directly with **enzymes** that can clean up the waste.
कुछ लोग उन बैक्टीरिया पर अध्ययन करते हैं जो प्लास्टिक को खा सकते हैं; अन्य सीधे एंजाइमों पर काम करते हैं जो कचरे को साफ कर सकते हैं।
- Multiple scientists have turned into **entrepreneurs**, starting companies to use their solutions on a larger scale.
कई वैज्ञानिक उद्यमी बन गए हैं, जिन्होंने अपने समाधानों का बड़े पैमाने पर उपयोग करने के लिए कंपनियाँ शुरू की हैं।
- During her time in a **drug discovery lab**, **Kavyashree Manjunath** first started thinking about how much plastic her group used, even for a single experiment.
दवाइयों के शोध प्रयोगशाला में अपने समय के दौरान, कवयश्री मन्जुनाथ ने सबसे पहले इस बारे में सोचना शुरू किया कि उनके समूह ने एक अकेले प्रयोग के लिए कितनी प्लास्टिक का उपयोग किया।
- From the smallest of tips used to draw solutions to **pipettes**, **bottles**, and more — the plastic waste from her lab alone was enough to shock the average environment-friendly scientist.
**द्रवों को खींचने के लिए उपयोग किए गए सबसे छोटे टिप्स से लेकर पाइपेट, बोतलें, और अन्य - उसकी प्रयोगशाला से प्लास्टिक कचरा अकेले औसत पर्यावरण मित्र वैज्ञानिक को चौंका देने के लिए पर्याप्त था।
- **8.3 billion tonnes of plastic** have been produced since large-scale production started, with less than **10%** recycled.
8.3 बिलियन टन प्लास्टिक का उत्पादन बड़े पैमाने पर उत्पादन शुरू होने के बाद से किया गया है, जिसमें से **10%** से भी कम पुनःचक्रित किया गया है।
- **4.9 billion tonnes** of plastic are in the environment in some form or other.
4.9 बिलियन टन प्लास्टिक किसी न किसी रूप में पर्यावरण में हैं।
- The immense amounts of plastics lying around choking our planet has driven multiple biologists to look for sustainable solutions.
हमारे ग्रह को जाम कर रही विशाल मात्रा में प्लास्टिक ने कई जीवविज्ञानियों को सतत समाधान की तलाश करने के लिए प्रेरित किया है।
- Some are working on **bacteria** that can chew up plastics; others work directly with **enzymes** that can clean up the waste.



कुछ लोग उन बैक्टीरिया पर काम कर रहे हैं जो प्लास्टिक को खा सकते हैं; अन्य सीधे एंजाइमों पर काम कर रहे हैं जो कचरे को साफ कर सकते हैं।

- **Manjunath** discovered there are natural **enzymes** that can break down **polyethylene terephthalate (PET)**, a polyester found in many kinds of plastic.

मन्जुनाथ ने पाया कि प्राकृतिक एंजाइम हैं जो पॉलीएथिलीन टेरफ्थेलेट (PET) को तोड़ सकते हैं, जो कई प्रकार के प्लास्टिक में पाया जाता है।

- **Kohei Oda** and his team at the **Kyoto Institute of Technology** first discovered the bacterium **Ideonella sakaiensis**, which breaks down PET using two enzymes.

कोहेई ओडा और उनकी टीम ने क्योटो इंस्टीट्यूट ऑफ टेक्नोलॉजी में पहले **Ideonella sakaiensis** बैक्टीरिया की खोज की, जो दो एंजाइमों का उपयोग करके PET को तोड़ता है।

- Manjunath founded **Apratima Biosolutions**, a start-up incubated at the **Centre for Cellular and Molecular Platforms (CCAMP)**, Bengaluru.

मन्जुनाथ ने **Apratima Biosolutions** की स्थापना की, जो सेंटर फॉर सेल्युलर एंड मॉलिक्यूलर प्लेटफॉर्म (CCAMP), बेंगलुरु में एक स्टार्टअप है।

- One enzyme they developed can break down **90% of PET** waste in **17 hours**, into products like **terephthalic acid** and **ethylene glycol**, which can be purified and used again.

एक एंजाइम जिसे उन्होंने विकसित किया, वह **17 घंटे में PET** कचरे का **90%** तोड़ सकता है, और इससे प्राप्त उत्पादों को जैसे **तेरफ्थालिक एसिड** और **एथिलीन ग्लाइकोल** को शुद्ध किया जा सकता है और फिर से उपयोग किया जा सकता है।

- They are now working on making the enzymes even **faster** and **cheaper**.

