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2024_10_28 DAILY CURRENT AFFAIRS TOPICS COVERED

1. 10 injured in stampede at overcrowded platform in Mumbai's Bandra station
2. India's Nature Conservation Index rank 176, govt. slammed (PCS/GS Paper-III: Environment)
3. Union govt. Defends Aadhaar-based wage payment for workers (GS Paper-II: Government Polity)
4. PM cautions people against 'digital arrest' scam by fraudsters (GS Paper-III: Cyber Crime)
5. CERT-In releases advisory on online scams (GS Paper-III: Cyber Crime)
6. New rocket, plus moon and Venus missions, herald new beginnings (GS Paper-III: S&T)
7. Carbon credit: the right to emit (GS Paper-III: Environment)
8. Beyond intoxication (GS Paper-II: Center-State Relations)
9. The private sector holds the key to India's e-bus push (GS Paper-III: Environment)
10. Sustainability science for FMCGs (GS Paper-III)
11. Why is Delhi's air quality deteriorating? (GS Paper-III: Environment: Pollution)
12. How differently abled communities are embracing music through sign language (GS Paper-II: Vulnerable Section of Society)
13. Iran's jailed Nobel laureate is in hospital with severe health issues
14. Lithuanians cast ballots in the final round of parliamentary elections
15. Conservatives top Bulgarian polls but fall short of majority
16. 'Satisfied' electorate in 'stable' Uruguay to pick between two centrist leaders



Q2 investments up 42.5%, capex recovers: data

New investments for second quarter at ₹9.21 lakh crore as States and Centre ramp up outlays; private investors step up but at a slower pace; Maharashtra tops the list with 661 projects; 1,093 government projects among the 2,684 new investments in the quarter; mega projects worth at least ₹1,000 crore increase to 173 from 132 in previous quarter

[GS Paper III: Economy](#)

Vikas Dhoot
NEW DELHI

Fresh investment plans bounced back strongly in the July-to-September quarter, with government capex recovering from a lull in the first quarter amid the Lok Sabha election and private investors stepping up albeit at a slower pace, lifting new project outlays to the second-highest level over the past year-and-a-half.

Overall investments jumped 42.5% in the second quarter (Q2) of 2024-25 to ₹9.21 lakh crore, relative to the April-to-June quarter or Q1, when new investment announcements had more than halved on a sequential basis to ₹6.46 lakh crore. State administrations ramped up new outlays by 67% to nearly ₹1.62 lakh crore, outnumbering Central government capex plans which, however, re-

corded a sharper spike of 185.6% to hit around ₹1.54 lakh crore in Q2.

Private sector investments grew at a more sober pace of 22.2% but accounted for nearly 66% of the total investment tally, with foreign investors doubling their planned bets on the Indian market from Q1, to ₹54,519 crore in Q2. Domestic private capital recorded a 17.5% uptick in the value of new investment plans, accounting for ₹5.51 lakh crore of fresh outlays, as per data from Projects Today, which has been tracking new and ongoing investment projects in the country since 2000.

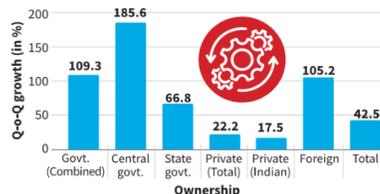
Maharashtra on top

Among the States, Maharashtra remained the top draw for investors as was the case in Q1, with 661 projects worth ₹2.81 lakh crore.

Gujarat recovered from the fifth spot in Q1 to at-

Govt. capex rebounds in Q2

While new project investments have increased by 42.5% in Q2 FY25 compared with the previous quarter, investments by the Centre have tripled and exceeded ₹1.5 trillion in the period



tract the second-highest investments worth almost ₹1.39 lakh crore in Q2.

Karnataka, with ₹97,740 crore of new projects, and Tamil Nadu (₹46,662 crore) came third and fourth in Q2, regaining ground from Q1, when they had dropped to the eighth and 10th positions, respectively.

The erstwhile State of Jammu and Kashmir made

a maiden entry into the list of top 10 States, drawing investment plans worth ₹18,592 crore.

"In the first quarter of this fiscal year, major project announcements by the Central government agencies were postponed due to the election code of conduct during the Lok Sabha polls, and the private sector had also delayed unveiling major capital expendi-

Foreign investors withdraw ₹85,790 cr.

Press Trust of India
NEW DELHI

Foreign investors have continued selling in the Indian market, pulling out a massive ₹85,790 crore from equities in October due to Chinese stimulus measures, attractive stock

valuations, and the elevated pricing of domestic equities.

The latest outflow came after a nine-month high investment of ₹57,724 crore in September

FULL REPORT ON
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projects, while 1,591 were from the private sector. The Projects Today survey noted that the number of mega projects worth at least ₹1,000 crore, increased from 132 plans worth ₹4.02 lakh crore in Q1 to 173 projects worth ₹6.38 lakh crore in Q2, indicating improved confidence among project promoters.

Trend to persist

Mr. Hegde anticipated that this upward trend in project investments will persist over the next two quarters but stressed that the key to unlocking the full potential of these investments lies in swift and effective execution.

"Ensuring timely implementation of announced projects is crucial for India to not only meet its higher growth aspirations but also generate much-needed employment opportunities," he underlined.

Q2 investments up 42.5%, capex recovers: data

New investments for second quarter at ₹9.21 lakh crore as States and Centre ramp up outlays; private investors step up but at a slower pace; Maharashtra tops the list with 661 projects; 1,093 government projects among the 2,684 new investments in the quarter; mega projects worth at least ₹1,000 crore increase to 173 from 132 in previous quarter

Fresh Investment Plans Bounce Back in Q2

तिमाही 2 में नई निवेश योजनाओं में तेज़ी

- Fresh investment plans surged in the **July-to-September quarter**, with **government capital expenditure (capex)** recovering from a lull in Q1 due to the **Lok Sabha election**, and private investors contributing at a slower pace.

जुलाई से सितंबर की तिमाही में निवेश योजनाओं में तेज़ी आई, जिसमें सरकारी



पूँजीगत व्यय (कैपेक्स) ने पहली तिमाही में लोकसभा चुनाव के कारण आई सुस्ती से उबरते हुए योगदान दिया, जबकि निजी निवेशकों का योगदान धीमी गति से रहा।

- **Overall investments increased 42.5% in Q2 2024-25 to reach ₹9.21 lakh crore, compared to ₹6.46 lakh crore in Q1.**

कुल निवेश 2024-25 की दूसरी तिमाही में 42.5% बढ़कर ₹9.21 लाख करोड़ तक पहुंच गया, जबकि पहली तिमाही में यह ₹6.46 लाख करोड़ था।

- **State administrations boosted new outlays by 67% to around ₹1.62 lakh crore, outnumbering Central government capex plans, which surged 185.6% to approximately ₹1.54 lakh crore in Q2.**

राज्य प्रशासन ने नए खर्चों में 67% की वृद्धि करते हुए ₹1.62 लाख करोड़ का योगदान दिया, जबकि केंद्र सरकार के कैपेक्स योजनाओं में दूसरी तिमाही में 185.6% की बढ़ोतरी हुई और यह लगभग ₹1.54 लाख करोड़ तक पहुंच गई।

- **Private sector investments rose by 22.2%, accounting for nearly 66% of the total, with foreign investors doubling their planned investments from ₹54,519 crore in Q1 to Q2.**

निजी क्षेत्र का निवेश 22.2% बढ़ा, जो कुल निवेश का लगभग 66% रहा, जिसमें विदेशी निवेशकों ने पहली तिमाही में ₹54,519 करोड़ से दूसरी तिमाही में निवेश को दोगुना किया।

- **Domestic private capital saw a 17.5% increase, accounting for ₹5.51 lakh crore in new investments, as reported by Projects Today.**

घरेलू निजी पूँजी में 17.5% की वृद्धि हुई, जो नए निवेश में ₹5.51 लाख करोड़ का हिस्सा था, जैसा कि प्रोजेक्ट्स टुडे की रिपोर्ट में बताया गया है।

Maharashtra on Top for Investments

महाराष्ट्र निवेश में शीर्ष पर

- **Maharashtra continued to be the leading state for investments with 661 projects valued at ₹2.81 lakh crore.**

महाराष्ट्र 661 परियोजनाओं के साथ ₹2.81 लाख करोड़ के निवेश मूल्य के साथ शीर्ष राज्य बना रहा।

- **Gujarat climbed from the fifth spot in Q1 to second with investments worth nearly ₹1.39 lakh crore in Q2.**



गुजरात पहली तिमाही में पांचवें स्थान से ऊपर उठकर दूसरी तिमाही में लगभग ₹1.39 लाख करोड़ के निवेश के साथ दूसरे स्थान पर आ गया।

- **Karnataka and Tamil Nadu** secured the **third** and **fourth** positions with **₹97,740 crore** and **₹46,662 crore** respectively, regaining from **eighth** and **tenth positions** in Q1.

कर्नाटक और तमिलनाडु ने क्रमशः ₹97,740 करोड़ और ₹46,662 करोड़ के निवेश के साथ तीसरे और चौथे स्थान को प्राप्त किया, जो पहली तिमाही में आठवें और दसवें स्थान पर थे।

- **Jammu and Kashmir** entered the **top 10 states** for the first time with **₹18,592 crore** in new investment plans.

जम्मू और कश्मीर ने पहली बार शीर्ष 10 राज्यों में प्रवेश किया, ₹18,592 करोड़ के नए निवेश योजनाओं के साथ।

Sectoral Analysis of Investments

निवेशों का क्षेत्रीय विश्लेषण

- **Mining** saw an **18.1% decline** in new projects in Q2, while **manufacturing investments** surged nearly **79%** to exceed **₹2.22 lakh crore**.

दूसरी तिमाही में खनन क्षेत्र में नए परियोजनाओं में 18.1% की कमी आई, जबकि विनिर्माण निवेश लगभग 79% बढ़कर ₹2.22 लाख करोड़ से अधिक हो गया।

- **Infrastructure projects** rose **45%** to about **₹4.17 lakh crore**, and **electricity and irrigation projects** grew by **24.2%** and **24.7%**, respectively.

इंफ्रास्ट्रक्चर परियोजनाओं में 45% की वृद्धि हुई और यह लगभग ₹4.17 लाख करोड़ तक पहुंच गया, जबकि बिजली और सिंचाई परियोजनाओं में क्रमशः 24.2% और 24.7% की वृद्धि दर्ज की गई।

- **Of the 2,684 new investments** in Q2, **1,093** were **government projects**, and **1,591** were **private sector**.

दूसरी तिमाही में 2,684 नए निवेशों में से 1,093 सरकारी परियोजनाएँ थीं और 1,591 निजी क्षेत्र से थीं।

- **Mega projects** worth at least **₹1,000 crore** increased from **132 projects** valued at **₹4.02 lakh crore** in Q1 to **173 projects** worth **₹6.38 lakh crore** in Q2, as per **Projects Today survey**.



प्रोजेक्ट्स टुडे सर्वेक्षण के अनुसार, 1,000 करोड़ रुपये या उससे अधिक मूल्य की मेगा परियोजनाएं पहली तिमाही में 132 परियोजनाओं से बढ़कर दूसरी तिमाही में ₹6.38 लाख करोड़ मूल्य की 173 परियोजनाएं हो गईं।

Future Outlook on Investment

भविष्य में निवेश का दृष्टिकोण

- **Projects Today CEO Shashikant Hegde** indicated that the trend of increasing project investments may continue, with a focus on **swift and effective execution** to fully realize growth and employment potential.

प्रोजेक्ट्स टुडे के सीईओ शशिकांत हेगड़े ने संकेत दिया कि परियोजना निवेशों में वृद्धि का रुझान जारी रह सकता है, और शीघ्र और प्रभावी कार्यान्वयन पर ध्यान केंद्रित करना चाहिए ताकि विकास और रोजगार क्षमता को पूरा किया जा सके।

Trend to Persist

रुझान का जारी रहना

- Mr. Hegde anticipated that this **upward trend in project investments** will persist over the next **two quarters** but stressed that the key to unlocking the full potential of these investments lies in swift and effective execution.

हेगड़े ने अनुमान लगाया कि परियोजना निवेशों में यह तेज़ी का रुझान अगले दो तिमाहियों तक जारी रहेगा, लेकिन इस निवेश की पूरी संभावना को उजागर करने के लिए तेज और प्रभावी कार्यान्वयन को महत्वपूर्ण बताया।

- "Ensuring **timely implementation** of announced projects is crucial for India to not only meet its **higher growth aspirations** but also generate much-needed **employment opportunities**," he underlined.

"घोषित परियोजनाओं के समय पर कार्यान्वयन को सुनिश्चित करना भारत के लिए न केवल उच्च वृद्धि आकांक्षाओं को पूरा करना, बल्कि आवश्यक रोजगार के अवसरों को उत्पन्न करना भी महत्वपूर्ण है," उन्होंने जोर दिया।



10 injured in stampede at overcrowded platform in Mumbai's Bandra station

GS Paper III: Disaster Management

MUMBAI

A stampede on an overcrowded platform at the Bandra railway station in Mumbai left at least 10 persons injured in the early hours of Sunday, officials said.

Western Railway officials said the incident occurred when passengers tried to board the Bandra Terminus-Gorakhpur Antyodaya Express before it came to a halt.

"The 5.15 a.m.-scheduled Bandra Terminus-Gorakhpur Antyodaya Express was brought from the yard to the platform at 2.44 a.m., when some passengers tried to board the train, leading to injuries. The injured were immediately taken to the Bandra Bhabha hospital," Vineet Abhishek, Western Railway's chief public relations officer, said.

Two critically injured passengers, identified as Indrajith Sahani, 19, and Noor Mohammad Shaikh, 18, were transferred to the K.E.M. hospital for treatment. According to the BMC officials, Mr. Noor sustained multiple injuries, and required oxygen support.

Among the other injured passengers, five were receiving treatment at the Bandra Bhabha Hospital.

"The platform was jam-packed. There was no space to even stand. People were jumping and pushing each other to reach the train's doors. I came to drop him, saw him vanish in the crowd. Later, I got to know he was badly injured," Vikas Gupta, brother of Parmeshwar



The dust settles: Police personnel, passengers, and others at the Bandra railway station in Mumbai after a stampede on Sunday. PTI

Sukhdar Gupta who was injured, told *The Hindu*. "He was going back home after a year." The brothers are migrants from Gorakhpur and work as assistants to tailors in Ghatkopar.

Divyanshu Yogendra Yadav, a carpenter, suffered injuries to his leg and chest, his cousin Priyanshu Yadav said.

Triggering outrage

The stampede during the busy festival season triggered outrage. Congress leader and Leader of the Opposition in the Lok Sabha, Rahul Gandhi, slammed the government and called its negligence a "serious concern".

"The stampede is the latest example of India's crumbling infrastructure. The Balasore train accident in June last year claimed the lives of 300 people, but instead of compensating the victims, the BJP government has entangled them in a long legal battle," he said.

"Inaugurations and publicity are good only when there is a foundation behind them that actually

works to serve the public. It is a serious concern when a lack of maintenance and neglect of public property lead to loss of lives."

Shiv Sena (UBT) leader Sanjay Raut said that over 25 major railway accidents had occurred in the country, claiming over 100 lives, since the Modi government came to power. He questioned, "What is the point of talking about bullet trains, Metro, and high-speed trains?"

Nationalist Congress Party (SP) president Jayant Patil and Sena (UBT) leader Aaditya Thackeray criticised Union Railway Minister Ashwini Vaishnaw. Mr. Patil said, "Mr. Vaishnaw had time to come to Maharashtra for the BJP's election work and promotion, but had no time to visit the railway office and take cognisance of the incident."

After the incident, Western Railway placed restrictions on the sale of platform tickets at major stations in the Mumbai division till November 8 to manage crowding on platforms.



Stampede at Bandra Railway Station in Mumbai

मुंबई में बांद्रा रेलवे स्टेशन पर भगदड़

• A **stampede** on an **overcrowded platform** at the **Bandra railway station** in **Mumbai** left at least **10 persons injured** in the **early hours of Sunday**, officials said.

मुंबई के बांद्रा रेलवे स्टेशन पर एक भीड़भाड़ वाले प्लेटफॉर्म पर भगदड़ मचने से कम से कम 10 लोग घायल हो गए, रविवार तड़के यह घटना हुई, अधिकारियों ने बताया।

• **Western Railway officials** said the incident occurred when **passengers** tried to board the **Bandra Terminus-Gorakhpur Antyodaya Express** before it came to a **halt**.

पश्चिम रेलवे अधिकारियों ने कहा कि यह घटना तब हुई जब यात्रियों ने बांद्रा टर्मिनस-गोरखपुर अंत्योदय एक्सप्रेस में रुकने से पहले चढ़ने का प्रयास किया।

• “The **5.15 a.m.-scheduled Bandra Terminus-Gorakhpur Antyodaya Express** was brought from the **yard to the platform** at **2.44 a.m.**, when some passengers tried to board the train, leading to injuries.

5:15 बजे निर्धारित बांद्रा टर्मिनस-गोरखपुर अंत्योदय एक्सप्रेस को 2:44 बजे यार्ड से प्लेटफॉर्म पर लाया गया, जब कुछ यात्री ट्रेन में चढ़ने लगे, जिससे चोटें आईं।

• The **injured** were immediately taken to the **Bandra Bhabha hospital**, said **Vineet Abhishek**, **Western Railway's chief public relations officer**.

घायलों को तुरंत बांद्रा भाभा अस्पताल ले जाया गया, पश्चिम रेलवे के मुख्य जनसंपर्क अधिकारी, विनीत अभिषेक ने बताया।

• **Two critically injured** passengers, identified as **Indrajith Sahani, 19**, and **Noor Mohammad Shaikh, 18**, were transferred to the **K.E.M. hospital for treatment**.

दो गंभीर रूप से घायल यात्री इंद्रजीत सहानी, 19 और नूर मोहम्मद शेख, 18 को के.ई.एम अस्पताल में इलाज के लिए भेजा गया।

• According to **BMC officials**, **Mr. Noor** sustained **multiple injuries** and required **oxygen support**.