वे अब एंजाइमों को और भी तेज और सस्ता बनाने पर काम कर रहे हैं।

- The main challenge is the **speed**, as methods that take too long to degrade plastic are not feasible for large-scale use.

मुख्य चुनौती गति है, क्योंकि जो तरीके प्लास्टिक को खराब करने में बहुत अधिक समय लेते हैं, वे बड़े पैमाने पर उपयोग के लिए व्यावहारिक नहीं होते।

- **Sukanya Punthambaker** and **Vaskar Gnyawali** developed a method using a bacterium called **X-32** that degrades PET, polyolefins, and polyamides like nylon.

सुकन्या पुनथाम्बेकर और वस्कर ग्यावली ने एक तरीके का विकास किया, जिसमें **X-32** नामक बैक्टीरिया का उपयोग किया गया, जो PET, पॉलीओलफिन और नायलॉन जैसे पॉलीमाइड्स को तोड़ता है।

- This microbe takes **22 months** to degrade these plastics into **carbon dioxide**, **water**, and **biomass**.

यह सूक्ष्मजीव इन प्लास्टिकों को **22 महीने में कार्बन डाइऑक्साइड**, **पानी**, और **जैविक पदार्थ** में तोड़ता है।

- They are working on isolating and editing the enzymes to improve their **speed** and **efficiency**.

वे एंजाइमों को अलग करने और उनके गति और प्रभावशीलता में सुधार करने पर काम कर रहे हैं।



- **Jon Pokorski**, a professor at **University of California San Diego**, is studying ways to make biodegradable plastic from scratch.
जॉन पोकोर्स्की, यूनिवर्सिटी ऑफ कैलिफोर्निया सैन डिएगो के प्रोफेसर, शून्य से बायोडिग्रेडेबल प्लास्टिक बनाने के तरीके पर अध्ययन कर रहे हैं।
- They developed a thermoplastic polyurethane (TPU) infused with **heat-resistant bacterial spores** that degrade in compost.
उन्होंने एक थर्मोप्लास्टिक यूरिथेन (TPU) विकसित किया, जो ताप-प्रतिरोधी बैक्टीरियल स्पोर से समृद्ध होता है, जो खाद में विघटित होते हैं।
- The bacteria took about **five months** to degrade **90%** of the TPU strips in a **moist, nutrient-rich compost** environment.
बैक्टीरिया ने पाँच महीने में TPU पट्टियों के 90% को नम, पोषक तत्वों से भरपूर खाद के वातावरण में विघटित किया।

Live-bacteria approach to degrade plastic more scalable than enzymes प्लास्टिक को विघटित करने के लिए लाइव बैक्टीरिया की पद्धति, एंजाइम्स से अधिक स्केलेबल

- Pokorski believes using the **live-bacteria** approach to degrade plastic is more amenable to **scaling up** than using pure **enzymes**.
- **Pokorski** का मानना है कि प्लास्टिक को विघटित करने के लिए **लाइव बैक्टीरिया** पद्धति **एंजाइम्स** की तुलना में **स्केलेबल** है।
- He argues purifying an **enzyme** is quite a challenge, especially purifying enough of it to handle millions of **tonnes** of plastic every year.
- वह तर्क करते हैं कि **एंजाइम** को शुद्ध करना एक चुनौती है, विशेष रूप से इसे हर साल **मिलियन टन** प्लास्टिक के लिए पर्याप्त मात्रा में शुद्ध करना।
- At the academic lab scale, very small amounts of **spores** were needed for about **1 kilogram** of plastic.
- शैक्षिक लैब स्तर पर, लगभग **1 किलोग्राम** प्लास्टिक के लिए बहुत छोटे मात्रा में **स्पोर्स** की आवश्यकता थी।
- Adding the **spores** improved the **mechanical properties** of the plastic.
- **स्पोर्स** को जोड़ने से प्लास्टिक की **मैकेनिकल गुण** में सुधार हुआ।
- The **spores** serve as a reinforcing additive to the **polymer**, like **rebar** reinforces concrete.
- **स्पोर्स पॉलीमर** को **रीबार** की तरह एक सुदृढ़ करने वाले तत्व के रूप में कार्य करते हैं।
- The bacteria used are **harmless**, but consumer **acceptance** could be a challenge.
- उपयोग किए गए बैक्टीरिया **हानिरहित** हैं, लेकिन उपभोक्ता की **स्वीकृति** एक चुनौती हो सकती है।



Bacteria can be evolved for more efficient plastic breakdown बैक्टीरिया को प्लास्टिक के अधिक प्रभावी विघटन के लिए विकसित किया जा सकता है

- **Nathan Crook** from North Carolina State University discovered a way to attach the two **PET-degrading enzymes** onto the surface of the fast-growing bacteria **Vibrio natriegens**.
- नैथन क्रूक ने उत्तर कैरोलिना राज्य विश्वविद्यालय से एक तरीका खोजा है जिससे दो **PET-विघटन एंजाइम** को तेज़ी से बढ़ने वाले बैक्टीरिया **वाइब्रियो नाट्रिएजेंस** की सतह पर जोड़ा जा सकता है।
- Crook is now working on evolving it to break plastics down **faster**.
- क्रूक अब इसे प्लास्टिक को तेज़ी से विघटित करने के लिए विकसित करने पर काम कर रहे हैं।
- The **rate-limiting step** is the enzymes that break down plastic.
- **रेट-लिमिटिंग स्टेप** वह एंजाइम्स हैं जो प्लास्टिक को विघटित करते हैं।
- The organism will mutate its enzymes to improve their ability to break down plastic.
- यह जीव अपने एंजाइम्स में बदलाव करेगा ताकि प्लास्टिक को विघटित करने की क्षमता में सुधार हो सके।

Challenges in scaling up enzymes एंजाइम्स को स्केल अप करने में चुनौतियाँ

- **Manjunath**, who works with enzymes, believes scaling them up is not an issue.
- मंजुनाथ, जो एंजाइम्स के साथ काम करती हैं, का मानना है कि उन्हें स्केल अप करना कोई समस्या नहीं है।
- The main challenge is whether the enzyme can be reused and how much **PET waste** can be handled in a given reactor size.
- मुख्य चुनौती यह है कि क्या एंजाइम को पुनः उपयोग किया जा सकता है और **PET अपशिष्ट** को दिए गए रिएक्टर आकार में कितना संभाला जा सकता है।
- Most enzymes target **PET used in packaging**, but not the crystalline PET in **plastic bottles**.
- अधिकांश एंजाइम्स **पैकेजिंग में उपयोग किए गए PET** को लक्षित करते हैं, लेकिन प्लास्टिक की **बोतलों में मौजूद क्रिस्टलीन PET** को नहीं।

Carbios' efficient PET-degrading enzyme Carbios का प्रभावी PET-विघटन एंजाइम

- **Carbios**, a French company, has engineered a **highly efficient** and **heat-stable** PET-degrading enzyme.



Website: patrioticias.in

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



- **Carbios**, एक फ्रांसीसी कंपनी, ने एक **बहुत प्रभावी और हीट-स्टेबल PET-विघटन एंजाइम** को इंजीनियर किया है।
- According to a **2020 Nature paper**, their enzyme takes **10 hours** to degrade **90%** of PET waste.
- **2020 के Nature पेपर** के अनुसार, उनका एंजाइम **90%** PET अपशिष्ट को विघटित करने में **10 घंटे** लेता है।
- The broken-down components can be used as raw materials for new **bottles**, leading to a **circular PET economy**.
- टूटे हुए घटक नए **बोतलों** के लिए कच्चे माल के रूप में उपयोग किए जा सकते हैं, जिससे एक **सर्कुलर PET अर्थव्यवस्था** बनती है।
- They are planning to build a large **PET recycling plant**, but funding delays have caused a **postponement**.
- वे एक बड़े **PET रीसाइक्लिंग संयंत्र** का निर्माण करने की योजना बना रहे हैं, लेकिन वित्तीय देरी के कारण इसे **स्थगित** किया गया है।

Looking for collaborative plastic cleanup solutions साझेदारी में प्लास्टिक सफाई समाधान की तलाश

- **Crook** suggests that perhaps a **non-profit** or **governmental organization** could help clean up the plastic waste.
- **क्रूक** का सुझाव है कि शायद एक **गैर-लाभकारी संगठन** या **सरकारी संगठन** प्लास्टिक के कचरे को साफ करने में मदद कर सकता है।
- He emphasizes the need to see **plastic** removed from the environment, whether it's through bacterial strains or other methods.
- वह पर्यावरण से **प्लास्टिक हटाने** की आवश्यकता पर जोर देते हैं, चाहे वह बैक्टीरियल स्ट्रेन के माध्यम से हो या अन्य तरीकों से।

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NASA scientists prepare a return capsule containing a sample collected from the **asteroid Bennu in October 2020 by the OSIRIS-REx spacecraft** shortly after it touched down in a desert in **Utah, U.S.**, on September 24, 2023. NASA/REUTERS

Life's building blocks found in **asteroid samples**

GS Paper III: S&T
Reuters

Rock and dust samples retrieved by NASA from the asteroid Bennu exhibit some of the chemical building blocks of life, according to research that provides some of the best evidence to date that such space rocks may have seeded early earth with the raw ingredients that fostered the emergence of living organisms.