बीएमसी अधिकारियों के अनुसार, श्री नूर को कई चोटें आईं और उन्हें ऑक्सीजन सपोर्ट की आवश्यकता थी।



• Among the other injured passengers, **five were receiving treatment at the Bandra Bhaba Hospital.**

अन्य घायल यात्रियों में से पांच का इलाज बांद्रा भाभा अस्पताल में चल रहा है।

• “The platform was **jam-packed**. There was **no space to even stand**. People were **jumping and pushing each other** to reach the train’s doors,” said **Vikas Gupta**, brother of **Parmeshwar Sukhdar Gupta**, who was injured.

**प्लेटफॉर्म पूर्ण रूप से भरा हुआ था। खड़े होने की भी जगह नहीं थी। लोग ट्रेन के दरवाजों तक पहुंचने के लिए एक-दूसरे को धक्का दे रहे थे,” विकास गुप्ता ने कहा, जो परमेश्वर सुखदार गुप्ता के भाई हैं, जो घायल हुए थे।

• “He was going **back home after a year.**”

“वह एक साल बाद घर लौट रहा था।”

• The brothers are **migrants from Gorakhpur** and work as **assistants to tailors in Ghatkopar.**

दोनों भाई गोरखपुर से प्रवासी हैं और घाटकोपर में दर्जियों के सहायक के रूप में काम करते हैं।

• **Divyanshu Yogendra Yadav**, a carpenter, suffered **injuries to his leg and chest**, said his cousin **Priyanshu Yadav.**

दिव्यांशु योगेंद्र यादव, एक बढ़ई हैं, जिन्हें पैर और छाती में चोटें आई हैं, उनके चचेरे भाई प्रियांशु यादव ने बताया।

Triggering Outrage

नाराजगी का कारण

• The **stampede** during the **busy festival season** triggered **outrage**. **Congress leader and Leader of the Opposition in the Lok Sabha, Rahul Gandhi**, slammed the **government** and called its **negligence** a **serious concern.**

व्यस्त त्योहार के मौसम में हुई भगदड़ ने नाराजगी पैदा कर दी। कांग्रेस नेता और लोकसभा में विपक्ष के नेता राहुल गांधी ने सरकार की लापरवाही को गंभीर चिंता बताया।

• “The **stampede** is the latest example of **India’s crumbling infrastructure**. The **Balasore train accident** in **June last year** claimed the **lives of 300 people**, but instead of **compensating the victims**, the **BJP government** has **entangled them in a long legal battle**,” he said.

“यह भगदड़ भारत के टूटते हुए बुनियादी ढांचे का ताजा उदाहरण है। पिछले साल जून में



बालासोर ट्रेन हादसे में 300 लोगों की जान गई, लेकिन पीड़ितों को मुआवजा देने के बजाय, भाजपा सरकार ने उन्हें लंबी कानूनी लड़ाई में उलझा दिया है," उन्होंने कहा।

• "Inaugurations and publicity are good only when there is a **foundation behind them that actually works to serve the public**. It is a **serious concern** when a **lack of maintenance and neglect of public property** lead to **loss of lives**."

"उद्घाटन और प्रचार केवल तभी अच्छे हैं जब उनके पीछे सार्वजनिक सेवा के लिए वास्तविक कार्य करने वाला आधार हो। रखरखाव की कमी और सार्वजनिक संपत्ति की उपेक्षा से जानें जाने पर यह एक गंभीर चिंता है।"

Criticism from Other Leaders

अन्य नेताओं की आलोचना

• **Shiv Sena (UBT) leader Sanjay Raut** said that **over 25 major railway accidents** had occurred in the **country**, claiming **over 100 lives**, since the **Modi government** came to power.

शिवसेना (यूबीटी) नेता संजय राउत ने कहा कि मोदी सरकार के सत्ता में आने के बाद से देश में 25 से अधिक बड़े रेलवे हादसे हो चुके हैं, जिनमें 100 से अधिक लोगों की जान गई है।

• He questioned, "What is the point of talking about **bullet trains, Metro, and high-speed trains**?"

उन्होंने सवाल किया, "बुलेट ट्रेन, मेट्रो और हाई-स्पीड ट्रेनों के बारे में बात करने का क्या मतलब है?"

• **Nationalist Congress Party (SP) president Jayant Patil** and **Sena (UBT) leader Aaditya Thackeray** criticised **Union Railway Minister Ashwini Vaishnaw**.

राष्ट्रवादी कांग्रेस पार्टी (एसपी) के अध्यक्ष जयंत पाटिल और शिवसेना (यूबीटी) नेता आदित्य ठाकरे ने केंद्रीय रेल मंत्री अश्विनी वैष्णव की आलोचना की।

• **Mr. Patil** said, "Mr. Vaishnaw had **time to come to Maharashtra for the BJP's election work** and promotion, but had **no time to visit the railway office** and take cognisance of the incident."

श्री पाटिल ने कहा, "श्री वैष्णव के पास बीजेपी के चुनाव कार्य और प्रचार के लिए महाराष्ट्र आने का समय था, लेकिन उनके पास रेलवे कार्यालय जाने और घटना का संज्ञान लेने का समय नहीं था।"

• After the **incident**, **Western Railway** placed **restrictions on the sale of platform tickets at major stations in the Mumbai division till November**



8 to manage crowding on platforms.

घटना के बाद, पश्चिम रेलवे ने मुंबई डिवीजन के प्रमुख स्टेशनों पर 8 नवंबर तक प्लेटफार्म टिकटों की बिक्री पर प्रतिबंध लगा दिया ताकि प्लेटफार्म पर भीड़ को नियंत्रित किया जा सके।

Report flags use of false financial cases to silence media

The Hindu Bureau
NEW DELHI

A new report from the World Association of News Publishers (WAN-IFRA) flags the growing trend of governments resorting to false charges of financial crimes to silence the press.

The report, titled "Misuse of economic charges to silence, threaten and attack the press: Review of case studies", documents eight different cases of media under attack for their independent journalism, including that of *NewsClick* from India.

The economic charges most frequently misused by regimes seeking to silence independent media and journalists were money laundering, tax evasion, blackmail, terrorism financing, fraud, and illegally receiving foreign funds.

Highlighting the impact of trumped-up economic charges, the report identifies five main trends. First, it notes that the "threat of

imprisonment that those economic charges pose has a strong chilling effect in the media community".

Second, since "financial charges correspond to criminal law, many prosecutions result in lengthy pre-trial detention, prison terms and hefty fines" and the consequences include "financial loss/ruin and closure of the media outlet's operations".

Freezing of assets

Another trend, the report notes, is that during the investigation and trial, journalists and media outlets are often "denied access to bank accounts and have their assets frozen, hampering their finances". Further, legal defence against such charges are costly and require "access to tax and criminal lawyers, accounting experts, and other legal expertise to which journalists and media outlets do not have easy access".

In cases where they do manage to access such ex-



Facing charges: *NewsClick* founder Prabir Purkayastha being taken to a court in New Delhi on October 10, 2023. PTI

pertise, "lawyers defending such cases are increasingly attacked".

Last, the report observes that the narratives put out around such charges aim to "label journalists as criminals, erode public support, and attack the journalist's or media outlet's reputation".

NewsClick case

These dynamics were evident in the case of the online news outlet *NewsClick*, whose offices and staff were raided in 2021 and

2023. Its founder Prabir Purkayastha and head of human resources Amit Chakravarty were arrested as part of an investigation into suspected foreign funding of the news portal.

Observing that "the charges are linked to the outlet's critical coverage of India's ruling political party", the report calls it a "worrying example of where broad anti-terrorism laws are applied to silence critical media outlets", and states that "it illustrates efforts to cut the

It says the threat of imprisonment in such cases poses a strong chilling effect in media community

few revenue streams for independent media in a country where all major outlets are aligned with the ruling party, the BJP".

The report details how "the almost endless investigation process under the PMLA [Prevention of Money Laundering Act] allowed authorities to search and seize *NewsClick*'s property and accounts" and "staff at *NewsClick* were detained under the Unlawful Activities Prevention Act (UAPA), also known as India's 'anti-terror' law". Both the PMLA and the amendments to the UAPA in 2009 were "brought in under the auspices of the global terror financing and money laundering watchdog, the Financial Action Task Force (FATF). But the misuse of these laws

against *NewsClick* is indicative of the abuse of anti-terror laws for political purposes", notes the report.

Significantly, the report notes that governments find financial crimes rather effective "in silencing media and journalists as they do not require the need for a link to content produced and are not subject to the same international scrutiny as laws explicitly targeting media".

The other case studies documented in the report include those of Abzas Media from Azerbaijan, El Faro from El Salvador, Erick Kabendera from Tanzania, Jimmy Lai from Hong Kong, Jose Ruben Zamora from Guatemala, Maria Ressa and Rappler from the Philippines, and Nika Gvaramia from Georgia.

The WAN-IFRA report was produced in collaboration with Inter American Press Association (IAPA), a non-profit dedicated to promoting press freedom in the Americas, and with the support of UNESCO.

A New Report from the World Association of News Publishers (WAN-IFRA)

वर्ल्ड एसोसिएशन ऑफ न्यूज़ पब्लिशर्स (WAN-IFRA) की नई रिपोर्ट

- A new report from the **World Association of News Publishers (WAN-IFRA)** flags the growing trend of governments resorting to false charges of financial crimes to silence the press.



- **वर्ल्ड एसोसिएशन ऑफ न्यूज़ पब्लिशर्स (WAN-IFRA)** की एक नई रिपोर्ट में सरकारों द्वारा वित्तीय अपराधों के झूठे आरोपों के ज़रिए प्रेस को चुप कराने की प्रवृत्ति को बढ़ता हुआ दिखाया गया है।
- The report, titled “**Misuse of economic charges to silence, threaten and attack the press: Review of case studies**”, documents eight different cases of media under attack for their independent journalism, including that of **NewsClick from India**.
- इस रिपोर्ट का शीर्षक "प्रेस को चुप, धमकी और हमला करने के लिए आर्थिक आरोपों का दुरुपयोग: केस स्टडी की समीक्षा" है, जिसमें स्वतंत्र पत्रकारिता के लिए मीडिया पर हमला किए गए **आठ विभिन्न मामलों** का दस्तावेजीकरण किया गया है, जिसमें **भारत का न्यूज़क्लिक** भी शामिल है।
- The economic charges most frequently misused by regimes seeking to silence independent media and journalists were **money laundering, tax evasion, blackmail, terrorism financing, fraud, and illegally receiving foreign funds**.
- स्वतंत्र मीडिया और पत्रकारों को चुप कराने के लिए सरकारों द्वारा सबसे अधिक दुरुपयोग किए जाने वाले आर्थिक आरोपों में **मनी लॉन्ड्रिंग, कर चोरी, ब्लैकमेल, आतंकवाद वित्त पोषण, धोखाधड़ी और अवैध रूप से विदेशी धन प्राप्त करना** शामिल हैं।

Trends Highlighted in the Report

रिपोर्ट में दर्शाई गई प्रवृत्तियां

- Highlighting the impact of trumped-up economic charges, the report identifies five main trends. **First**, it notes that the “threat of imprisonment that those economic charges pose has a strong chilling effect in the media community”. झूठे आर्थिक आरोपों के प्रभाव को उजागर करते हुए, रिपोर्ट में **पांच मुख्य प्रवृत्तियों** की पहचान की गई है। पहला, यह बताता है कि इन आर्थिक आरोपों से उत्पन्न जेल की धमकी का मीडिया समुदाय पर गहरा भय पैदा करने वाला प्रभाव होता है।
- **Second**, since “financial charges correspond to criminal law, many prosecutions result in **lengthy pretrial detention, prison terms and hefty fines**” and the consequences include “financial loss/ruin and closure of the media outlet’s operations”. दूसरा, चूंकि वित्तीय आरोप



आपराधिक कानून से मेल खाते हैं, कई अभियोगों का परिणाम लंबी पूर्व-ट्रायल हिरासत, जेल की सज़ा और भारी जुर्माने में होता है, और इसके परिणामस्वरूप वित्तीय नुकसान/विनाश और मीडिया आउटलेट की गतिविधियों का बंद होना शामिल है।

- Another trend, the report notes, is that during the investigation and trial, journalists and media outlets are often “denied access to bank accounts and have their **assets frozen, hampering their finances**”. एक और प्रवृत्ति जो रिपोर्ट में नोट की गई है, वह यह है कि जांच और मुकदमे के दौरान पत्रकारों और मीडिया आउटलेट्स को अक्सर बैंक खातों तक पहुंच से वंचित किया जाता है और उनकी संपत्तियां फ्रीज कर दी जाती हैं, जिससे उनकी वित्तीय स्थिति पर प्रतिकूल प्रभाव पड़ता है।
- Further, legal defense against such charges are costly and require “access to **tax and criminal lawyers, accounting experts**, and other legal expertise to which journalists and media outlets do not have easy access”. इसके अतिरिक्त, ऐसे आरोपों के खिलाफ कानूनी बचाव महंगा होता है और इसमें कर और आपराधिक वकीलों, लेखा विशेषज्ञों और अन्य कानूनी विशेषज्ञता की आवश्यकता होती है, जिन तक पत्रकारों और मीडिया आउटलेट्स की पहुंच आसान नहीं होती।
- In cases where they do manage to access such expertise, “lawyers defending such cases are increasingly **attacked**”. ऐसे मामलों में जहां वे इस प्रकार की विशेषज्ञता तक पहुंच प्राप्त करने में सक्षम होते हैं, ऐसे मामलों का बचाव करने वाले वकीलों पर हमले बढ़ते जा रहे हैं।
- Last, the report observes that the narratives put out around such charges aim to “label journalists as **criminals, erode public support**, and attack the journalist’s or media outlet’s **reputation**”. अंत में, रिपोर्ट में यह देखा गया है कि ऐसे आरोपों के आसपास जो कथाएँ सामने आती हैं, वे पत्रकारों को अपराधी के रूप में लेबल करने, सार्वजनिक समर्थन को घटाने, और पत्रकार या मीडिया आउटलेट की साख पर हमला करने का लक्ष्य रखती हैं।

NewsClick Case

न्यूज़क्लिक का मामला



- These dynamics were evident in the case of the online news outlet **NewsClick**, whose offices and staff were raided in **2021** and **2023**. Its founder **Prabir Purkayastha** and head of human resources **Amit Chakravarty** were arrested as part of an investigation into suspected foreign funding of the news portal. यह घटनाक्रम ऑनलाइन न्यूज़ आउटलेट न्यूज़क्लिक के मामले में स्पष्ट दिखाई दिया, जिसके कार्यालयों और कर्मचारियों पर **2021** और **2023** में छापे मारे गए थे। इसके संस्थापक **प्रबीर पुरकायस्थ** और मानव संसाधन प्रमुख **अमित चक्रवर्ती** को न्यूज़ पोर्टल की संदिग्ध विदेशी फंडिंग की जांच के हिस्से के रूप में गिरफ्तार किया गया था।
- Observing that “the charges are linked to the outlet’s **critical coverage of India’s ruling political party**”, the report calls it a “worrying example of where **broad anti-terrorism laws** are applied to silence critical media outlets”. यह बताते हुए कि “आरोप **भारत की सत्तारूढ़ राजनीतिक पार्टी** की आलोचनात्मक कवरेज से जुड़े हैं,” रिपोर्ट इसे एक **चिंताजनक उदाहरण** कहती है जहां **व्यापक आतंकवाद विरोधी कानूनों** का उपयोग महत्वपूर्ण मीडिया आउटलेट्स को चुप कराने के लिए किया गया है।
- The report details how “the almost endless investigation process under the **PMLA (Prevention of Money Laundering Act)** allowed authorities to **search and seize** NewsClick’s property and accounts”. रिपोर्ट में यह विस्तार से बताया गया है कि **पीएमएलए (मनी लॉन्ड्रिंग निवारण अधिनियम)** के तहत **लगभग अंतहीन जांच प्रक्रिया** ने अधिकारियों को न्यूज़क्लिक की संपत्ति और खातों की **तलाशी और जब्ती** की अनुमति दी।
- “Staff at NewsClick were detained under the **Unlawful Activities Prevention Act (UAPA)**, also known as **India’s ‘anti-terror’ law**”. “न्यूज़क्लिक के कर्मचारियों को **गैरकानूनी गतिविधियां रोकथाम अधिनियम (यूएपीए)** के तहत हिरासत में लिया गया, जिसे **भारत का 'आतंक विरोधी' कानून** भी कहा जाता है।”
- Both the PMLA and the amendments to the **UAPA in 2009** were “brought in under the auspices of the **global terror financing and money laundering watchdog, the Financial Action Task Force (FATF)**”. **पीएमएलए और यूएपीए** में **2009** में संशोधन को **वैश्विक आतंक वित्त**



पोषण और मनी लॉन्ड्रिंग निगरानी संस्था वित्तीय कार्रवाई कार्य बल (एफएटीएफ) के तहत लाया गया था।

International Case Studies and Support

अंतरराष्ट्रीय केस स्टडीज़ और समर्थन

- The other case studies documented in the report include those of **Abzas Media from Azerbaijan, El Faro from El Salvador, Erick Kabendera from Tanzania, Jimmy Lai from Hong Kong, Jose Ruben Zamora from Guatemala, Maria Ressa and Rappler from the Philippines, and Nika Gvaramia from Georgia.** रिपोर्ट में दस्तावेजीकरण किए गए अन्य मामलों में अज़रबैजान के अब्जास मीडिया, अल साल्वाडोर के एल फारो, तंजानिया के एरिक कबेंदेरा, हांगकांग के जिमी लाई, ग्वाटेमाला के जोस रुबेन ज़मोरा, फिलीपींस की मारिया रेसा और रैपलर, और जॉर्जिया के निका ग्वारामिया शामिल हैं।
- The **WAN-IFRA report** was produced in collaboration with the **Inter American Press Association (IAPA)**, a **non-profit** dedicated to promoting press freedom in the **Americas**, and with the support of **UNESCO**. WAN-IFRA रिपोर्ट को अंतर अमेरिकी प्रेस संघ (IAPA) के साथ मिलकर तैयार किया गया था, जो अमेरिका में प्रेस स्वतंत्रता को बढ़ावा देने के लिए समर्पित एक गैर-लाभकारी संगठन है, और इसमें यूनेस्को का समर्थन शामिल था।



India's Nature Conservation Index rank 176, govt. slammed

PCS
PRESS TRUST OF INDIA

GS Paper III: Environment

The Congress on Sunday took a swipe at the BJP government over India reportedly being ranked 176 out of 180 countries on the Nature Conservation Index. Adding, "Should the bona fides of Israel's Ben Gurion University that co-developed the index be also questioned?"