The US space agency's robotic OSIRIS-REx spacecraft in 2020 collected samples from a near-earth asteroid, a rocky remnant of a larger celestial body that had formed near the dawn of the solar system roughly 4.5 billion years ago. The samples were delivered to earth in 2023 by a parachute inside a capsule released by OSIRIS-REx that landed in the Utah desert.

Two analyses of the samples were published on January 29.

One, in the journal *Nature Astronomy*, found the samples contained a diverse mixture of organic compounds. And the other, in the journal *Nature*, reported the samples contained minerals formed when salty water evaporated on Bennu's parent body, the type of wet environment where prebiotic organic chemistry may have brewed.

Present in the samples were 14 of the 20 amino acids, which make proteins, and all five nucleobases, the genetic components of DNA and RNA in all life on the earth.

"The detection of these key building blocks of life in the Bennu samples supports the theory that asteroids and

The OSIRIS-REx spacecraft collected samples from an asteroid, a rocky remnant of a larger celestial body that had formed near the dawn of the solar system 4.5 billion years ago

their fragments seeded the early earth with the raw ingredients that led to the emergence of life," said astrobiologist Danny Glavin of NASA's Goddard Space Flight Center in Maryland, lead author of one of the studies.

"The fact that these chemical building blocks of life can be formed in space and are widespread throughout the solar system increases the chances that life could have started beyond the earth," Glavin added.

A nucleobase is a nitrogen-containing compound that stores genetic information. DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) are biomolecular cousins that are fundamental molecules in cell biology. DNA contains an organism's genetic code. RNA carries genetic information it receives from the DNA, putting this information into practice.

The Bennu organic compounds all have been identified previously in meteorites that have landed on the earth. But there have been lingering questions because these meteorites could have been contaminated by terrestrial sources. The Bennu samples were obtained directly from an asteroid and were kept pristine.

Bennu's icy parent body, perhaps about 100 km in diameter, appears to have formed in the outer solar system and was later destroyed, possibly 1-2 billion years ago. The fragments then formed Bennu and other rocky pieces.

Early in its history, some of the ice inside the parent body apparently melted and formed brine. The minerals formed in the evaporation of this brine had never previously been detected in meteorites that landed on the earth.

The researchers did not find evidence of actual DNA or RNA in the samples.



Life's building blocks found in asteroid samples जीवविज्ञान के निर्माण खंड उल्का पिंड के नमूनों में पाए गए

Rock and dust samples retrieved by NASA from the asteroid Benu exhibit some of the chemical building blocks of life, according to research.

NASA द्वारा एस्टेरॉयड बेन्नु से प्राप्त चट्टान और धूल के नमूनों में जीवन के कुछ रासायनिक निर्माण खंड पाए गए हैं, अनुसंधान के अनुसार।

- These samples provide evidence that such space rocks may have seeded **early Earth** with the raw ingredients for life.
इन नमूनों से यह प्रमाण मिलता है कि ऐसे अंतरिक्षीय पत्थर शायद प्रारंभिक पृथ्वी पर जीवन के लिए आवश्यक कच्चे तत्वों को ला सकते थे।
- The **OSIRIS-REx spacecraft** collected samples from **Benu**, a near-earth asteroid, in 2020.
OSIRIS-REx अंतरिक्ष यान ने **Benu**, एक निकट-पृथ्वी एस्टेरॉयड, से 2020 में नमूने एकत्र किए।
- The samples were delivered to Earth in **2023** by a parachute inside a capsule released by OSIRIS-REx that landed in the Utah desert.
नमूनों को **2023** में OSIRIS-REx द्वारा जारी की गई एक कैप्सूल के अंदर पैराशूट के माध्यम से पृथ्वी पर लाया गया, जो यूटा रेगिस्तान में लैंड हुआ।
- Two analyses of the samples were published on **January 29, 2024**.
नमूनों का दो विश्लेषण **29 जनवरी 2024** को प्रकाशित हुआ।
- One analysis, published in **Nature Astronomy**, found the samples contained a diverse mixture of **organic compounds**.
एक विश्लेषण, जो **Nature Astronomy** में प्रकाशित हुआ, ने पाया कि नमूनों में **जैविक यौगिकों** का एक विविध मिश्रण था।
- The other analysis, in the journal **Nature**, reported the samples contained **minerals** formed when salty water evaporated on Benu's parent body.
दूसरे विश्लेषण में, जो **Nature** जर्नल में प्रकाशित हुआ, ने बताया कि नमूनों में उन **खनिजों** का पता चला जो जब **नमकीन पानी** बेन्नु के मूल शरीर पर वाष्पित हुआ तब बने थे।
- The samples contained **14 of the 20 amino acids**, which are the building blocks of **proteins**.
नमूनों में **20 में से 14 अमीनो एसिड** पाए गए, जो **प्रोटीन** के निर्माण खंड होते हैं।
- All five **nucleobases**, the genetic components of **DNA** and **RNA**, were also present in the samples.
नमूनों में **पाँचों न्यूक्लियोबेस** भी मौजूद थे, जो **DNA** और **RNA** के आनुवंशिक घटक होते हैं।
- **Danny Glavin**, an astrobiologist at NASA's **Goddard Space Flight Center**, said these findings support the theory that asteroids seeded Earth with raw ingredients for life.



Danny Glavin, जो NASA के **Goddard Space Flight Center** में एक ऐस्ट्रोबायोलॉजिस्ट हैं, ने कहा कि ये निष्कर्ष उस सिद्धांत का समर्थन करते हैं कि ऐस्टेरॉयड ने पृथ्वी को जीवन के लिए आवश्यक कच्चे तत्वों से बोया।

- Glavin added that the detection of these building blocks in space and their widespread presence throughout the solar system increases the chances that life could have originated beyond Earth.
ग्लाविन ने यह भी जोड़ा कि इन निर्माण खंडों का अंतरिक्ष में पता लगाना और उनका सौरमंडल भर में व्यापक रूप से मौजूद होना यह संभावना बढ़ाता है कि जीवन पृथ्वी के बाहर उत्पन्न हुआ हो सकता है।
- A **nucleobase** is a nitrogen-containing compound that stores genetic information.
न्यूक्लियोबेस एक नाइट्रोजन युक्त यौगिक है जो आनुवंशिक जानकारी संचित करता है।
- **DNA** and **RNA** are fundamental molecules in cell biology.
DNA और **RNA** कोशिका जीवविज्ञान में मौलिक अणु होते हैं।
- The **Bennu organic compounds** were previously identified in meteorites that landed on Earth, but there were concerns about contamination.
Bennu जैविक यौगिकों को पहले पृथ्वी पर गिरे उल्कापिंडों में पहचाना गया था, लेकिन प्रदूषण को लेकर चिंताएँ थीं।
- The Bennu samples were kept **pristine** and obtained directly from the asteroid.
Bennu के नमूने **स्वच्छ** रखे गए थे और सीधे ऐस्टेरॉयड से प्राप्त किए गए थे।
- Bennu's icy parent body, about **100 km** in diameter, formed in the outer solar system and was destroyed **1-2 billion years ago**.
Bennu का बर्फीला मूल शरीर, जिसका व्यास लगभग **100 किमी** था, बाहरी सौरमंडल में बना था और **1-2 बिलियन साल पहले** नष्ट हो गया था।
- The ice inside the parent body melted early in its history, forming **brine**.
मूल शरीर के अंदर बर्फ अपने इतिहास के प्रारंभ में पिघल गई, जिससे **नमकीन पानी** बना।
- The minerals formed in the evaporation of this brine had never been detected in meteorites that landed on Earth.
इस नमकीन पानी के वाष्पित होने से बने खनिजों का पहले कभी पृथ्वी पर गिरे उल्कापिंडों में पता नहीं चला था।
- The researchers did not find evidence of actual **DNA** or **RNA** in the samples.
शोधकर्ताओं ने नमूनों में वास्तविक **DNA** या **RNA** का प्रमाण नहीं पाया।

TOPICS COVERED (PCS Special)

1. Bhutan PM Tobgay to attend West Bengal business summit / भूटान के प्रधानमंत्री तोबगे पश्चिम बंगाल व्यापार शिखर सम्मेलन में भाग लेंगे



2. Beyonce wins top album at Grammys, as Lamar shines /
बियाँसे ने ग्रैमी में शीर्ष एल्बम जीता, लैमर ने भी कमाल दिखाया
3. Pragnanandhaa takes home maiden Masters title /
प्रग्नानानंदा ने अपना पहला मास्टर्स खिताब जीता



PCS

Bhutan PM Tobgay to attend West Bengal business summit

Bhutan's Prime Minister Dasho Tshering Tobgay is scheduled to visit Kolkata for two days to attend the State's business summit on February 5 and 6, an official from the Royal Bhutanese Consulate in the city said on Monday. Mr. Tobgay will lead a 13-member team and participate in the Bengal Global Business Summit (BGBS) 2025 to enhance trade relations. Bhutan will showcase its products and services at BGBS and will organise a country session to attract investments. West Bengal Chief Minister Mamata Banerjee had announced in October 2024 that Mr. Tobgay would be the special guest at BGBS 2025. PTI

Bhutan PM Tobgay to attend West Bengal business summit

भूटान के प्रधानमंत्री तोबगे पश्चिम बंगाल व्यापार शिखर सम्मेलन में भाग लेंगे

Bhutan's Prime Minister Dasho Tshering Tobgay's Visit to Kolkata

भूटान के प्रधानमंत्री दाशो त्सेरेनग टोबगे का कोलकाता दौरा

• Bhutan's Prime Minister **Dasho Tshering Tobgay** is scheduled to visit **Kolkata** for two days to attend the **State's business summit** on **February 5 and 6**, an official from the Royal Bhutanese Consulate in the city said on Monday.