There was no immediate reaction from the government on the reported ranking.

Congress general secretary in-charge communications Jairam Ramesh said, "Whenever India gets a very low rank on some global index or the other, the immediate response of the non-biological PM's drumbeaters and cheerleaders is to attack the index itself as a plot to defame India by agenda-driven busybody NGOs." But what will be the response to the just-released Nature Conservation Index in which India ranks a miserable 176th out of 180 countries, he asked.

"This Index has been co-developed by Israel's Ben Gurion University. Will the bona fides of this university too be questioned?" Mr. Ramesh said.

India has scored low in the Global Nature Conservation Index, ranking 176 out of 180 countries. It is placed just above Kiribati which ranked 180, Turkey (179), Iraq (178) and Micronesia (177), according to reports.

Congress Takes Swipe at BJP Government over Nature Conservation Index Ranking कांग्रेस ने नेचर कंजर्वेशन इंडेक्स में रैंकिंग पर बीजेपी सरकार पर साधा निशाना

- The Congress on Sunday took a swipe at the BJP government over India reportedly being ranked 176 out of 180 countries on the Nature Conservation Index.
- रविवार को कांग्रेस ने भारत के नेचर कंजर्वेशन इंडेक्स में 180 में से 176 रैंक हासिल करने पर बीजेपी सरकार पर तंज कसा।
- Adding, "Should the bona fides of Israel's Ben Gurion University that co-developed the index be also questioned." कांग्रेस ने कहा, "क्या इस इंडेक्स के सह-विकासक इज़राइल के बेन गुरियन यूनिवर्सिटी की विश्वसनीयता पर भी सवाल उठना चाहिए?"
- There was no immediate reaction from the government on the reported ranking.
- रिपोर्टेड रैंकिंग पर सरकार की ओर से कोई तत्काल प्रतिक्रिया नहीं आई।
- Congress general secretary in-charge communications Jairam Ramesh said, "Whenever India gets a very low rank on some global index or the other, the immediate response of the non-biological PM's drumbeaters and cheerleaders is to attack the index itself as a plot to defame India by agenda-driven busybody NGOs."
- कांग्रेस महासचिव (संचार) जयराम रमेश ने कहा, "जब भी भारत को किसी वैश्विक सूचकांक पर बहुत कम रैंक मिलती है, तो प्रधानमंत्री के समर्थक इसे भारत को बदनाम करने की साजिश बताते हैं।"
- But what will be the response to the just-released Nature Conservation Index in which India ranks a miserable 176th out of 180 countries, he asked.
- उन्होंने पूछा कि इस हाल ही में जारी नेचर कंजर्वेशन इंडेक्स में जिसमें भारत की 180 में से 176वीं रैंक है, इस पर प्रतिक्रिया क्या होगी।
- "This Index has been co-developed by Israel's Ben Gurion University. Will the bona fides of this university too be questioned?" Mr. Ramesh said.
- रमेश ने कहा, "इस इंडेक्स को इज़राइल के बेन गुरियन यूनिवर्सिटी द्वारा सह-विकसित किया गया है। क्या इस विश्वविद्यालय की विश्वसनीयता पर भी सवाल उठाए जाएंगे?"



- India has scored low in the **Global Nature Conservation Index**, ranking **176 out of 180 countries**.

Union govt. defends Aadhaar-based wage payment for workers

GS Paper II:
Government Polity

The Union Rural Development Ministry, in a statement on Sunday, defended using the Aadhaar-based Payment System (ABPS) for MGNREGS workers, calling it a "major reform" that helps in better targeting, increased efficiency, reducing delays in payments, and greater inclusion by curbing leakages.

The Ministry was reacting to a report by LibTech, a consortium of activists and academics, pointing to the high rate of deletion of workers enrolled under the programme that coincides with the government's insistence on using the ABPS for wage payments.

From January 1 this year, the ABPS has been made mandatory. Between April and September, 84.8 lakh workers were removed from the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). At the same time, only 45.4 lakh new workers had

been added, with net deletion of workers standing at 39.3 lakh.

The Ministry said that ABPS conversion was a major reform process, where benefits are credited directly into bank accounts based on the Aadhaar numbers of workers under the MGNREGS, doing away with several layers in the delivery process.

As on October 26, the Centre said that 13.1 crore active workers, or 99.3% of the total number of active workers, are eligible for ABPS.

"It is a fallacious argument that workers' demand for work is not registered if their accounts are not ABPS-enabled and that their wages remain unpaid because of this reason. In case of non-eligible workers, whose ABPS is still pending, States/UTs have been requested to sensitise all banks to ensure timely seeding of Aadhaar numbers of NREGS beneficiaries into NPCI (National Payments Corporation of India) mapper," the Ministry said.

● ग्लोबल नेचर कंजर्वेशन इंडेक्स में भारत का स्कोर कम है, जिसमें 180 देशों में से 176वाँ रैंक है।

● It is placed just above **Kiribati (180)**, **Turkey (179)**, **Iraq (178)**, and **Micronesia (177)**, according to reports. रिपोर्ट के अनुसार, भारत किरिबाती (180), तुर्की (179), इराक (178), और माइक्रोनेशिया (177) के ठीक ऊपर है।

Union Rural Development Ministry Defends ABPS for MGNREGS Workers

केंद्रीय ग्रामीण विकास मंत्रालय ने

MGNREGS कर्मचारियों के लिए ABPS

का समर्थन किया

● The **Union Rural Development Ministry** defended using the **Aadhaar-based Payment System (ABPS)** for **MGNREGS** workers, calling it a "major reform" that helps in better targeting, increased efficiency, reducing delays in payments, and greater inclusion by curbing **leakages**.

केंद्रीय ग्रामीण विकास मंत्रालय ने **MGNREGS** कर्मचारियों के लिए **आधार-आधारित भुगतान प्रणाली (ABPS)** के उपयोग का समर्थन करते हुए इसे "महत्वपूर्ण सुधार" कहा, जो बेहतर लक्ष्यीकरण, अधिक दक्षता, भुगतान में देरी को कम करने और **लीकेज को रोककर** समावेशन को बढ़ावा देने में सहायक है।

● The **Ministry** was reacting to a report by **LibTech**, a consortium of **activists** and **academics**, pointing to the high rate of **deletion** of workers enrolled under the program that coincides with the government's insistence on using the ABPS for **wage payments**.

मंत्रालय ने कार्यकर्ताओं और शिक्षाविदों के LibTech के एक रिपोर्ट पर प्रतिक्रिया व्यक्त की, जिसमें कार्यक्रम में नामांकित कर्मचारियों को **हटाने** की उच्च दर का जिक्र किया गया, जो **वेतन भुगतान** के लिए ABPS के उपयोग पर सरकार के जोर देने के साथ मेल खाता है।



- From **January 1** this year, the **ABPS** has been made **mandatory**. Between **April and September**, **84.8 lakh workers** were removed from the **MGNREGS**. At the same time, only **45.4 lakh** new workers had been added, with a **net deletion** of workers standing at **39.3 lakh**.

इस वर्ष 1 जनवरी से ABPS को अनिवार्य कर दिया गया है। अप्रैल से सितंबर के बीच, 84.8 लाख कर्मचारी MGNREGS से हटाए गए। इसी समय, केवल 45.4 लाख नए कर्मचारी जोड़े गए, जिसमें कुल 39.3 लाख कर्मचारियों की कमी रही।

- The **Ministry** said that **ABPS conversion** was a major reform process, where benefits are credited directly into **bank accounts** based on the **Aadhaar numbers** of workers under the **MGNREGS**, doing away with several layers in the **delivery process**.
मंत्रालय ने कहा कि ABPS रूपांतरण एक महत्वपूर्ण सुधार प्रक्रिया थी, जिसमें लाभ सीधे बैंक खातों में जमा किए जाते हैं, जो MGNREGS के तहत श्रमिकों के आधार नंबरों पर आधारित होते हैं, जिससे वितरण प्रक्रिया की कई परतें समाप्त हो जाती हैं।

- As on **October 26**, the Centre said that **13.1 crore active workers**, or **99.3%** of the total number of active workers, are eligible for **ABPS**.
26 अक्टूबर तक, केंद्र ने कहा कि 13.1 करोड़ सक्रिय श्रमिक, या सक्रिय श्रमिकों की कुल संख्या का 99.3%, ABPS के लिए पात्र हैं।

- "It is a fallacious argument that workers' demand for work is not registered if their accounts are not **ABPS-enabled** and that their **wages** remain unpaid because of this reason. In case of non-eligible workers, whose **ABPS** is still pending, **States/UTs** have been requested to **sensitise** all banks to ensure timely seeding of **Aadhaar numbers** of **NREGS beneficiaries** into **NPCI** (National Payments Corporation of India) **mapper**," the **Ministry** said.

"यह एक गलत तर्क है कि यदि श्रमिकों के खाते ABPS-सक्षम नहीं हैं तो उनके कार्य की मांग दर्ज नहीं होती है और इस कारण से उनकी मजदूरी नहीं दी जाती है। अयोग्य श्रमिकों के मामले में, जिनका ABPS अभी भी लंबित है, राज्यों/संघ राज्य क्षेत्रों से सभी बैंकों को संवेदनशील बनाने का अनुरोध किया गया है ताकि NREGS लाभार्थियों के आधार नंबर को NPCI (भारतीय राष्ट्रीय भुगतान निगम) मैपर में समय पर शामिल किया जा सके," मंत्रालय ने कहा।



PM cautions people against 'digital arrest' scam by fraudsters

Instead of panicking, people should dial the national cyberhelpline number 1930, and report the incident on cybercrime.gov.in, Modi says

GS Paper III: Cyber Crime

The Hindu Bureau
NEW DELHI

Prime Minister Narendra Modi on Sunday cautioned people against the "digital arrest" scam that defrauds victims of their hard-earned money, and asked them to report such cases to the cyberhelpline.

Stating that the probe agencies were working together with State governments to deal with the issue, Mr. Modi urged schools and colleges to involve students in the campaign to spread awareness of the menace.

During his *Mann Ki Baat* address, Mr. Modi said fraudsters made phone or video calls to prospective victims, posing as officials from law enforcement agencies, and at times from the Reserve Bank of India.

"The first move is that they collect all of your personal information; the second move is to create an atmosphere of fear by presenting themselves in agency uniforms with a government office-like background and quoting legal



The Prime Minister says the National Cyber Coordination Centre has been set up to take action against cyberfrauds. PTI

provisions," Mr. Modi said, adding that the next move of the fraudsters was to increase psychological pressure by threatening to arrest the victims.

Stop-Think-Take Action
"Whenever you receive such a call, don't be scared. You should be aware that no investigative agency inquires like this through a phone or video call. The three steps to digital security are – Stop-Think-Take Action," he said.

Instead of panicking, people should dial the national cyberhelpline number 1930, report the inci-

dent on cybercrime.gov.in, inform their families and the police, and preserve evidence, Mr. Modi said.

For effective action against cyberfrauds, the National Cyber Coordination Centre has been set up, he said.

"Thousands of such fraudulent video calling IDs have been blocked by the agencies. Lakhs of SIM cards, mobile phones and bank accounts have also been blocked. The agencies are doing their job, but for protection from scams in the name of digital arrest, it is important that every citizen is aware," Mr. Modi said.

CERT-In releases advisory on online scams

GS Paper III: Cyber Crime

NEW DELHI

The Computer Emergency Response Team of India (CERT-In) on Sunday shared a list of ways in which online scams are being perpetrated by fraudsters in the country, including "digital arrest".

The public advisory talks about more than a dozen ways fraudsters use to dupe people and steal their money and private data.

The advisory suggested a host of practices and countermeasures to stay vigilant against such crimes and not give in to the "pressure tactics" deployed by cybercriminals, who seek quick action by creating "a sense of urgency".

The CERT-In advisory said "digital arrest" is an online scam as "government agencies do not use platforms like WhatsApp or Skype for official communication".

It stressed that people should not transfer money "under pressure" as legitimate law-enforcement agencies "will never pressure you into sending money immediately".

The advisory said staying "vigilant and informed" is crucial to protect oneself from this "emerging cyber threat".



Prime Minister cautions against 'Digital Arrest' Scam

प्रधानमंत्री ने 'डिजिटल गिरफ्तारी' घोटाले के प्रति सचेत किया

- Prime Minister **Narendra Modi** cautioned people against the "digital arrest" scam that defrauds victims of their hard-earned money, urging them to report such cases to the **cyberhelpline**.
प्रधानमंत्री **नरेंद्र मोदी** ने लोगों को उनकी मेहनत की कमाई को ठगने वाले 'डिजिटल गिरफ्तारी' घोटाले के प्रति सतर्क किया और ऐसे मामलों की **साइबर हेल्पलाइन** में रिपोर्ट करने का आग्रह किया।
- He stated that **probe agencies** are working together with **State governments** to address this issue.
उन्होंने कहा कि **जांच एजेंसियां** इस मुद्दे के समाधान के लिए **राज्य सरकारों** के साथ मिलकर काम कर रही हैं।
- Modi urged **schools and colleges** to involve students in the campaign to spread awareness about this menace.
मोदी ने **स्कूलों और कॉलेजों** से इस खतरे के बारे में जागरूकता फैलाने के लिए छात्रों को शामिल करने का आग्रह किया।

Scam Details and Modi's Advice

घोटाले का विवरण और मोदी की सलाह

- During his **Mann Ki Baat** address, Mr. Modi said fraudsters make phone or video calls, pretending to be officials from **law enforcement agencies** or sometimes from the **Reserve Bank of India (RBI)**.
अपने **मन की बात** संबोधन में, मोदी ने कहा कि ठग फोन या वीडियो कॉल कर **कानून प्रवर्तन एजेंसियों** या कभी-कभी **भारतीय रिजर्व बैंक (RBI)** के अधिकारियों के रूप में पेश आते हैं।
- "The first step is gathering all of your **personal information**; the second step is creating fear by presenting themselves in **agency uniforms** with a **government office-like background** and quoting **legal provisions**," he explained.
"पहला कदम है आपकी **व्यक्तिगत जानकारी** एकत्र करना; दूसरा कदम है **एजेंसी की वर्दी** में **सरकारी कार्यालय** जैसी **पृष्ठभूमि** के साथ खुद को पेश कर **कानूनी प्रावधानों** का हवाला देकर डर बनाना," उन्होंने समझाया।
- Next, fraudsters increase **psychological pressure** by threatening **arrest**.
इसके बाद, ठग **गिरफ्तारी** की धमकी देकर **मनोवैज्ञानिक दबाव** बढ़ाते हैं।

Stop-Think-Take Action Approach

रुकें-सोचें-कदम उठाएँ का दृष्टिकोण

- "Whenever you receive such a call, don't be scared. Be aware that no investigative agency inquires through a **phone or video call**," he advised.
"जब भी आपको ऐसा कॉल आए, तो डरे नहीं। जान लें कि कोई भी **जांच एजेंसी** फोन या वीडियो कॉल के माध्यम से पूछताछ नहीं करती," उन्होंने सलाह दी।
- He suggested following **Stop-Think-Take Action steps** for digital security.
उन्होंने डिजिटल सुरक्षा के लिए **रुकें-सोचें-कदम उठाएँ** कदमों का पालन करने की सलाह दी।



- Instead of panicking, people should call the **national cyberhelpline number 1930**, report on **cybercrime.gov.in**, inform their families, and preserve **evidence**.
घबराने के बजाय, लोग **राष्ट्रीय साइबर हेल्पलाइन नंबर 1930** पर कॉल करें, **cybercrime.gov.in** पर रिपोर्ट करें, अपने परिवार को सूचित करें और **सबूत सुरक्षित रखें**।

Efforts Against Cyberfraud

साइबर ठगी के खिलाफ प्रयास

- For effective action, the **National Cyber Coordination Centre** has been established.
प्रभावी कार्रवाई के लिए **राष्ट्रीय साइबर समन्वय केंद्र** की स्थापना की गई है।
- Thousands of fraudulent **video calling IDs**, along with **SIM cards, mobile phones, and bank accounts**, have been blocked.
हजारों धोखाधड़ी वाले **वीडियो कॉलिंग आईडी, सिम कार्ड, मोबाइल फोन और बैंक खाते** ब्लॉक किए गए हैं।
- Modi highlighted that while agencies are doing their job, every citizen needs to be aware of protection against scams in the name of **digital arrest**.
मोदी ने बताया कि एजेंसियां अपना काम कर रही हैं, लेकिन **डिजिटल गिरफ्तारी** के नाम पर घोटाले से बचाव के लिए हर नागरिक को सतर्क रहना चाहिए।

CERT-In Advisory on Online Scams

ऑनलाइन धोखाधड़ी पर CERT-In की सलाह

- The **Computer Emergency Response Team of India (CERT-In)** on **Sunday** issued a public advisory listing various **online scam** techniques, including "**digital arrest**."

भारत की कंप्यूटर इमरजेंसी रिस्पॉंस टीम (CERT-In) ने रविवार को एक सार्वजनिक सलाह जारी की जिसमें

"**डिजिटल गिरफ्तारी**" सहित ऑनलाइन धोखाधड़ी के कई तरीके बताए गए हैं।

- The advisory explains **over a dozen ways** scammers trick people to steal **money and private data**.

इस सलाह में बताया गया है कि **धोखेबाज** लोगों को ठगने और उनकी **निजी जानकारी और पैसा** चुराने के लिए **दर्जनों तरीके** अपनाते हैं।

- It recommends a range of **precautions** and **countermeasures** to stay alert and avoid giving in to **pressure tactics** often used by **cybercriminals** to create a **sense of urgency**.

इसमें जनता को **सतर्क** रहने और **साइबर अपराधियों** द्वारा इस्तेमाल किए जाने वाले **प्रेसर टैक्टिक्स** से बचने के लिए **विभिन्न उपायों** का सुझाव दिया गया है, जो **जल्दी कार्रवाई** करवाने के लिए **तत्कालता का माहौल** बनाते हैं।

- CERT-In clarified that "**digital arrest**" is an **online scam** as **government agencies** do not use platforms like **WhatsApp or Skype** for **official communication**.

CERT-In ने स्पष्ट किया कि "**डिजिटल गिरफ्तारी**" एक ऑनलाइन धोखाधड़ी है क्योंकि सरकारी एजेंसियां **व्हाट्सएप या स्काइप** जैसे प्लेटफार्म का **औपचारिक संचार** के लिए उपयोग नहीं करतीं।

- People should not transfer money "**under pressure**" as legitimate **law-enforcement agencies** will **never pressure** anyone to send **money immediately**.

लोगों को **दबाव में आकर** पैसे नहीं भेजने चाहिए क्योंकि **वास्तविक कानून प्रवर्तन एजेंसियां** कभी **तुरंत पैसे भेजने का दबाव नहीं डालतीं**।

- The advisory stresses that staying **vigilant and informed** is essential to protect oneself from this **emerging cyber threat**.

सलाह में बताया गया है कि इस **उभरते साइबर खतरे** से **सुरक्षित** रहने के लिए **सतर्क और सूचित रहना महत्वपूर्ण** है।



New rocket, plus moon and Venus missions, herald new beginnings

Building on the moon landing, ISRO is now planning a Venus mission and further moon exploration. A new launcher is being developed as the private sector also begins to take a hand in the space effort. A green propulsion system and low earth orbit satellite developed in the private sector will be seen in action soon

GS Paper III: S&T

INDIA IN SPACE

Pradeep Mohandas

Preview: The Indian government recently signed off on numerous new projects, including work on a new rocket and new moon and Venus missions. The space programme is thus on the cusp of important new beginnings. India is also preparing to launch the NISAR and Proba-3 satellites, and has received some good news from Astrosat. The private sector is also working on satellite projects of its own.

A slew of approvals

The Union Cabinet on September 18 approved four missions under the 'Gaganyaan' human spaceflight programme and four missions to test technologies for India's first space station, the Bharatiya Antariksh Station 1, by 2028. The Indian Space Research Organisation (ISRO) also added one uncrewed Gaganyaan flight in addition to the planned two.

The Cabinet approved an additional funding of ₹11,170 crore for the four Station-related missions and the additional Gaganyaan flight.

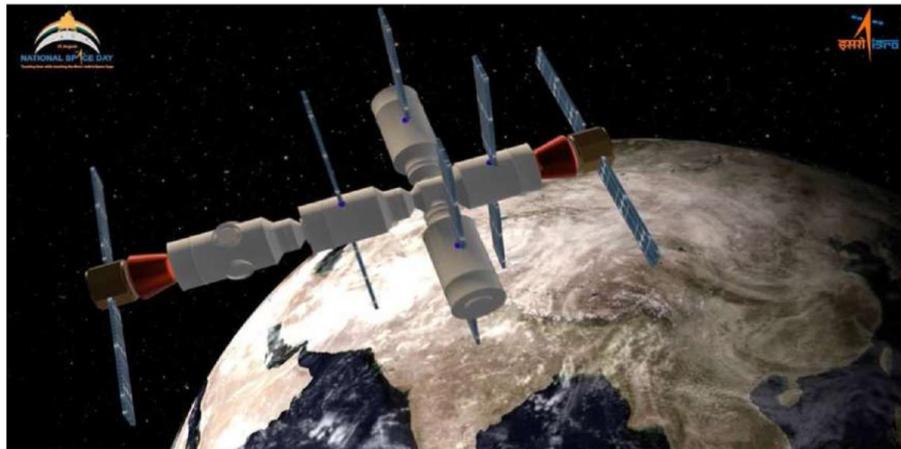
The Cabinet also approved ISRO's development of the Next Generation Launch Vehicle (NGLV) for ₹8,240 crore. This includes the cost of the rocket's first three development flights. ISRO is expected to develop the vehicle in collaboration with industry, so that industry players can seamlessly take over for operational flights when the rocket is tested and ready.

A Polar Satellite Launch Vehicle (PSLV) built by Hindustan Aeronautics, Ltd. and Larsen & Toubro is expected to launch at the end of 2024 or early 2025. Likewise, New Space India, Ltd. is expected to select a private entity to commercialise the LVM-3 rocket.

The Cabinet has also approved a scientific mission to Venus and the next Chandrayaan mission to the Moon. The Venus Orbiter Mission is expected to be launched in a window available in March 2028 and will cost ₹1,236 crore. With the mission, scientists hope to study the planet's acerbic surface and atmosphere to understand how different planets of the Solar System evolved.

Chandrayaan-4 and LUPEX

Chandrayaan-4 will be a sample-return mission. Its components will be launched on two separate LVM-3 launch vehicles; they will dock in earth orbit before going to the moon, and land on the surface near the location of Chandrayaan 3. There the mission will scoop up some samples of



An artist's rendering of the Bharatiya Antariksh Station in earth orbit. ISRO

moon soil and rock and send them back to the earth onboard a bespoke canister. The mission is expected to be launched by 2027 and cost ₹2,104 crore.

The Space Commission also approved a joint moon mission with Japan called the Lunar Polar Exploration Mission (LUPEX). For LUPEX, ISRO is developing a different moon lander than the one it used for Chandrayaan-3, and which it hopes can be used in crewed lunar missions in future.

The Commission also signed off on the development of a third launch pad at Sriharikota, which ISRO will need to test and launch the NGLV.

SBS and Axiom-4

The Cabinet Committee on Security approved the third phase of the Space Based Surveillance (SBS) missions on October 11. For this, ISRO will build 21 satellites and private companies will build another 31, for ₹26,968 crore in all. This is a significant improvement over the four satellites ISRO built for SBS-1 in 2001 and six for SBS-2 in 2013.

India's astronaut-designate Sudhanshu Shukla had his space suit measured and also underwent pressurisation tests at the SpaceX headquarters. The event marks the official start of his 10-day training programme before he will fly to the International Space Station aboard the Axiom-4 mission next year.

Satellites en route to India

The NASA-ISRO Synthetic Aperture Radar (NISAR) is an earth-observation satellite whose radar antenna reflector recently

The Space Commission also approved a joint moon mission with Japan called the Lunar Polar Exploration Mission. For LUPEX, ISRO is developing a different moon lander than the one it used for Chandrayaan-3

landed in India from the Jet Propulsion Lab in California. Earlier, tests in India had revealed it may experience higher temperatures than expected during its launch. It had to be flown back to receive a protective coating. ISRO is expected to launch NISAR in early 2025 on board a Geosynchronous Satellite Launch Vehicle.

The other mission, Proba-3 from Europe, will study the Sun's corona. It will have two satellites flying in formation: one will gaze at the Sun while the other will block the first satellite's view of the Sun's central area, like creating an eclipse, leaving only light from the corona to hit the cameras. The European Space Agency has said Proba 3 is expected to launch on board a PSLV-XL vehicle on November 29. India previously launched Proba-1 on the PSLV-C3 mission, in 2001.

From the private sector

Manastu Space signed an agreement with Dhruva Space to test its green propulsion technology to power the latter's Launching Expeditions for Aspiring Payloads (LEAP-3) mission. LEAP-3 will carry payloads from different companies in 2025. Manastu is developing a green

propulsion system using a hydrogen-peroxide-based fuel. It first tested LEAP on the PSLV-C58 mission on January 1 this year.

Bellatrix Aerospace unveiled 'Project 200', a prototype for a satellite that can fly at an altitude of 200 km. a.k.a. the ultra-low earth orbit.

Ananth Technologies became the first private Indian company to assemble, integrate, and test two Space Docking Experiment (SpaDEX) satellites for ISRO at the company's facility in Bengaluru. The satellite was then sent to the U.R. Rao Satellite Center (URSC) in the same city.

Space science

Scientists have found that the crater where Chandrayaan-3 landed is older than the South Pole Aitken Basin, itself 4.2-4.3 billion years old.

This was based on data from the Optical High-Resolution Camera onboard the Chandrayaan-2 orbiter and navigational cameras on board Pragyaan, the Chandrayaan-3 rover.

Astrosat, India's first multi-wavelength space observatory, was built with a mission life of five years but has now operated for nine. Based on fuel readings, it is expected to last for another two years. The data collected by the observatory has been the basis of more than 400 published papers.

(Pradeep Mohandas is a technical writer and space enthusiast in Pune. pradeep.mohandas@gmail.com)

'India in Space' will collect and analyse developments in the country's space, spaceflight, and allied sectors.)

THE GIST

Four missions under the 'Gaganyaan' programme and four to test technologies for an Indian space station have been approved. ISRO also added one uncrewed Gaganyaan mission

The Cabinet approved ISRO's development of the Next Generation Launch Vehicle for ₹8,240 crore. ISRO is expected to develop the vehicle with industry, so they can take over for operational flights

Approval has been granted for a mission to Venus and the next Chandrayaan mission. The Venus Orbiter is expected to be launched in March 2028. Scientists hope to study the planet's acerbic surface

As part of an expansion of Space Based Surveillance, ISRO will build 21 satellites and private companies will build another 31, at a cost of ₹26,968 crore. ISRO built four satellites for SBS-1 in 2001 and six for SBS-2 in 2013

New rocket, plus moon and Venus missions, herald new beginnings

Website: patrioticias.in
Telegram Channel: <https://t.me/patrioticIAS>



नया रॉकेट, चंद्रमा और शुक्र मिशनों के साथ एक नई शुरुआत का

संकेत

• The **Indian government** recently signed off on **numerous new projects**, including work on a **new rocket** and **new moon and Venus missions**. The **space programme** is thus on the cusp of important new beginnings.

भारतीय सरकार ने हाल ही में कई नए प्रोजेक्ट की मंजूरी दी है, जिसमें एक नया रॉकेट और चंद्रमा और शुक्र के लिए नए मिशन शामिल हैं। इस तरह से अंतरिक्ष कार्यक्रम महत्वपूर्ण नए शुरुआत के कगार पर है।

• **India** is also preparing to launch the **NISAR** and **Proba-3 satellites**, and has received some good news from **Astrosat**.

भारत **NISAR** और **Proba-3 उपग्रह** को लॉन्च करने की तैयारी कर रहा है और **Astrosat** से कुछ अच्छी खबरें प्राप्त हुई हैं।

• The **private sector** is also working on **satellite projects** of its own.

निजी क्षेत्र भी अपनी स्वयं की उपग्रह परियोजनाओं पर काम कर रहा है।

A slew of approvals

स्वीकृतियों की श्रृंखला

• The **Union Cabinet** on **September 18** approved **four missions** under the '**Gaganyaan**' **human spaceflight programme** and four missions to **test technologies** for **India's first space station**, the **Bharatiya Antariksh Station 1**, by **2028**.

केंद्रीय कैबिनेट ने 18 सितंबर को 'गगनयान' मानव अंतरिक्ष उड़ान कार्यक्रम के तहत चार मिशन और भारत का पहला अंतरिक्ष स्टेशन भारतीय अंतरिक्ष स्टेशन 1 के लिए तकनीकी परीक्षण के चार मिशन 2028 तक स्वीकृत किए।

• The **Indian Space Research Organisation (ISRO)** also added **one uncrewed Gaganyaan flight** in addition to the planned **two**.

भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने योजना में दो के अलावा एक और मानवरहित गगनयान उड़ान को जोड़ा है।

• The **Cabinet** approved an additional **funding of ₹11,170 crore** for the four **Station-related missions** and the additional **Gaganyaan flight**.

कैबिनेट ने चार स्टेशन-संबंधित मिशन और अतिरिक्त गगनयान उड़ान के लिए ₹11,170 करोड़ की अतिरिक्त धनराशि को मंजूरी दी।

Next Generation Launch Vehicle Development

नेक्स्ट जनरेशन लॉन्च वाहन विकास

• The **Cabinet** also approved **ISRO's development of the Next Generation Launch Vehicle (NGLV)** for **₹8,240 crore**. This includes the cost of the rocket's **first three development flights**.

कैबिनेट ने ₹8,240 करोड़ में इसरो के नेक्स्ट जनरेशन लॉन्च वाहन (NGLV) के विकास को भी स्वीकृति दी, जिसमें रॉकेट की पहली तीन विकास उड़ानों की लागत शामिल है।

• **ISRO** is expected to develop the vehicle in collaboration with **industry**, so that **industry players** can seamlessly take over for **operational flights** when the rocket is tested and ready.



इसरो के उद्योग के साथ सहयोग में इस वाहन को विकसित करने की उम्मीद है ताकि जब रॉकेट परीक्षण और तैयार हो जाए, तो औद्योगिक खिलाड़ी ऑपरेशनल उड़ानों का कार्यभार आसानी से संभाल सकें।

Upcoming Launches and Collaborations

आगामी प्रक्षेपण और सहयोग

• A Polar Satellite Launch Vehicle (PSLV) built by Hindustan Aeronautics, Ltd. and Larsen & Toubro is expected to launch at the end of 2024 or early 2025.

हिंदुस्तान एयरोनॉटिक्स लिमिटेड और लार्सन एंड टुब्रो द्वारा निर्मित एक ध्रुवीय उपग्रह प्रक्षेपण वाहन (PSLV) 2024 के अंत या 2025 की शुरुआत में प्रक्षेपित होने की उम्मीद है।

• New Space India, Ltd. is expected to select a private entity to commercialise the LVM-3 rocket.

न्यू स्पेस इंडिया लिमिटेड द्वारा LVM-3 रॉकेट का वाणिज्यिक उपयोग करने के लिए एक निजी इकाई का चयन करने की उम्मीद है।

Venus and Chandrayaan Missions

शुक्र और चंद्रयान मिशन

• The Cabinet has approved a scientific mission to Venus and the next Chandrayaan mission to the Moon.

कैबिनेट ने शुक्र ग्रह के लिए एक वैज्ञानिक मिशन और चंद्रमा के लिए अगले चंद्रयान मिशन को स्वीकृति दी है।

• The Venus Orbiter Mission is expected to be launched in March 2028 at a cost of ₹1,236 crore, aiming to study the planet's surface and atmosphere to understand how different planets of the Solar System evolved.

शुक्र ऑर्बिटर मिशन को मार्च 2028 में ₹1,236 करोड़ की लागत से लॉन्च किए जाने की उम्मीद है, जिसका उद्देश्य शुक्र ग्रह की सतह और वातावरण का अध्ययन करना है ताकि सौर मंडल के विभिन्न ग्रहों के विकास को समझा जा सके।

Chandrayaan-4 and LUPEX

चंद्रयान-4 और LUPEX

• Chandrayaan-4 will be a sample-return mission, expected to be launched by 2027 and cost ₹2,104 crore.

चंद्रयान-4 एक सैंपल-रिटर्न मिशन होगा, जिसकी 2027 तक ₹2,104 करोड़ की लागत में लॉन्च होने की उम्मीद है।

• The mission will dock two separate LVM-3 launch vehicles in earth orbit before heading to the moon and will land near the location of Chandrayaan-3 to collect moon soil and rock samples.

यह मिशन पृथ्वी की कक्षा में दो अलग-अलग LVM-3 लॉन्च वाहनों को डॉक करेगा और फिर चंद्रमा पर चंद्रयान-3 के निकट स्थान पर उतरेगा ताकि चंद्रमा की मिट्टी और चट्टानों के नमूने एकत्रित किए जा सकें।

• The Space Commission approved a joint mission with Japan called the Lunar Polar Exploration Mission (LUPEX).

स्पेस कमीशन ने जापान के साथ एक संयुक्त मिशन लूनर पोलर एक्सप्लोरेशन मिशन (LUPEX) को मंजूरी दी है।

• For LUPEX, ISRO is developing a different moon lander than the one used for Chandrayaan-3, aiming for future crewed lunar missions.