भूटान के प्रधानमंत्री दाशो त्सेरेनग टोबगे को 5 और 6 फरवरी को राज्य के व्यापार शिखर सम्मेलन में भाग लेने के लिए दो दिनों के लिए कोलकाता आने का कार्यक्रम है, यह जानकारी सोमवार को शहर में भूटान के राजनयिक मिशन के एक अधिकारी ने दी।

• Mr. Tobgay will lead a **13-member team** and participate in the **Bengal Global Business Summit (BGBS) 2025** to enhance trade relations.

श्री टोबगे एक 13-सदस्यीय टीम का नेतृत्व करेंगे और बंगाल ग्लोबल बिजनेस समिट (BGBS) 2025 में व्यापार संबंधों को बढ़ाने के लिए भाग लेंगे।

- Bhutan will showcase its **products and services** at BGBS and will organize a **country session** to attract investments.

भूटान BGBS में अपनी उत्पादों और सेवाओं का प्रदर्शन करेगा और निवेश आकर्षित करने के लिए एक देश सत्र का आयोजन करेगा।

- **West Bengal Chief Minister Mamata Banerjee** had announced in **October 2024** that Mr. Tobgay would be the **special guest** at **BGBS 2025**.



पश्चिम बंगाल की मुख्यमंत्री ममता बनर्जी ने अक्टूबर 2024 में घोषणा की थी कि श्री टोबगे BGBS 2025 में विशेष अतिथि होंगे।

Beyonce wins top album at Grammys, as Lamar shines

PCS

Agence France-Presse
LOS ANGELES

Beyonce on Sunday finally won the Grammy for the year's best album for her culture-shaking *Cowboy Carter*, as rapper Kendrick Lamar posted a clean sweep on a night that served as a love letter to fire-ravaged Los Angeles.

Chappell Roan, Charli XCX, Doechii and Sabrina Carpenter emerged as big winners at the performance-heavy gala, while heavyweights Taylor Swift and Billie Eilish went home empty-handed.

Beyonce's win for *Cowboy Carter* now makes her the most nominated, most decorated artist at the



Taylor Swift presents the award for best country album to Beyonce for *Cowboy Carter* at the Grammys on Sunday in Los Angeles. AP

awards show ever – as well as the first Black woman to claim the top prize in this century.

Indian-American vocalist and entrepreneur Chan-

drika Tandon, and two other collaborators won the Grammy award for the album *Triveni* in the Best New Age, Ambient or Chant Album category.

Beyonce wins top album at Grammys, as Lamar shines

बियाँसे ने ग्रैमी में शीर्ष एल्बम जीता, लैमर ने भी कमाल दिखाया

Beyoncé Wins Grammy for Best Album

बेयॉन्से ने सर्वश्रेष्ठ एल्बम के लिए ग्रैमी जीता

• **Beyoncé** on Sunday finally won the **Grammy** for the year's **best album** for her culture-shaking album **Cowboy Carter**.

बेयॉन्से ने रविवार को अपनी सांस्कृतिक बदलाव लाने वाली एल्बम काउबॉय कार्टर के लिए साल का

सर्वश्रेष्ठ एल्बम जीत लिया।

- Rapper **Kendrick Lamar** posted a **clean sweep** on a night that served as a **love letter** to fire-ravaged **Los Angeles**.

रैपर केंड्रिक लैमर ने एक पूर्ण विजय हासिल की, और यह रात लॉस एंजलिस को आग से तबाह हुए शहर के लिए एक प्रेम पत्र बन गई।

- **Chappell Roan**, **Charli XCX**, **Doechii**, and **Sabrina Carpenter** emerged as big winners at the performance-heavy gala.

चैपेल रोआन, चार्ली XCX, डोची और साबरीना कारपेंटर प्रदर्शन-प्रधान गाला में बड़ी विजेता के रूप में उभरे।

- **Heavyweights Taylor Swift** and **Billie Eilish** went home empty-handed.