LUPEX के लिए, इसरो चंद्रयान-3 से अलग एक चंद्र लैंडर विकसित कर रहा है, जिसका उद्देश्य भविष्य के मानवयुक्त चंद्र मिशनों के लिए है।

Third Launch Pad Development

तीसरे लॉन्च पैड का विकास

• The **Commission** also approved the development of a **third launch pad** at Sriharikota, essential for testing and launching the **Next Generation Launch Vehicle (NGLV)**.
कमीशन ने श्रीहरिकोटा में तीसरे लॉन्च पैड के विकास को भी मंजूरी दी है, जो नेक्स्ट जनरेशन लॉन्च वाहन (NGLV) के परीक्षण और लॉन्च के लिए आवश्यक है।

The Cabinet Committee on Security Approval for Space-Based Surveillance (SBS) Missions

सुरक्षा पर मंत्रिमंडल समिति द्वारा अंतरिक्ष आधारित निगरानी (SBS) मिशनों की मंजूरी

- The Cabinet Committee on Security approved the **third phase of the Space-Based Surveillance (SBS) missions on October 11**, with ISRO to build **21 satellites** and private companies **31 satellites** for a total cost of **₹26,968 crore**. सुरक्षा पर मंत्रिमंडल समिति ने **11 अक्टूबर** को अंतरिक्ष आधारित निगरानी (SBS) मिशनों के तीसरे चरण को मंजूरी दी, जिसमें **ISRO 21 उपग्रह** बनाएगा और निजी कंपनियाँ **31 उपग्रह**, कुल लागत **₹26,968 करोड़** होगी।
- This phase represents a significant improvement over the **four satellites built for SBS-1 in 2001** and the **six satellites for SBS-2 in 2013**. यह चरण 2001 में SBS-1 के लिए बनाए गए चार उपग्रहों और 2013 में SBS-2 के लिए बनाए गए छह उपग्रहों की तुलना में एक महत्वपूर्ण सुधार है।

Axiom-4 Mission and Astronaut Training

Axiom-4 मिशन और अंतरिक्ष यात्री प्रशिक्षण

- India's astronaut-designate **Sudhanshu Shukla** underwent **space suit measurement and pressurization tests** at SpaceX headquarters, marking the start of his **10-day training program** before his **Axiom-4 mission** to the **International Space Station** next year.
- भारत के नामित अंतरिक्ष यात्री सुदर्शन शुक्ला ने स्पेसएक्स मुख्यालय में अंतरिक्ष सूट माप और दाब परीक्षण कराया, जिससे उनके **10-दिवसीय प्रशिक्षण कार्यक्रम** की शुरुआत हुई। वह अगले वर्ष अंतर्राष्ट्रीय अंतरिक्ष स्टेशन पर **Axiom-4 मिशन** के तहत यात्रा करेंगे।

Satellites En Route to India

भारत में आने वाले उपग्रह

- **NASA-ISRO Synthetic Aperture Radar (NISAR)**, an **earth-observation satellite**, had its **radar antenna reflector** recently shipped to India from the **Jet Propulsion Lab in California**. Due to high-temperature issues during launch tests, it received a protective coating and is expected to be launched by ISRO on a **Geosynchronous Satellite Launch Vehicle** in **early 2025**.
- **NASA-ISRO सिंथेटिक एपर्चर रडार (NISAR)**, जो एक पृथ्वी-अवलोकन उपग्रह है, का रडार एंटीना रिफ्लेक्टर हाल ही में कैलिफोर्निया के जेट प्रोपल्शन लैब से भारत भेजा गया। प्रक्षेपण परीक्षणों के दौरान



उच्च तापमान की समस्याओं के कारण इसे सुरक्षात्मक परत दी गई और ISRO द्वारा 2025 की शुरुआत में एक भूस्थिर उपग्रह प्रक्षेपण वाहन पर प्रक्षेपित करने की उम्मीद है।

- **Proba-3 mission from Europe** will study the **Sun's corona** with **two satellites flying in formation**, one focusing on the Sun and the other **blocking its central view to allow only corona light through**. **ESA plans to launch Proba-3 on a PSLV-XL vehicle on November 29**.
- यूरोप का Proba-3 मिशन सूर्य की कोरोना का अध्ययन करेगा, जिसमें दो उपग्रह एक संयोजन में उड़ेंगे; एक सूर्य पर नजर रखेगा और दूसरा सूर्य के केंद्रीय क्षेत्र को छिपाएगा ताकि केवल कोरोना की रोशनी दिख सके। **ESA Proba-3 को 29 नवंबर को PSLV-XL वाहन पर लॉन्च करने की योजना बना रहा है।**

Private Sector Contributions

निजी क्षेत्र का योगदान

- **Manastu Space** signed an agreement with **Dhruva Space** to test its **green propulsion technology** on **LEAP-3**. **Manastu** uses a hydrogen-peroxide-based fuel and first tested **LEAP on PSLV-C58 on January 1** this year.
- **मनस्तु स्पेस** ने ध्रुव स्पेस के साथ **ग्रीन प्रोपल्शन तकनीक का LEAP-3 पर परीक्षण** करने के लिए समझौता किया। **मनस्तु** ने एक हाइड्रोजन-परऑक्साइड-आधारित ईंधन का उपयोग किया और इस साल **1 जनवरी** को **PSLV-C58 पर LEAP का पहला परीक्षण** किया।
- **Bellatrix Aerospace** unveiled **Project 200**, a prototype satellite designed for **ultra-low earth orbit at 200 km**.
- **बेलट्रिक्स एयरोस्पेस** ने **प्रोजेक्ट 200** का अनावरण किया, जो **200 किमी की अल्ट्रा-लो अर्थ ऑर्बिट** के लिए डिजाइन किया गया उपग्रह है।
- **Ananth Technologies** became the **first private Indian company** to assemble, integrate, and test two **Space Docking Experiment (SpaDEx) satellites** for ISRO at its **Bengaluru facility**. **अनंत टेक्नोलॉजीज बंगलुरु की सुविधा** में ISRO के लिए **स्पेस डॉकिंग एक्सपेरिमेंट (SpaDEx) उपग्रहों** को असेंबल, इंटीग्रेट और परीक्षण करने वाली **पहली निजी भारतीय कंपनी** बन गई।

Space Science Developments

अंतरिक्ष विज्ञान में विकास

- Researchers found the crater where **Chandrayaan-3** landed is older than the **South Pole Aitken Basin**, estimated at **4.2-4.3 billion years**. The finding is based on data from the **Optical High-Resolution Camera on Chandrayaan-2** and the **Pragyaan rover's navigational cameras**. शोधकर्ताओं ने पाया कि जहां **चंद्रयान-3** उतरा, वह **क्रेटर दक्षिण ध्रुव ऐटकेन बेसिन** से पुराना है, जिसकी अनुमानित आयु **4.2-4.3 अरब वर्ष** है। यह जानकारी **चंद्रयान-2 के ऑप्टिकल हाई-रिज़ॉल्यूशन कैमरा और प्रज्ञान रोवर के नेविगेशनल कैमरों** के डेटा पर आधारित है।
- **Astrosat**, **India's first multi-wavelength space observatory**, has exceeded its **original five-year mission life**, now operating for **nine years** with an expected lifespan of **another two years**.
- **एस्ट्रोसैट**, भारत का पहला बहु-तरंग दैर्ध्य अंतरिक्ष वेधशाला, अपनी **मूल पाँच वर्ष की मिशन अवधि** को पार कर **नौ वर्षों** से कार्यरत है, और इसके **अगले दो वर्षों** तक चलने की उम्मीद है।



Carbon credit: the right to emit

**GS Paper III:
Environment**

Carbon credits are an important new instrument of climate finance.

The green-coloured piece of paper printed by the Reserve Bank of India and circulated by the government is worth 20 rupees. The person who possesses it can buy a packet of biscuits by transferring that value to the seller. There are different ways to acquire such pieces of paper. For example, people do different kinds of jobs to earn money. Carbon credits are similar. Just like possessing the green note means you possess 20 rupees of value, possessing one carbon credit gives you a licence to emit 1,000 kg of carbon dioxide (or equivalent).

You can earn a carbon credit by removing 1,000 kg of carbon dioxide from the environment and submitting the proof to a government or suitable certifying agency. Once they sign off, you can sell your credit to potential buyers. Governments around the world have decided which types of work can earn carbon credits, who can certify them, and who can buy them. Such projects include most



The Thwaites glacier in Antarctica. No matter how much the world cuts back on carbon emissions, a key and sizeable chunk of Antarctica is essentially doomed to an “unavoidable” melt, a new study has found. AP

renewable energy installations, certain forests, and carbon capture facilities. The Paris Agreement set up an international carbon market as part of helping countries meet their emissions targets.

An important problem with carbon credits is that the certifying agencies struggle to verify whether sellers have actually removed 1,000 kg of carbon dioxide. How countries can fix this problem is an important agenda item at the COP29 climate talks in Baku in November.

For feedback and suggestions

for ‘Science’, please write to
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with the subject ‘Daily page’



Carbon Credits: A New Instrument of Climate Finance

कार्बन क्रेडिट्स: जलवायु वित्त का एक नया साधन

- **Carbon credits** are an important new instrument of climate finance.
कार्बन क्रेडिट्स जलवायु वित्त का एक महत्वपूर्ण नया साधन हैं।
- The **green-coloured piece of paper** printed by the **Reserve Bank of India** and circulated by the **government** is worth **20 rupees**.
भारतीय रिजर्व बैंक द्वारा मुद्रित और सरकार द्वारा प्रचलित हरा रंग का कागज़ 20 रुपये का होता है।
- The person who possesses it can buy a packet of biscuits by transferring that value to the **seller**.
जो इसे रखता है, वह इसे विक्रेता को स्थानांतरित करके बिस्कुट का पैकेट खरीद सकता है।
- There are different ways to acquire such pieces of paper. For example, people do different kinds of **jobs** to **earn money**.
ऐसे कागज़ पाने के विभिन्न तरीके हैं। उदाहरण के लिए, लोग **पैसे कमाने** के लिए अलग-अलग तरह के काम करते हैं।
- **Carbon credits** are similar. Just like possessing the green note means you possess **20 rupees** of value, possessing one **carbon credit** gives you a **license** to emit **1,000 kg of carbon dioxide** (or equivalent).
कार्बन क्रेडिट्स भी ऐसे ही होते हैं। जिस प्रकार हरे नोट का होना 20 रुपये मूल्य का मालिक होना है, उसी तरह एक कार्बन क्रेडिट का मालिक होना आपको 1,000 किग्रा कार्बन डाइऑक्साइड (या समकक्ष) छोड़ने का लाइसेंस देता है।
- You can earn a **carbon credit** by removing **1,000 kg of carbon dioxide** from the environment and submitting the proof to a **government or certifying agency**.
आप पर्यावरण से 1,000 किग्रा कार्बन डाइऑक्साइड हटाकर और इसका प्रमाण सरकार या प्रमाणन एजेंसी को प्रस्तुत कर कार्बन क्रेडिट कमा सकते हैं।
- Once they sign off, you can sell your **credit** to **potential buyers**.
एक बार वे इसे अनुमोदित कर दें, तो आप अपना **क्रेडिट संभावित खरीदारों** को बेच सकते हैं।
- **Governments** around the world have decided which types of **work** can earn carbon credits, who can **certify** them, and who can **buy** them.
दुनिया भर की **सरकारों** ने तय किया है कि किस प्रकार के काम कार्बन क्रेडिट कमा सकते हैं, कौन उन्हें प्रमाणित कर सकता है, और कौन उन्हें खरीद सकता है।
- Such projects include most **renewable energy installations**, certain **forests**, and **carbon capture facilities**.
ऐसे परियोजनाओं में अधिकांश **नवीकरणीय ऊर्जा संयंत्र**, कुछ **वन**, और **कार्बन कैप्चर सुविधाएं** शामिल हैं।
- The **Paris Agreement** set up an **international carbon market** as part of helping countries meet their **emissions targets**.
पेरिस समझौते ने देशों को अपने उत्सर्जन लक्ष्यों को पूरा करने में मदद के रूप में अंतर्राष्ट्रीय कार्बन बाज़ार स्थापित किया।
- An important problem with **carbon credits** is that the **certifying agencies** struggle to verify whether sellers have actually removed **1,000 kg of carbon dioxide**.
कार्बन क्रेडिट्स के साथ एक महत्वपूर्ण समस्या यह है कि प्रमाणन एजेंसियाँ यह सत्यापित करने में





कठिनाई का सामना करती हैं कि विक्रेताओं ने वास्तव में 1,000 किग्रा कार्बन डाइऑक्साइड हटाया है या नहीं।

- How countries can fix this problem is an important **agenda item** at the **COP29 climate talks in Baku in November**.

देश इस समस्या को कैसे हल कर सकते हैं, यह नवंबर में बaky में COP29 जलवायु वार्ता का एक महत्वपूर्ण कार्यसूची बिंदु है।

PATRIOTIC IAS



GS Paper II: Center-State Relations

Beyond intoxication

Batting for States, Supreme Court holds federal balance on regulating alcohol

In holding that the term 'intoxicating liquors' in the State List includes alcohol used for industrial purposes, the Supreme Court of India has given a boost to the federal principle behind the distribution of powers between the Centre and the States. A nine-judge Bench has clarified the scope of Entry 8 in the State List under the Seventh Schedule in the Constitution to cover both 'potable alcohol' and alcohol that can be used to the detriment of public health. It takes in its fold the entire gamut of activities involving the production, sale and distribution of alcohol products, covering rectified spirit, extra neutral alcohol and denatured alcohol. In other words, the entry is not limited to the popular understanding of intoxicating liquor as alcoholic beverages consumed by people. The bone of contention was whether a central law, the Industries (Development and Regulation) Act (IDRA), 1951, which listed 'fermentation industries' as a scheduled subject on which the Union government could exercise control, had the effect of removing 'industrial alcohol' from the regulatory purview of State governments. The majority ruling of eight judges has the effect of excluding the industry of 'intoxicating liquor', as interpreted in the judgment, from the purview of the IDRA. Parliament, according to the verdict, lacks legislative competence to take control of the entire industry of intoxicating liquor. In his opinion on behalf of the majority, the Chief Justice of India, D.Y. Chandrachud, has noted that any other interpretation would upset the federal balance in the distribution of legislative powers and tilt it towards the Union.

This is the second major verdict by the Supreme Court in recent months that has upheld federal principles. In July, a nine-judge Bench ruled that States can tax mineral rights and mineral-bearing lands, a decision that preserved their legislative domain from interference by Parliament. As in that case involving mineral rights, Justice B.V. Nagarathna has authored a dissenting verdict in the 'intoxicating liquor' case too. The Constitution Assembly, she says, was clear that the term only meant potable alcohol and there was no intention on its part to include non-potable or industrial alcohol. In her view, Parliament occupied the field of 'fermentation industries', but excluded alcohol for human consumption. To that extent, the States are denuded of their power to regulate industrial alcohol. Justice Nagarathna's dissent underscores the importance of industrial alcohol to the country's economy, both as a key feedstock in the chemicals industry and liquid fuel to be blended with petrol. In the light of this understanding, the Centre has made 'fermentation industries', excluding potable alcohol, a scheduled industry under the IDRA. Her observation that the constitutional edifice should not be dislodged while trying to dynamically interpret the Constitution strikes a cautionary note.

interference.

Supreme Court's Ruling on 'Intoxicating Liquors'

'Intoxicating Liquors' पर सर्वोच्च

न्यायालय का निर्णय

- The Supreme Court clarified that the term 'intoxicating liquors' includes alcohol used for industrial purposes.

सर्वोच्च न्यायालय ने स्पष्ट किया कि 'Intoxicating Liquors' की परिभाषा में औद्योगिक उपयोग के लिए इस्तेमाल होने वाली शराब भी शामिल है।

- A nine-judge Bench held that Entry 8 in the State List covers both 'potable alcohol' and alcohol detrimental to public health. नौ-न्यायाधीशों की पीठ ने निर्णय दिया कि राज्य सूची में एंट्री 8 'पेय शराब' और जनता के स्वास्थ्य के लिए हानिकारक शराब दोनों को कवर करती है।

- This ruling encompasses activities involving production, sale, and distribution of alcohol products, including rectified spirit and denatured alcohol.

यह निर्णय शराब उत्पादों के उत्पादन, बिक्री और वितरण से संबंधित गतिविधियों को शामिल करता है, जिसमें ठीक किया हुआ आत्मा और डिनेचर्ड अल्कोहल शामिल हैं।

- The central law, the Industries (Development and Regulation) Act (IDRA), 1951, does not remove 'industrial alcohol' from State regulatory control.

केंद्रीय कानून, उद्योग (विकास और नियमन) अधिनियम (IDRA), 1951, 'औद्योगिक शराब' को राज्य नियामक नियंत्रण से हटा नहीं सकता।

- The Chief Justice of India noted that any other interpretation would upset the federal balance of powers.

भारत के मुख्य न्यायाधीश ने कहा कि किसी अन्य व्याख्या से शक्तियों का संघीय संतुलन प्रभावित होगा।

- This verdict marks the second major ruling upholding federal principles in recent months.

यह निर्णय हाल के महीनों में संघीय सिद्धांतों को बनाए रखने वाला दूसरा बड़ा निर्णय है।

- In July, the Supreme Court ruled that States can tax mineral rights, preserving their legislative domain from Parliament





जुलाई में, सर्वोच्च न्यायालय ने निर्णय दिया कि राज्य खनिज अधिकारों पर कर लगा सकते हैं, जिससे संसद के हस्तक्षेप से उनकी वैधानिक क्षेत्र को संरक्षित किया जा सके।

- Justice B.V. Nagarathna dissented, stating the term only meant potable alcohol, excluding industrial alcohol.

न्यायाधीश बी.वी. नागरथना ने असहमति जताई और कहा कि यह शब्द केवल पेय शराब का संदर्भ देता है, औद्योगिक शराब को बाहर करता है।

- Her dissent emphasizes the economic importance of industrial alcohol in the chemicals industry and as a liquid fuel.

उनकी असहमति औद्योगिक शराब के रासायनिक उद्योग में और तरल ईंधन के रूप में आर्थिक महत्व को रेखांकित करती है।

- Justice Nagarathna cautioned against dynamically interpreting the Constitution at the cost of the constitutional structure.

न्यायाधीश नागरथना ने संवैधानिक संरचना की कीमत पर संविधान को गतिशील रूप से व्याख्यायित करने के खिलाफ चेतावनी दी।



The private sector holds the key to India's e-bus push

GS Paper III:
Environment

In a major push toward achieving India's climate targets, the Union Cabinet recently approved the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) scheme, which allocates funding for electric vehicles (EVs) across many segments. This includes ₹4,391 crore for subsidies/demand incentives that support procurement of 14,028 electric buses in nine cities. This is an important move that strengthens the public transport sector's shift to EVs. But private bus operators are left out of the subsidy framework, which raises concerns about the potential to scale electric mobility beyond State-run buses.

Public sector driven despite fleet size

Electric bus deployment in India has thus far been driven by the public sector, which was supported with financial subsidies under the national Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India (FAME India) scheme. Under FAME I, from 2015-19, 425 buses received approval for purchase subsidies, which rose to 7,120 buses under FAME II, which ran from 2019-24. The incentives were available to State and city transport undertakings, municipal corporations, and other public entities. But public transport buses make up only 7% of the 24 lakh registered buses in India.

Indeed, despite private buses representing 93% of the buses in India, they are not yet included in any major national schemes or special incentive programmes. While a few leading private bus operators such as NueGo and Chartered Speed have electric buses in their fleets, the numbers remain small. If there is to be scale in the electric bus market in India, the transition of private buses is critical, and there are several areas where policy can help.

A recent International Council on Clean Transportation (ICCT) study suggested that the limited availability of financing is a key hurdle for



Bhaumik Gowande

Associate Researcher at the International Council on Clean Transportation (ICCT) in India



Sumati Kohli

Researcher at the International Council on Clean Transportation (ICCT) in India

If there is to be scale in the electric bus market in India, private sector participation is critical

the uptake of electric buses by the private sector. Higher perceived risk-return profiles, high upfront costs, and low perceived resale value of electric buses as collateral have made financing a challenge. Uncertainty regarding battery life increases this perceived risk.

The hurdles

Studies show that electric inter-city buses can be more profitable than diesel buses over their service life. However, high interest and loan instalment costs make them less financially viable during the loan period. Despite this, private intercity bus operators in India could benefit greatly from electric buses, as they would offset rising fuel costs. Intercity buses play a major role in India's transport, with 22.8 crore passengers daily, covering 57% of total ridership and 64% of vehicle-kilometres. Additionally, 40% of intercity trips fall within the 250 kilometre to 300 km range that current electric bus models can cover on a single charge. These operations are well suited for electric bus deployment.

As India aims to replace 8,00,000 diesel buses with electric ones by 2030, this ICCT report has highlighted the potential of offering favourable financing options such as interest subsidies and longer loan tenures to ease the financial burden. Additionally, credit guarantees, potentially rolled out through government banks and other designated financial institutions, are a way to help reduce investment risks for financiers.

Another key hurdle for private electric bus adoption is charging infrastructure. FAME-funded facilities are limited to the depots of State transport units, and as 90% of private bus operators in India manage fleets of fewer than five buses, the high land and infrastructure costs can make investing in charging facilities economically impractical. Even if the required space of 70 square metres to 120 sq.m. is available, the high cost of land lease rental could

severely impact the economic viability of charging stations. Private intercity bus operators may also face challenges due to power supply interruptions, limited grid capacity, and inadequate upstream infrastructure. To accelerate private-sector electric bus adoption, it is essential to develop shared public charging infrastructure within cities and on high-traffic highways, particularly key intercity corridors. State governments could lead the development by leveraging financial subsidies offered under the PM E-Drive scheme, which aims to subsidise 1,800 bus chargers. To encourage private investment, States could also offer additional fiscal incentives or structure tenders for shared charging infrastructure on a design-build-operate-transfer (DBOT) basis, and ensure viability through guarantees of minimum daily energy consumption per charger.

A business model worth following

Another emerging business model, Battery-as-a-Service (BaaS), could reduce the high upfront costs of electric buses by separating battery ownership from vehicle ownership, as seen in China and Kenya. This model, along with battery swapping, has the potential to accelerate private electric bus adoption through usage-linked leasing and other solutions, such as Macquarie's Vertelo platform in India. An ICCT blog discussed these in detail and highlighted how they could help transform electric bus deployment in India.

To create scale and reduce costs in the electric bus market in India, promoting uptake in the private sector is crucial. As the government pushes ahead in supporting the EV transition under the new PM E-DRIVE scheme, there are opportunities for policy in the areas of financing incentives, charging infrastructure, and innovative business models to help overcome barriers to electric bus adoption by private operators.

The private sector holds the key to India's e-bus push

PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)

पीएम इलेक्ट्रिक ड्राइव क्रांति इन इनोवेटिव व्हीकल एन्हांसमेंट (पीएम ई-ड्राइव)

- The Union Cabinet recently approved the **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)** scheme, which allocates funding for **electric vehicles (EVs)** across many segments.

केंद्रीय मंत्रिमंडल ने हाल ही में पीएम इलेक्ट्रिक ड्राइव क्रांति इन इनोवेटिव व्हीकल एन्हांसमेंट (पीएम ई-ड्राइव) योजना को मंजूरी दी, जो इलेक्ट्रिक वाहनों (ईवी) के लिए कई खंडों में फंड आवंटित करती है।

- This includes **₹4,391 crore** for **subsidies/demand incentives** that support procurement of **14,028 electric buses** in **nine cities**.

इसमें ₹4,391 करोड़ सब्सिडी/डिमांड प्रोत्साहन के लिए शामिल है, जो 14,028 इलेक्ट्रिक बसों की खरीद को समर्थन करता है नौ शहरों में।

- This is an important move that strengthens the public transport sector's shift to EVs. यह एक महत्वपूर्ण कदम है जो सार्वजनिक परिवहन क्षेत्र की ईवी में परिवर्तन को मजबूत करता है।
- But private bus operators are left out of the subsidy framework, which raises concerns about the potential to scale electric mobility beyond **State-run buses**.



लेकिन निजी बस ऑपरेटर सब्सिडी ढांचे से बाहर रह जाते हैं, जिससे राज्य द्वारा चलाए जाने वाले बसों से परे इलेक्ट्रिक मोबिलिटी के पैमाने को बढ़ाने की संभावनाओं के बारे में चिंताएँ बढ़ जाती हैं।

Public sector driven despite fleet size

बड़े के आकार के बावजूद सार्वजनिक क्षेत्र द्वारा संचालित

- Electric bus deployment in India has thus far been driven by the **public sector**, which was supported with financial **subsidies** under the national **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India (FAME India)** scheme.
भारत में इलेक्ट्रिक बसों की तैनाती अब तक **पब्लिक सेक्टर** द्वारा संचालित रही है, जिसे **वित्तीय सब्सिडी** के साथ समर्थन दिया गया है **राष्ट्रीय तेजी से अपनाने और निर्माण (हाइब्रिड और) इलेक्ट्रिक वाहनों भारत में (फेम इंडिया)** योजना के तहत।
- Under **FAME I**, from **2015-19**, **425 buses** received approval for purchase subsidies, which rose to **7,120 buses** under **FAME II**, which ran from **2019-24**.
फेम I के तहत, **2015-19** में **425 बसों** को खरीद सब्सिडी के लिए मंजूरी मिली, जो **फेम II** के तहत **7,120 बसों** तक बढ़ गई, जो **2019-24** तक चली।
- The incentives were available to **State and city transport undertakings, municipal corporations**, and other **public entities**.
प्रोत्साहन राज्य और शहर परिवहन उपक्रमों, नगर निगमों, और अन्य सार्वजनिक संस्थाओं के लिए उपलब्ध थे।
- But public transport buses make up only **7%** of the **24 lakh** registered buses in India.
लेकिन सार्वजनिक परिवहन बसें भारत में पंजीकृत **24 लाख** बसों में से केवल **7%** हैं।
- Indeed, despite private buses representing **93%** of the buses in India, they are not yet included in any major national schemes or special incentive programmes.
वास्तव में, निजी बसों का प्रतिनिधित्व करने के बावजूद **93%** भारत में बसों का, उन्हें अभी तक किसी भी प्रमुख राष्ट्रीय योजनाओं या विशेष प्रोत्साहन कार्यक्रमों में शामिल नहीं किया गया है।
- While a few leading private bus operators such as **NueGo** and **Chartered Speed** have electric buses in their fleets, the numbers remain small.
जबकि कुछ प्रमुख निजी बस ऑपरेटर जैसे **NueGo** और **Chartered Speed** के पास अपनी बेड़ों में इलेक्ट्रिक बसें हैं, लेकिन संख्या कम है।
- If there is to be scale in the electric bus market in India, the transition of private buses is critical, and there are several areas where policy can help.
यदि भारत में इलेक्ट्रिक बस बाजार में पैमाना लाना है, तो निजी बसों का परिवर्तन महत्वपूर्ण है, और कई क्षेत्र हैं जहाँ नीति मदद कर सकती है।
- A recent **International Council on Clean Transportation (ICCT)** study suggested that the limited availability of **financing** is a key hurdle for the uptake of electric buses by the private sector.
हाल के एक **अंतरराष्ट्रीय परिषद साफ परिवहन (ICCT)** अध्ययन ने सुझाव दिया कि **वित्तपोषण** की सीमित उपलब्धता निजी क्षेत्र द्वारा इलेक्ट्रिक बसों के अपनाने के लिए एक प्रमुख बाधा है।
- Higher perceived **risk-return profiles**, high **upfront costs**, and low perceived **resale value** of electric buses as collateral have made financing a challenge.



उच्च अनुमानित जोखिम-लाभ प्रोफाइल, उच्च पहले की लागत, और इलेक्ट्रिक बसों की संपार्श्विक के रूप में कम अनुमानित पुनर्विक्रय मूल्य ने वित्तपोषण को चुनौती बना दिया है।

- **Uncertainty** regarding **battery life** increases this perceived risk.

बैटरी जीवन के बारे में अनिश्चितता इस अनुमानित जोखिम को बढ़ाती है।

The hurdles

रुकावटें

- Studies show that **electric inter-city buses** can be more profitable than **diesel buses** over their service life.

अध्ययनों से पता चलता है कि इलेक्ट्रिक अंतर-शहरी बसें अपनी सेवा जीवन में डीज़ल बसों की तुलना में अधिक लाभदायक हो सकती हैं।

- However, high **interest** and **loan instalment costs** make them less financially viable during the loan period.

हालांकि, उच्च ब्याज और ऋण किस्त लागत उन्हें ऋण अवधि के दौरान वित्तीय रूप से कम व्यवहार्य बनाती हैं।

- Despite this, private intercity bus operators in India could benefit greatly from **electric buses**, as they would offset rising **fuel costs**.

इसके बावजूद, भारत में निजी अंतर-शहरी बस ऑपरेटरों को इलेक्ट्रिक बसों से बड़े लाभ हो सकते हैं, क्योंकि वे बढ़ते ईंधन लागत को संतुलित कर सकेंगे।

- Intercity buses play a major role in India's transport, with **22.8 crore** passengers daily, covering **57%** of total ridership and **64%** of vehicle-kilometres.

अंतर-शहरी बसें भारत के परिवहन में एक प्रमुख भूमिका निभाती हैं, **22.8 करोड़** यात्री प्रतिदिन, कुल सवारी का **57%** और वाहन-किलोमीटर का **64%** कवर करती हैं।

- Additionally, **40%** of intercity trips fall within the **250 kilometre to 300 km** range that current electric bus models can cover on a single charge.

इसके अतिरिक्त, **40%** अंतर-शहरी यात्राएँ **250 किलोमीटर से 300 किलोमीटर** के बीच आती हैं, जो वर्तमान इलेक्ट्रिक बस मॉडल एक बार की चार्ज पर कवर कर सकते हैं।

- These operations are well suited for **electric bus deployment**.

ये संचालन इलेक्ट्रिक बसों के तैनाती के लिए अच्छी तरह से अनुकूल हैं।

- As India aims to replace **8,00,000 diesel buses** with electric ones by **2030**, this **ICCT report** has highlighted the potential of offering **favourable financing options** such as **interest subsidies** and **longer loan tenures** to ease the financial burden.

जैसे-जैसे भारत **2030** तक **8,00,000 डीज़ल बसों** को इलेक्ट्रिक से बदलने का लक्ष्य रखता है, इस **ICCT रिपोर्ट** ने वित्तीय बोझ को कम करने के लिए **सुविधाजनक वित्तपोषण विकल्प** जैसे **ब्याज सब्सिडी** और **लंबे ऋण कार्यकाल** की पेशकश की संभावनाओं को उजागर किया है।

- Additionally, **credit guarantees**, potentially rolled out through **government banks** and other designated financial institutions, are a way to help reduce investment risks for financiers.

इसके अतिरिक्त, **क्रेडिट गारंटी**, जो संभावित रूप से **सरकारी बैंकों** और अन्य निर्धारित वित्तीय संस्थानों के माध्यम से जारी की जा सकती हैं, वित्तीय निवेशकों के लिए निवेश जोखिम को कम करने में मदद करने का एक तरीका है।

- Another key hurdle for private electric bus adoption is **charging infrastructure**.

निजी इलेक्ट्रिक बसों को अपनाने में एक और महत्वपूर्ण रुकावट **चार्जिंग बुनियादी ढाँचा** है।

- FAME-funded facilities are limited to the depots of **State transport units**, and as **90%** of private bus operators in India manage fleets of fewer than **five buses**, the high land and



infrastructure costs can make investing in charging facilities economically impractical.

FAME से वित्तपोषित सुविधाएँ **राज्य परिवहन इकाइयों** के डिपो तक सीमित हैं, और चूंकि भारत में **90%** निजी बस ऑपरेटर **पाँच बसों** से कम का बेड़ा संचालित करते हैं, उच्च भूमि और बुनियादी ढाँचे की लागत चार्जिंग सुविधाओं में निवेश को आर्थिक रूप से असंगत बना सकती है।

- Even if the required space of **70 square metres to 120 sq.m.** is available, the high cost of land lease rental could severely impact the economic viability of charging stations.

यहां तक कि अगर आवश्यक **70 वर्ग मीटर** से **120 वर्ग मीटर** की जगह उपलब्ध है, तो भूमि पट्टे की उच्च लागत चार्जिंग स्टेशनों की आर्थिक व्यवहार्यता को गंभीर रूप से प्रभावित कर सकती है।

- Private intercity bus operators may also face challenges due to **power supply interruptions, limited grid capacity,** and inadequate **upstream infrastructure.**

निजी अंतर-शहरी बस ऑपरेटरों को **बिजली की आपूर्ति में बाधाओं, सीमित ग्रिड क्षमता,** और अपर्याप्त **ऊर्ध्वाधर बुनियादी ढाँचे** के कारण भी चुनौतियों का सामना करना पड़ सकता है।

- To accelerate private-sector electric bus adoption, it is essential to develop **shared public charging infrastructure** within cities and on high-traffic highways, particularly key intercity corridors.

निजी क्षेत्र में इलेक्ट्रिक बसों को अपनाने को तेज़ करने के लिए, शहरों के भीतर और उच्च यातायात वाले राजमार्गों पर **साझा सार्वजनिक चार्जिंग बुनियादी ढाँचा** विकसित करना आवश्यक है, विशेष रूप से प्रमुख अंतर-शहरी गलियों पर।

- State governments could lead the development by leveraging **financial subsidies** offered under the **PM E-Drive scheme,** which aims to subsidise **1,800 bus chargers.**

राज्य सरकारें **PM E-Drive योजना** के तहत प्रदान किए गए **वित्तीय सब्सिडी** का लाभ उठाकर विकास का नेतृत्व कर सकती हैं, जिसका उद्देश्य **1,800 बस चार्जर्स** को सब्सिडी देना है।

- To encourage private investment, States could also offer additional **fiscal incentives** or structure tenders for shared charging infrastructure on a **design-build-operate-transfer (DBOT)** basis, and ensure viability through guarantees of minimum daily energy consumption per charger.

निजी निवेश को प्रोत्साहित करने के लिए, राज्य **वित्तीय प्रोत्साहन** प्रदान कर सकते हैं या साझा चार्जिंग बुनियादी ढाँचे के लिए **डिज़ाइन-बिल्ड-ऑपरेट-ट्रांसफर (DBOT)** के आधार पर टेंडर का निर्माण कर सकते हैं, और प्रति चार्जर न्यूनतम दैनिक ऊर्जा खपत की गारंटी के माध्यम से व्यवहार्यता सुनिश्चित कर सकते हैं।

A business model worth following

एक व्यवसाय मॉडल जिसे अपनाना चाहिए

- Another emerging business model, **Battery-as-a-Service (BaaS),** could reduce the high upfront costs of electric buses by separating battery ownership from vehicle ownership, as seen in **China and Kenya.**

एक और उभरता व्यवसाय मॉडल, **बैटरी-एज़-ए-सर्विस (BaaS), चीन और केन्या** में देखे गए अनुसार, बैटरी स्वामित्व को वाहन स्वामित्व से अलग करके इलेक्ट्रिक बसों की उच्च प्रारंभिक लागत को कम कर सकता है।

- This model, along with **battery swapping,** has the potential to accelerate private electric bus adoption through **usage-linked leasing** and other solutions, such as **Macquarie's Vertelo platform** in India.

यह मॉडल, **बैटरी स्वैपिंग** के साथ, **उपयोग से जुड़े पट्टे** और भारत में **Macquarie का वर्टेलो प्लेटफॉर्म** जैसे अन्य समाधानों के माध्यम से निजी इलेक्ट्रिक बसों को अपनाने को तेज़ करने की क्षमता रखता है।





- An ICCT blog discussed these in detail and highlighted how they could help transform electric bus deployment in India.

एक **ICCT ब्लॉग** ने इन पर विस्तार से चर्चा की और यह बताया कि ये भारत में इलेक्ट्रिक बसों की तैनाती को कैसे बदलने में मदद कर सकते हैं।

- To create scale and reduce costs in the electric bus market in India, promoting uptake in the private sector is crucial.

भारत में इलेक्ट्रिक बस बाजार में पैमाना बनाने और लागत कम करने के लिए, निजी क्षेत्र में अपनाने को बढ़ावा देना महत्वपूर्ण है।

- As the government forges ahead in supporting the **EV transition** under the new **PM E-DRIVE scheme**, there are opportunities for policy in the areas of **financing incentives, charging infrastructure, and innovative business models** to help overcome barriers to electric bus adoption by private operators.

जैसे-जैसे सरकार नए **PM E-DRIVE योजना** के तहत **EV संक्रमण** का समर्थन करने की दिशा में आगे बढ़ती है, **वित्तपोषण प्रोत्साहन, चार्जिंग बुनियादी ढाँचा, और नवोन्मेषी व्यवसाय मॉडलों** के क्षेत्रों में नीति के लिए अवसर हैं, जो निजी ऑपरेटरों द्वारा इलेक्ट्रिक बसों के अपनाने में बाधाओं को दूर करने में मदद कर सकते हैं।



Sustainability science for FMCGs

GS Paper III

India's new PPP initiative, the Anusandhan National Research Foundation (ANRF), established to promote research and development, and the recently announced BioE3 (Biotechnology for Economy, Environment and Employment) policy emphasise the need for academia-industry partnership; and the role of the bioeconomy in driving the economy while honouring India's commitment to sustainable development and climate action. Specifically, the BioE3 policy notes the need to convert chemical-based industries to sustainable bio-based industrial models. It also provides an opportunity to revisit the impact of new technologies on existing industries such as Fast-Moving Consumer Goods (FMCGs).

Reducing palm oil in soap

The soap industry globally, for example, is a major contributor to greenhouse gas emissions and loss of biodiversity. The manufacturing of soap depends heavily on palm oil. About 90% of palm plantations are grown in Borneo, Sumatra, and the Malay Peninsula, where its lucrative production has led to replacing forested lands with palm oil fields. Although this deforestation has been well documented, replacing palm oil in soaps and other FMCG products has been difficult. For one, palm has relatively higher yields as compared with other vegetable oils, making it more lucrative for farmers and cheaper for consumers. Palm oil also accounts for about 40% of the global annual demand for vegetable oil.