वजनदार कलाकार टेलर स्विफ्ट और बिल्ली ईलिश हाथ में खाली लौटे।

- **Beyoncé's** win for **Cowboy Carter** now makes her the **most nominated**, **most decorated** artist at the awards show ever — as well as the **first Black woman** to claim the top prize in this century.

बेयॉन्से की जीत काउबॉय कार्टर के लिए अब उन्हें इस पुरस्कार शो की सबसे अधिक नामांकित,

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सबसे सम्मानित कलाकार बना देती है – और साथ ही वह इस सदी में पहली काली महिला हैं जिन्होंने शीर्ष पुरस्कार जीता।

- **Indian-American vocalist** and entrepreneur **Chandrika Tandon**, and two other collaborators won the **Grammy award** for the album **Triveni** in the **Best New Age, Ambient or Chant Album** category.

भारतीय-अमेरिकी गायक और उद्यमी चंद्रिका तंदन, और दो अन्य सहयोगियों ने एल्बम त्रिवेणी के लिए सर्वश्रेष्ठ न्यू एज, एम्बियंट या चांट एल्बम श्रेणी में ग्रैमी पुरस्कार जीता।

Praggnanandhaa takes home maiden Masters title

The 19-year-old comes from behind to upstage World champion Gukesh in a tense tiebreaker after both suffer losses in the final round to end up tied with 8.5 points

PCS

TATA STEEL CHESS

Press Trust of India

WIJK AAN ZEE

The Indian juggernaut in international chess rolled on as Grandmaster R. Praggnanandhaa fought through exhaustion and nerves to defeat World champion D. Gukesh in a clash of compatriots to clinch the Tata Steel Masters title for the first time.

The bespectacled 19-year-old from Chennai came from behind to upstage the 18-year-old World No. 3 2-1 in the tiebreaker of the event's 87th edition here on Sunday.

Both players ended up tied on 8.5 points after losing their 13th-round games. While Gukesh lost to fellow Indian Arjun Erigaisi, Praggnanandhaa went down to Vincent Keymer of Germany.

"I am still shaking, it was such a crazy day. I don't know how to express. I didn't really expect to win. Somehow things went my way," Praggnanandhaa told the official tournament website after his triumph.

Asked if it was the most



In elite company: Praggnanandhaa became the first Indian after Anand to win the title. @FIDE_CHESS

tense day of his chess career, Praggnanandhaa responded: "Today is more special because I won the tournament. Definitely most stressful day." Praggnanandhaa showed perfect technique in the sudden

death to take the full point and his maiden victory at the Masters.

The teenager became the first Indian after Viswanathan Anand to win the title. Anand won it thrice (2003, 2004 and 2006) in-

dividually when it was called the Corus Chess Tournament. The legend also shared the honours twice (1989 and 1998) in its earliest form of Hoogovens Tournament. "It was a very difficult game. Against Vincent I didn't play anywhere close to the level I was playing here. I should buy something for Arjun. At some point I thought Gukesh was better," Praggnanandhaa said.

Final standings:

Masters: 1. R. Praggnanandhaa (8.5), 2. D. Gukesh (8.5), 3. Nodirbek Abdusattorov (Uzb, 8), 4. Vladimir Fedoseev (Slo, 7.5), 5. Anish Giri (Ned, 7), 6. Wei Yi (Chn, 7), 7. P. Harikrishna (6.5), 8. Vincent Keymer (Ger, 6), 9. Fabiano Caruana (USA, 6), 10. Arjun Erigaisi (5.5), 11. Jorden van Foreest (Ned, 5.5), 12. Alexey Sarana (Srb, 5.5), 13. Leon Luke Mendonca (5), 14. Max Warmerdam (Ned, 4.5).

Challengers: 1. Thai Dai van Nguyen Nguyen (Cze, 9.5), 2. Aydin Suleymanli (Aze, 9.5), 3. Erwin l'Ami (Ned, 8.5), 4. Nodirbek Yakubboev (Uzb, 8), 5. Benjamin Bok (Ned, 8), 6. Ediz Gurel (Tur, 7.5), 7. Frederik Svane (Ger, 7.5), 8. Kazybek Nogerbek (Kaz, 7.5), 9. Vaishali (6), 10. Miaoyi Lu (Chn, 5.5), 11. Arthur Pijpers (Ned, 5.5), 12. Divya Deshmukh (3.5), 13. Faustino Oro (Arg, 3.5), 14. Irina Bulmaga (Rou, 1).