However, new emerging technologies may provide avenues to replace or at least reduce palm oil consumption in soaps. Palm oil is the primary source of fatty acids that perform two functions in a soap bar – 15-20% of the lower chain fatty acids contribute to the surfactant/cleansing function of the soap, while most of the longer chain fatty acids only provide structure to the bar. Synthetic



Shambhavi Naik

Takshashila
Institution, Bengaluru.
Views are personal



L.S. Shashidhara

National Centre for
Biological Sciences,
Bengaluru. Views are
personal

biotechnologies may be able to create artificial fatty acid chains that can replace the functionalities of palm oil, particularly those providing structure to the bar. Alternately, the so-called 'structuring portion of the Total Fatty Matter', which provides no consumer benefit, could be replaced with other local plant or bio-based materials such as plant-based polysaccharides. Additionally, with the total amount of 'hard soap' reduced, other benefit agents like antimicrobial peptides or other biologically active molecules could be added to the soap bar to improve its germ-protection function or preferably molecules which boost the skin's immunity and provide germ protection.

This will require strong support from government and civil society. It would mean the development of solutions across the soap value chain, be it bio-based or bio-synthetic materials that could replicate the brick-and-mortar structure of the soap bar or packaging innovations that can reduce/eliminate plastic use. The recent PPP initiative under ANRF, linked seamlessly with the BioE3 policy, could support such partnerships through funding and by recognising the need to reinvent legacy products in addition to introducing new ones.

Locally grown palm oil

Until bio-synthetic or bio-engineered products become a reality, every day-use products like soaps will depend on domestic and international sustainable palm oil plantations.

The Government of India launched the National Mission on Edible Oils-Oil Palm in August 2021 with the aim of increasing the oil palm production area to 10 lakh ha. and boosting crude palm oil production to 11.20 lakh tonnes by 2025-26. It is important that such plantations not only adhere to the policy of 'No Deforestation, No Peat', but that they are also carefully selected so that they don't disrupt the surrounding

biodiversity. A comprehensive ecological research programme to understand the long-term impact of these monocultures in the context of India's biodiversity is also a strong need, along with regenerative agriculture practices, working with smallholder farmers.

The purchase of locally grown sustainable palm oil and investments in innovation to replace imported palm oil come at a cost, which, when borne by the company, may have to be passed onto the consumer. In a competitive market, this can mean the loss of market share. Government support through funding for research or other fiscal incentives encourage such sustainable practices and help companies innovate in this space.

Finally, the move to reduce palm oil use in soaps will require regulatory support. Current toilet soap grades are decided based on the fatty material present in the soap. This creates a false equivalency in the government's and consumer's mind that the higher the fatty material in the soap, the better the product's quality. Many publications disprove of this. Regulatory requirements for soap grades should move away from this old 'vertical' compositional standard based on a single material and embrace more horizontal and performance-based standards as those which exist in developed markets and incentivise newer technologies and methodologies linked to consumer benefit, product safety, and environmental sustainability. Furthermore, mandatory labelling of products on a sustainability scale based on their procurement and production practices can also help consumers make informed decisions.

The ANRF and the BioE3 policy are the right ways of moving towards a bio-based economy linked to a strong partnership between academia and industry. Products of everyday use might be a great first place to start, to make a real impact in terms of being both sustainable and self-reliant.

FMCGs should be a priority target sector for ANRF, the new public-private partnership initiative, and the BioE3 policy of the government

Sustainability science for FMCGs

India's new PPP initiative, the Anusandhan National Research Foundation (ANRF) भारत की नई पीपीपी पहल, अनुसंधान राष्ट्रीय अनुसंधान निधि (एएनआरएफ)



- The ANRF is established to promote research and development.

एएनआरएफ का गठन अनुसंधान और विकास को बढ़ावा देने के लिए किया गया है।

- The **BioE3 (Biotechnology for Economy, Environment and Employment)** policy emphasizes the need for academia-industry partnership.

बायोई3 (आर्थिक, पर्यावरण और रोजगार के लिए जैव प्रौद्योगिकी) नीति अकादमी-उद्योग भागीदारी की आवश्यकता पर जोर देती है।

- The role of the bioeconomy is highlighted in driving the economy while honoring India's commitment to sustainable development and climate action.

जैव अर्थव्यवस्था की भूमिका को अर्थव्यवस्था को आगे बढ़ाने में महत्वपूर्ण बताया गया है, जबकि भारत की **सतत विकास और जलवायु कार्रवाई** के प्रति प्रतिबद्धता को सम्मानित किया जाता है।

Reducing palm oil in soap साबुन में ताड़ के तेल को कम करना

- The soap industry globally is a major contributor to **greenhouse gas emissions** and **loss of biodiversity**.

वैश्विक स्तर पर साबुन उद्योग **ग्रीनहाउस गैसों के उत्सर्जन** और **जैव विविधता के नुकसान** में प्रमुख योगदानकर्ता है।

- Soap manufacturing heavily relies on palm oil, which accounts for about **40%** of global annual demand for vegetable oil.

साबुन उत्पादन का अधिकांश हिस्सा ताड़ के तेल पर निर्भर है, जो कि **विभिन्न वनस्पति तेलों की वैश्विक वार्षिक मांग का लगभग 40%** है।

- About **90%** of palm plantations are located in Borneo, Sumatra, and the Malay Peninsula, leading to deforestation.

ताड़ के पौधों की लगभग **90%** खेती **बोर्नियो, सुमात्रा, और मलय प्रायद्वीप** में होती है, जिसके कारण वनों की कटाई हो रही है।

- Replacing palm oil in soaps and FMCG products has been difficult due to its high yields compared to other vegetable oils.

अन्य वनस्पति तेलों की तुलना में इसके उच्च उत्पादन के कारण साबुन और एफएमसीजी उत्पादों में ताड़ के तेल का प्रतिस्थापन करना कठिन रहा है।

Emerging technologies for palm oil reduction ताड़ के तेल में कमी के लिए उभरती प्रौद्योगिकियां

- New emerging technologies may provide avenues to replace or reduce palm oil consumption in soaps. नई उभरती प्रौद्योगिकियां साबुन में ताड़ के तेल के उपयोग को प्रतिस्थापित या कम करने के लिए मार्ग प्रदान कर सकती हैं।

- Palm oil is the primary source of fatty acids, crucial for soap's cleansing function and structure.

ताड़ का तेल फैटी एसिड का प्राथमिक स्रोत है, जो साबुन की **सफाई कार्य** और **संरचना** के लिए महत्वपूर्ण है।

- Synthetic biotechnologies can create artificial fatty acid chains to replace palm oil functionalities.

सिंथेटिक जैव प्रौद्योगिकियां ताड़ के तेल की कार्यात्मकताओं को प्रतिस्थापित करने के लिए कृत्रिम फैटी एसिड श्रृंखलाएँ बना सकती हैं।

- Local plant or bio-based materials can replace the structuring portion of soap.

साबुन के संरचनात्मक हिस्से के प्रतिस्थापन के लिए स्थानीय पौधों या जैव-आधारित सामग्रियों का उपयोग किया जा सकता है।



- The initiative requires strong support from government and civil society to develop solutions across the soap value chain.

इस पहल के लिए साबुन मूल्य श्रृंखला में समाधान विकसित करने के लिए सरकार और नागरिक समाज से मजबूत समर्थन की आवश्यकता है।

Conclusion निष्कर्ष

- The ANRF initiative, linked with the BioE3 policy, can support partnerships through funding and the need to reinvent legacy products.

एएनआरएफ की पहल, बायोई3 नीति के साथ जुड़ी हुई, वित्त पोषण के माध्यम से भागीदारी का समर्थन कर सकती है और पारंपरिक उत्पादों के पुनर्निर्माण की आवश्यकता को पहचान सकती है।

Locally Grown Palm Oil

स्थानीय रूप से उगाई गई ताड़ का तेल

- Until bio-synthetic or bio-engineered products become a reality, every day-use products like soaps will depend on domestic and international sustainable palm oil plantations.

जब तक जैव-सिंथेटिक या जैव-इंजीनियर उत्पाद वास्तविकता नहीं बन जाते, तब तक हर दिन उपयोग होने वाले उत्पाद जैसे साबुन घरेलू और अंतर्राष्ट्रीय स्थायी ताड़ के तेल के बागानों पर निर्भर रहेंगे।

- The **Government of India launched the National Mission on Edible Oils-Oil Palm in August 2021** with the aim of increasing the oil palm production area to **10 lakh ha** and boosting crude palm oil production to **11.20 lakh tonnes** by **2025-26**.

भारत सरकार ने अगस्त 2021 में राष्ट्रीय मिशन ऑन एडिबल ऑयल-ऑयल पाम की शुरुआत की, जिसका लक्ष्य ताड़ के तेल का उत्पादन क्षेत्र **10 लाख हेक्टेयर** तक बढ़ाना और कच्चे ताड़ के तेल का उत्पादन **11.20 लाख टन** तक बढ़ाना है **2025-26** तक।

- It is important that such plantations not only adhere to the policy of '**No Deforestation, No Peat**', but that they are also carefully selected so that they don't disrupt the surrounding biodiversity. यह महत्वपूर्ण है कि ऐसे बागान न केवल '**कोई वनों की कटाई नहीं, कोई पीट नहीं**' की नीति का पालन करें, बल्कि उन्हें सावधानीपूर्वक चुना जाए ताकि वे आस-पास की जैव विविधता को बाधित न करें।

- A comprehensive ecological research programme to understand the long-term impact of these monocultures in the context of India's biodiversity is also a strong need, along with regenerative agriculture practices, working with smallholder farmers.

भारत की जैव विविधता के संदर्भ में इन एकल फसलों के दीर्घकालिक प्रभाव को समझने के लिए एक व्यापक पारिस्थितिकीय अनुसंधान कार्यक्रम की आवश्यकता है, साथ ही छोटे किसानों के साथ कार्य करने वाले पुनर्जनन कृषि प्रथाओं की भी।

- The purchase of locally grown sustainable palm oil and investments in innovation to replace imported palm oil come at a cost, which, when borne by the company, may have to be passed onto the consumer. स्थानीय रूप से उगाई गई स्थायी ताड़ के तेल की खरीद और आयातित ताड़ के तेल के स्थान पर नवाचार में निवेश की लागत होती है, जिसे जब कंपनी द्वारा वहन किया जाता है, तो इसे उपभोक्ता पर डालना पड़ सकता है।

- In a competitive market, this can mean the loss of market share.

एक प्रतिस्पर्धी बाजार में, इसका मतलब बाजार हिस्सेदारी का नुकसान हो सकता है।

- Government support through funding for research or other fiscal incentives encourage such sustainable practices and help companies innovate in this space.



अनुसंधान के लिए वित्तपोषण या अन्य वित्तीय प्रोत्साहनों के माध्यम से सरकारी समर्थन ऐसी स्थायी प्रथाओं को प्रोत्साहित करता है और कंपनियों को इस क्षेत्र में नवाचार करने में मदद करता है।

- Finally, the move to reduce palm oil use in soaps will require regulatory support.

अंत में, साबुन में ताड़ के तेल के उपयोग को कम करने के लिए नियामक समर्थन की आवश्यकता होगी।

- Current toilet soap grades are decided based on the fatty material present in the soap.

वर्तमान टॉयलेट साबुन के ग्रेड उन वसा सामग्री के आधार पर तय किए जाते हैं जो साबुन में मौजूद होती हैं।

- This creates a false equivalency in the government's and consumer's mind that the higher the fatty material in the soap, the better the product's quality.

यह सरकार और उपभोक्ता के मन में यह गलत धारणा उत्पन्न करता है कि यदि साबुन में वसा सामग्री अधिक है, तो उत्पाद की गुणवत्ता बेहतर होती है।

- Many publications disprove of this.

कई प्रकाशन इस बात का खंडन करते हैं।

- Regulatory requirements for soap grades should move away from this old 'vertical' compositional standard based on a single material and embrace more horizontal and performance-based standards as those which exist in developed markets and incentivise newer technologies and methodologies linked to consumer benefit, product safety, and environmental sustainability.

साबुन के ग्रेड के लिए नियामक आवश्यकताओं को एकल सामग्री पर आधारित इस पुराने 'ऊर्ध्वाधर' संरचनात्मक मानक से दूर जाना चाहिए और उन नए क्षैतिज और प्रदर्शन-आधारित मानकों को अपनाना चाहिए जो विकसित बाजारों में मौजूद हैं और उपभोक्ता लाभ, उत्पाद सुरक्षा और पर्यावरणीय स्थिरता से संबंधित नई तकनीकों और विधियों को प्रोत्साहित करते हैं।

- Furthermore, mandatory labelling of products on a sustainability scale based on their procurement and production practices can also help consumers make informed decisions.

अथवा, उनकी खरीद और उत्पादन प्रथाओं के आधार पर स्थिरता पैमाने पर उत्पादों के लिए अनिवार्य लेबलिंग उपभोक्ताओं को सूचित निर्णय लेने में भी मदद कर सकती है।

- The **ANRF** and the **BioE3 policy** are the right ways of moving towards a bio-based economy linked to a strong partnership between academia and industry.

ANRF और **BioE3 नीति** एक मजबूत अकादमिक और उद्योग के बीच साझेदारी से जुड़े जैव-आधारित अर्थव्यवस्था की ओर बढ़ने के सही तरीके हैं।

- Products of everyday use might be a great first place to start, to make a real impact in terms of being both sustainable and self-reliant.

हर दिन उपयोग में आने वाले उत्पाद एक वास्तविक प्रभाव बनाने के लिए एक शानदार शुरुआत हो सकते हैं, जो दोनों स्थायी और आत्मनिर्भर हों।



Why is Delhi's air quality deteriorating?

What factors contribute to the deterioration of air quality in Delhi during the winter months? How does stubble burning affect PM 2.5 levels? What role do urban emissions from vehicles play in determining air quality? Why is a coordinated approach necessary to tackle the air pollution crisis?

GS Paper III:
Environment: Pollution

Jacob Koshy

The story so far:

With the withdrawal of the southwest monsoon and the onset of winter, the air quality in Delhi has started to nose-dive. This week, the city and its adjoining territories have consistently recorded **particulate matter (PM 2.5) levels exceeding 300**, or 'very poor' air quality, and forecasts suggest that this could worsen in the coming days. As is now an established pattern, the **decline in air quality coincides with the burning of farm stubble**, primarily from Punjab.

What is the contribution of stubble burning to air pollution?

Stubble burning refers to a traditional practice of farmers burning the **remnants of paddy stalks** after harvesting. This method is often the **quickest way**, as farmers in Punjab and Haryana have a **narrow window of October and November to clear their fields and sow wheat for the winter**. The environmental impact of stubble burning has been known since the 1990s. Agricultural researchers, while analysing the **economics of rice-wheat cropping** pointed out that rising labour costs made it expensive for farmers to collect rice stalks strewn across the field that resulted from the use of mechanical devices such as rice shredders and combine harvesters. Though the burning of rice stalk was initially condemned as a **waste of valuable manure**, concerns were also raised about its **harm to farmers' health**. However, its link to worsening air quality in Delhi was quantified only over the last decade and a half. Today, the use of sophisticated instruments, modelling studies, and computational methods have enabled the estimation, almost daily, of stubble burning's contribution to air quality in Delhi.

A study by the research and advocacy group Climate Trends of winter pollution trends in 2023 found a "strong correlation" between wind direction originating from Punjab and Haryana and the resulting pollution levels in Delhi. In the case of Punjab, during winter, 54% of the time the wind from the State blew towards Delhi, it led to a spike in air pollution; when the wind originated from Haryana, the figure stood at 27%. Every additional fire incident was correlated with an increase in PM2.5 levels of 12.44 units. Studies over the years, most recently in 2023 by a consortium of IIT Kanpur, IIT Delhi, TERI, and Airshed, Kanpur, found that from mid-October to the end of November 2022, the role of stubble burning to air quality was on average 22% and peaked to as much as 35%. This is fairly consistent with previous studies that have estimated the contribution of stubble burning to range from 20%-40%. Based on these measurements, the Indian Institute of Tropical Meteorology-Pune (IITM-Pune) maintains an air quality forecast system that models the flow of airborne pollutants through cities. It shows the dynamic nature of stubble burning's impact on Delhi's pollution. For instance, from October 8 to 19 this year, farm fires accounted for less than 1.2% of the PM 2.5 load in Delhi. During this period, the average AQI stayed from 130-198 (or the 'moderate' pollution category). However, on October 21, when stubble burning's relative contribution rose to 3.2%, Delhi's AQI immediately plummeted to 'very poor' (310). On October 23, when the relative contribution of burning reached the seasonal high of 16%, the index deteriorated to 364, still in the 'very poor'



Stagnant winds: A farmer burns stubble to remove paddy crop residues from a field on the outskirts of Chandigarh. FILE PHOTO

region. On October 26, the stubble burning contribution slightly dipped to 14.5%, and the AQI improved to 270 or 'poor' quality.

What is the inference from these observations?

The transitioning period from the withdrawal of the monsoon to the onset of winter causes a sharp drop in windspeed, and cause air pollutants to hover closer to the ground rather than being flushed away to the higher realms of the atmosphere. In this situation, any additional source of pollutants – such as from stubble burning – can dramatically spike the pollutant load in Delhi. Also, nearly 55% of the pollution in Delhi originates outside its territorial borders, as studies have shown. Thus, relatively small spikes can push the index as much as 100 points and change categories anywhere from 'poor' to 'very poor.'

So is stubble burning the sole villain in Delhi's pollution?

Urban Emissions, a research outfit that tracks air pollution trends nationally, reports that from 2016-23, the improving air quality reflected in the index going from a high of 285 in 2017 to a low of 173

in 2021. However, in six of these seven years, the index stayed above 216 and therefore within the AQI categorisation of 'poor' air quality. However, in Punjab, the farm fires reduced by over an order of magnitude from 17,467 in 2018 (as of October 25, that year) to 1,749 (October 25) this year. Fire incidents in Haryana too have halved since 2020. The paddy harvested in Punjab is more than twice that in Haryana and yet, this has only improved the index by 65 points at the most. Significantly, December, January, and February are officially considered the winter months by the India Meteorological Department and by this time, the atmospheric conditions that create a trap for pollutants and prevent them from being flushed out, grow stronger. However, stubble burning almost entirely ceases. Despite that, data compiled by Urban Emissions says, the air quality index has consistently remained in the 'very poor' and 'severe' (400+) category from 2016-23. This suggests that sources other than stubble burning contribute significantly to air pollution.