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Praggnanandhaa takes home maiden Masters title

प्रग्गनानंदा ने अपना पहला मास्टर्स खिताब जीता

The 19-year-old comes from behind to upstage World champion Gukesh in a tense tiebreaker after both suffer losses in the final round to end up tied with 8.5 points

19 वर्षीय खिलाड़ी ने अंतिम राउंड में दोनों सुपर हार के बाद तनावपूर्ण टाईब्रेकर में विश्व चैंपियन गुकेश को पीछे से हराया और 8.5 अंकों के साथ बराबरी पर रहे।

Indian Juggernaut in Chess: R. Praggnanandhaa Wins Tata Steel Masters

भारतीय चेस का जुझारू प्रदर्शन: आर. प्रग्गनानंदा ने टाटा स्टील मास्टर्स जीता

- **Grandmaster R. Praggnanandhaa** fought through exhaustion and nerves to defeat **World Champion D. Gukesh** in a clash of compatriots to clinch the **Tata Steel Masters** title for the first time.
ग्रैंडमास्टर आर. प्रग्गनानंदा ने थकान और नर्वसनेस को मात देते हुए विश्व चैंपियन डी. गुकिश को हराया और पहली बार टाटा स्टील मास्टर्स का खिताब अपने नाम किया।
- The **19-year-old** from **Chennai** came from behind to upstage the **18-year-old World No. 3** 2-1 in the **tiebreaker** of the event's **87th edition** on **Sunday**.
चेन्नई से 19 वर्षीय प्रग्गनानंदा ने 18 वर्षीय विश्व नंबर 3 को टाईब्रेक में 87वें संस्करण के दौरान रविवार को 2-1 से हराया।
- Both players ended up tied on **8.5 points** after losing their **13th-round** games. दोनों खिलाड़ियों के **13वें राउंड** के बाद **8.5 अंकों** के साथ बराबरी पर रहने के बाद यह मुकाबला टाई हुआ।
- **Gukesh** lost to fellow Indian **Arjun Erigaisi**, while **Praggnanandhaa** went down to **Vincent Keymer** of **Germany**.
गुकिश ने साथी भारतीय अर्जुन एरिगासी से हार गए, जबकि प्रग्गनानंदा को जर्मनी के विन्सेंट कीमर से हार का सामना करना पड़ा।
- "I am still shaking, it was such a crazy day. I didn't really expect to win. Somehow things went my way," said **Praggnanandhaa** after his triumph.
"मैं अभी भी कांप रहा हूँ, यह एक बहुत ही पागल दिन था। मैंने सच में जीतने की उम्मीद नहीं की थी। किसी तरह चीजें मेरे पक्ष में गईं," प्रग्गनानंदा ने अपनी जीत के बाद कहा।
- Asked if it was the most **tense day** of his chess career, **Praggnanandhaa** responded: "Today is more special because I won the tournament. Definitely most **stressful day**."
जब उनसे पूछा गया कि क्या यह उनके चेस करियर का सबसे तनावपूर्ण दिन था, तो प्रग्गनानंदा ने उत्तर दिया: "आज और भी खास है क्योंकि मैंने टूर्नामेंट जीता। निश्चित रूप से यह सबसे तनावपूर्ण दिन था।"

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- **Praggnanandhaa** showed perfect technique in the sudden death to take the full point and his **maiden victory** at the Masters.
प्रग्गाननंदा ने अचानक मौत के मुकाबले में पूरी तकनीक दिखाई और मास्टर्स में अपनी पहली जीत हासिल की।
- The teenager became the **first Indian** after **Viswanathan Anand** to win the title.
यह किशोर विश्वनाथन आनंद के बाद पहला भारतीय बना जिसने यह खिताब जीता।
- **Anand** won the title thrice (2003, 2004, and 2006) individually when it was called the **Corus Chess Tournament**.
आनंद ने जब इसे कोरस चेस टूर्नामेंट कहा जाता था, तो तीन बार (2003, 2004, और 2006) व्यक्तिगत रूप से खिताब जीता।
- The legend also shared the honours twice (1989 and 1998) in its earliest form of **Hoogovens Tournament**.
इस दिग्गज ने होगोवेस टूर्नामेंट के पहले रूप में भी दो बार (1989 और 1998) सम्मान साझा किया।
- “It was a very difficult game. Against **Vincent** I didn’t play anywhere close to the level I was playing here. I should buy something for **Arjun**. At some point I thought **Gukesh** was better,” said **Praggnanandhaa**.
“यह एक बहुत ही कठिन खेल था। विन्सेंट के खिलाफ मैंने यहाँ जितनी अच्छी तरह खेला था, उससे कहीं भी अच्छा नहीं खेला। मुझे अर्जुन के लिए कुछ खरीदना चाहिए। कुछ समय के लिए मुझे लगा कि गुकिश बेहतर थे,” प्रग्गाननंदा ने कहा।

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