Which are these factors?

On October 25 this year, stubble burning was responsible for nearly 15% of Delhi's

air pollution. On the same day, 'Delhi transport' which includes particulate matter from vehicles and vehicles crossing into Delhi was responsible for about 18% of the PM 2.5 load, according to the IITM's air quality forecast system. The IIT Kanpur, IIT Delhi, and Teri consortia analysis of the sources of pollution in Delhi found that the real-time source apportionment of PM 2.5 results show secondary inorganic aerosols (SIA), which travel from beyond Delhi, contribute the highest to Delhi's pollution load. The average of winter pollution source apportionment shows SIA (32%) and biomass burning within and outside Delhi (24%) contribute the most followed by vehicles at 17%. The SIAs form when gaseous precursors like sulfur dioxide (SO₂), nitrogen oxides (NO_x), and ammonia (NH₃) react to form ammonium sulfate or ammonium nitrate. In winter, the mean contribution of SIA from the sources within Delhi is 16% and the rest 84% from outside Delhi. In the last few years, policymakers have realised that the sources of air pollution can be tackled only via an airshed approach that requires coordinated action by multiple States including those beyond Delhi to evolve a joint response to the pollution crisis.

THE GIST

With the withdrawal of the southwest monsoon and the onset of winter, Delhi's air quality has worsened, recording PM 2.5 levels exceeding 300 (classified as 'very poor').

Farmers in Punjab and Haryana burn stubble after harvesting to quickly clear fields for winter wheat sowing, a practice linked to air quality issues since the 1990s.

Other sources of pollution, such as secondary inorganic aerosols and urban emissions from vehicles, also significantly impact Delhi's air quality.

Addressing air pollution in Delhi requires coordinated action among multiple States, as pollution sources often originate beyond the city's borders.

Why is Delhi's air quality deteriorating? दिल्ली की वायु गुणवत्ता क्यों खराब हो रही है?

What factors contribute to the deterioration of air quality in Delhi during the winter months? How does stubble burning affect PM 2.5 levels? What role do urban emissions from vehicles play in determining air quality? Why is a coordinated approach necessary to tackle the air pollution crisis?

सर्दियों के महीनों में दिल्ली में वायु गुणवत्ता के बिगड़ने में कौन से कारक योगदान करते हैं? पराली जलाने से PM 2.5 के स्तर पर क्या प्रभाव पड़ता है? वायु गुणवत्ता निर्धारित करने में वाहनों से होने वाले शहरी उत्सर्जन की क्या भूमिका है? वायु प्रदूषण संकट से निपटने के लिए समन्वित दृष्टिकोण क्यों आवश्यक है?

Air Quality Decline in Delhi

दिल्ली में वायु गुणवत्ता में गिरावट

- The **withdrawal of the southwest monsoon** and the onset of **winter** has caused **air quality** in Delhi to decline sharply.

दक्षिण-पश्चिम मानसून की वापसी और सर्दी की शुरुआत ने दिल्ली में वायु गुणवत्ता में तेज़ गिरावट की है।

- This week, Delhi consistently recorded **PM2.5 levels exceeding 300**, indicating **'very poor' air quality**.

इस सप्ताह, दिल्ली में PM2.5 स्तर 300 से अधिक दर्ज किए गए, जो 'बहुत खराब' वायु गुणवत्ता को दर्शाते हैं।

- The decline in air quality coincides with the **burning of farm stubble**, primarily from **Punjab**. वायु गुणवत्ता में गिरावट का समय खेतों में पराली जलाने के साथ मेल खाता है, जो मुख्य रूप से पंजाब से होता है।

Contribution of Stubble Burning to Air Pollution

पराली जलाने का वायु प्रदूषण में योगदान

- **Stubble burning** is a traditional practice where farmers burn paddy stalks after harvesting, mainly used in **Punjab** and **Haryana** due to a narrow window of **October and November** for sowing **wheat**.

पराली जलाना एक पारंपरिक प्रथा है जिसमें किसान कटाई के बाद धान की फसल के तनों को जलाते हैं, विशेष रूप से पंजाब और हरियाणा में, जहाँ अक्टूबर और नवंबर का समय गेहूँ बोने के लिए संकीर्ण होता है।

- The environmental impact of stubble burning has been recognized since the **1990s**, with rising labor costs making collection of rice stalks expensive.

पराली जलाने का पर्यावरणीय प्रभाव 1990 के दशक से पहचाना गया है, जिसमें बढ़ते श्रम लागत ने धान के तनों को इकट्ठा करना महंगा बना दिया है।

- Research over the years has linked stubble burning to worsening air quality in Delhi, quantified only in the last **decade and a half**.

पिछले कुछ वर्षों में किए गए शोध ने दिल्ली में वायु गुणवत्ता के बिगड़ने को पराली जलाने से जोड़ा है, जो केवल पिछले डेढ़ दशक में मापा गया है।

- A study by **Climate Trends** found a **strong correlation** between wind from **Punjab and Haryana** and pollution levels in Delhi.

जलवायु रुझान द्वारा किए गए एक अध्ययन ने पंजाब और हरियाणा से आने वाली हवा और दिल्ली में प्रदूषण स्तर के बीच एक मजबूत संबंध पाया।



• During winter, **54%** of the time, wind from **Punjab** contributes to pollution spikes in Delhi, while **27%** is attributed to **Haryana**.

सर्दियों के दौरान, **54%** समय हवा का **पंजाब** से आना दिल्ली में प्रदूषण की वृद्धि में योगदान करता है, जबकि **27%** का श्रेय **हरियाणा** को जाता है।

• Every additional fire incident is correlated with an increase in **PM2.5 levels of 12.44 units**.

हर अतिरिक्त आग की घटना **PM2.5 स्तर में 12.44 इकाइयों** की वृद्धि से संबंधित होती है।

• Studies indicate that from **mid-October to the end of November 2022**, stubble burning contributed on average **22%** to air quality, peaking at **35%**.

अध्ययनों से पता चलता है कि **मध्य-अक्टूबर से नवंबर 2022 के अंत तक**, पराली जलाने ने वायु गुणवत्ता में औसतन **22%** का योगदान दिया, जो **35%** तक पहुँच गया।

Dynamic Nature of Stubble Burning's Impact

पराली जलाने के प्रभाव की गतिशीलता

• The **Indian Institute of Tropical Meteorology-Pune** maintains a forecast system that models airborne pollutant flow through cities.

भारतीय उष्णकटिबंधीय मौसम विज्ञान संस्थान-पुणे एक पूर्वानुमान प्रणाली बनाए रखता है जो शहरों के माध्यम से वायुजनित प्रदूषकों के प्रवाह का मॉडल करता है।

• From **October 8 to 19** this year, farm fires accounted for less than **1.2%** of the PM2.5 load in Delhi, with the AQI remaining in the **'moderate' pollution** category.

इस वर्ष **8 से 19 अक्टूबर** के बीच, खेत की आगें दिल्ली में PM2.5 लोड का **1.2%** से कम थीं, जबकि AQI **'मध्यम' प्रदूषण** श्रेणी में बनी रही।

• On **October 21**, when stubble burning's contribution rose to **3.2%**, Delhi's AQI dropped to **'very poor'** (310).

21 अक्टूबर को, जब पराली जलाने का योगदान **3.2%** तक बढ़ा, दिल्ली का AQI **'बहुत खराब'** (310) हो गया।

• On **October 23**, the burning contribution peaked at **16%**, with the AQI deteriorating to **364**, still in the **'very poor'** region.

23 अक्टूबर को, जलाने का योगदान **16%** पर पहुँच गया, और AQI **364** तक गिर गया, जो अभी भी **'बहुत खराब'** क्षेत्र में है।

• On **October 26**, the stubble burning contribution slightly dipped to **14.5%**, and the AQI improved to **270** or **'poor'** quality.

26 अक्टूबर को, पराली जलाने का योगदान **14.5%** तक थोड़ा गिर गया, और AQI **270** या **'खराब'** गुणवत्ता में सुधार हुआ।

Inference from These Observations

इन अवलोकनों से निष्कर्ष

• The transition from the **withdrawal of the monsoon to winter** causes a sharp drop in **windspeed**, allowing pollutants to hover closer to the ground.

मानसून की वापसी से सर्दी की ओर संक्रमण **हवा की गति** में तेज गिरावट लाता है, जिससे प्रदूषक जमीन के करीब तैरने लगते हैं।

• Any additional source of pollutants, such as **stubble burning**, can dramatically spike the pollutant load in Delhi.

किसी भी अतिरिक्त प्रदूषक स्रोत, जैसे कि **पराली जलाना**, दिल्ली में प्रदूषक लोड को नाटकीय रूप से बढ़ा सकता है।



- Nearly **55%** of the pollution in Delhi originates from **outside its territorial borders**.

दिल्ली में लगभग **55%** प्रदूषण अपने क्षेत्रीय सीमाओं के बाहर से उत्पन्न होता है।

- Relatively small spikes can push the AQI up by as much as **100 points**, changing categories from 'poor' to 'very poor'.

सापेक्ष रूप से छोटे उछाल AQI को **100 अंक** तक बढ़ा सकते हैं, श्रेणियों को 'खराब' से 'बहुत खराब' में बदल सकते हैं।

So is stubble burning the sole villain in Delhi's pollution?

क्या धान के भूसे को जलाना दिल्ली की प्रदूषण की एकमात्र वजह है?

- Urban Emissions, a research outfit that tracks air pollution trends nationally, reports that from 2016-23, the improving air quality reflected in the index going from a high of **285 in 2017** to a low of **173 in 2021**.

शहर के प्रदूषण प्रवृत्तियों पर नज़र रखने वाले शोध संगठन Urban Emissions की रिपोर्ट है कि **2016-23** में वायु गुणवत्ता में सुधार हुआ है, जिसमें गुणवत्ता सूचकांक **2017 में 285** के उच्च स्तर से **2021 में 173** के निम्न स्तर तक पहुंचा।

- However, in six of these seven years, the index stayed above **216** and therefore within the AQI categorization of 'poor' air quality.

हालांकि, इन सात वर्षों में से छह वर्षों के दौरान, सूचकांक **216** से ऊपर रहा और इस प्रकार 'खराब' वायु गुणवत्ता की AQI वर्गीकरण में रहा।

- However, in Punjab, the farm fires reduced by over an order of magnitude from **17,467 in 2018** (as of October 25, that year) to **1,749** (October 25) this year.

हालांकि, पंजाब में, खेतों में आग लगने की घटनाएँ **2018 में 17,467** (उस वर्ष **25 अक्टूबर** तक) से घटकर इस वर्ष **1,749** (25 अक्टूबर) हो गई हैं।

- Fire incidents in Haryana too have halved since **2020**.

हरियाणा में आग लगने की घटनाएँ भी **2020** के बाद आधी हो गई हैं।

- The paddy harvested in Punjab is more than twice that in Haryana and yet, this has only improved the index by **65 points** at the most.

पंजाब में पैदा की गई धान की फसल हरियाणा में पैदा की गई फसल से **दो गुना** अधिक है, फिर भी, इससे सूचकांक में अधिकतम केवल **65 अंक** की वृद्धि हुई है।

- Significantly, **December, January, and February** are officially considered the winter months by the India Meteorological Department and by this time, the atmospheric conditions that create a trap for pollutants and prevent them from being flushed out, grow stronger.

महत्वपूर्ण है कि **दिसंबर, जनवरी, और फरवरी** को भारत मौसम विज्ञान विभाग द्वारा आधिकारिक रूप से सर्दियों के महीने माना जाता है, और इस समय तक, प्रदूषकों को पकड़ने वाली वायुमंडलीय स्थितियाँ और अधिक मजबूत हो जाती हैं, जो उन्हें बाहर जाने से रोकती हैं।

- However, stubble burning almost entirely ceases.

हालांकि, धान के भूसे को जलाना लगभग पूरी तरह से बंद हो जाता है।

- Despite that, data compiled by Urban Emissions says, the air quality index has consistently remained in the 'very poor' and 'severe' (400+) category from **2016-23**.

हालांकि, Urban Emissions द्वारा संकलित आंकड़ों के अनुसार, वायु गुणवत्ता सूचकांक **2016-23** के दौरान लगातार 'बहुत खराब' और 'गंभीर' (400+) श्रेणी में बना रहा है।

- This suggests that sources other than stubble burning contribute significantly to air pollution. यह सुझाव देता है कि धान के भूसे के जलाने के अलावा अन्य स्रोत वायु प्रदूषण में महत्वपूर्ण योगदान देते हैं।



• On **October 25** this year, stubble burning was responsible for nearly **15%** of Delhi's air pollution.

इस वर्ष **25 अक्टूबर** को, धान के भूसे को जलाने का योगदान दिल्ली के वायु प्रदूषण में लगभग **15%** था।

• On the same day, 'Delhi transport', which includes particulate matter from vehicles and vehicles crossing into Delhi was responsible for about **18%** of the PM 2.5 load, according to the IITM's air quality forecast system.

उसी दिन, 'दिल्ली परिवहन', जिसमें वाहनों से आने वाला कण पदार्थ और दिल्ली में प्रवेश करने वाले वाहन शामिल हैं, **PM 2.5** भार का लगभग **18%** जिम्मेदार था, जो IITM के वायु गुणवत्ता पूर्वानुमान प्रणाली के अनुसार है।

• The IIT Kanpur, IIT Delhi, and Teri consortia analysis of the sources of pollution in Delhi found that the real-time source apportionment of PM 2.5 results show secondary inorganic aerosols (SIA), which travel from beyond Delhi, contribute the highest to Delhi's pollution load.

IIT कानपुर, IIT दिल्ली, और टेरी के संघ द्वारा दिल्ली में प्रदूषण के स्रोतों का विश्लेषण करता है कि PM 2.5 के वास्तविक समय स्रोत आवंटन परिणाम दिखाते हैं कि **सेकंडरी इनऑर्गेनिक एरोसोल्स (SIA)**, जो दिल्ली से बाहर से आते हैं, दिल्ली के प्रदूषण भार में सबसे अधिक योगदान करते हैं।

• The average of winter pollution source apportionment shows SIA (**32%**) and biomass burning within and outside Delhi (**24%**) contribute the most followed by vehicles at **17%**.

सर्दियों में प्रदूषण के स्रोत आवंटन का औसत दिखाता है कि SIA (**32%**) और दिल्ली के भीतर और बाहर **बायोमास जलाने** का योगदान (**24%**) सबसे अधिक है, उसके बाद वाहनों का योगदान **17%** है।

• The SIAs form when gaseous precursors like sulfur dioxide (SO₂), nitrogen oxides (NO_x), and ammonia (NH₃) react to form ammonium sulfate or ammonium nitrate.

SIAs तब बनते हैं जब **गैसों के पूर्ववर्ती** जैसे सल्फर डाइऑक्साइड (SO₂), नाइट्रोजन ऑक्साइड (NO_x), और अमोनिया (NH₃) प्रतिक्रिया करते हैं और अमोनियम सल्फेट या अमोनियम नाइट्रेट बनाते हैं।

• In winter, the mean contribution of SIA from the sources within Delhi is **16%** and the rest **84%** from outside Delhi.

सर्दियों में, दिल्ली के भीतर स्रोतों से SIA का औसत योगदान **16%** है और शेष **84%** दिल्ली से बाहर से है।

• In the last few years, policymakers have realised that the sources of air pollution can be tackled only via an airshed approach that requires coordinated action by multiple States including those beyond Delhi to evolve a joint response to the pollution crisis.

पिछले कुछ वर्षों में, नीति निर्धारकों ने महसूस किया है कि वायु प्रदूषण के स्रोतों का समाधान केवल **एयरशेड दृष्टिकोण** के माध्यम से किया जा सकता है, जिसमें दिल्ली के बाहर के राज्यों सहित कई राज्यों द्वारा समन्वित कार्रवाई की आवश्यकता है ताकि प्रदूषण संकट का संयुक्त समाधान विकसित किया जा सके।



How differently abled communities are embracing music through sign language

People with hearing disabilities in India are enjoying music through Indian Sign Language with interpreters translating concerts into visual and emotional experiences; recent expansions in the ISL lexicon have introduced terms to make communication more inclusive and culturally relevant

GS Paper II:
Vulnerable Section of Society

She sat in front of the stage, lights flickering as people on stage swayed and danced. The bass thumped deep in her chest, and the vibrations resonated through her bones. But she craved more as music was not just vibrations. It was rhythm, beats, and emotions woven into notes.

Soon, however, her heart leapt with joy as she noticed interpreters off the stage, creating a musical experience with hand gestures in Indian Sign Language (ISL). "My first live concert left me with a sense of peace and calmness one gets after extreme happiness akin to feeling what hearing people get," said Ms. Soumya Rao, an individual with profound hearing disability, who consults for tech startups and NGOs. Profound deafness is a short form of bilateral profound sensorineural hearing loss. "Profound means 100% deafness and above," said Ms. Soumya.

Ms. Soumya enjoys music by letting her body absorb vibrations from the floor and surroundings. But at a recent concert in Delhi, she experienced music interpreted in sign language for the first time.

The world observed the International Day of Sign Languages in September and India joined the global celebration with a remarkable milestone. Some 2,500 new terms including words in English and Hindi were added to the ISL dictionary. Another aspect of this expansion was facilitating the community of people with hearing disability's engagement with one of the core human experiences – music.

"They were signing and I was looking at them to understand what the song was about. Then for a while I felt the vibrations and let the sounds travel through the body. There were women dressed in traditional clothes dancing to the beats for us to imitate their movements and danced along. This entire process was so much fun," Ms. Soumya recalled.

The expansion of the ISL lexicon was spearheaded by the Indian Sign Language Research and Training Centre.

Often people from the community with hearing disability who communicate via ISL have to spell out individual letters by

hand due to the lack of appropriate signs for niche scientific, and cultural terms or the new internet lingo. This latest expansion aims to reduce such challenges by providing signs for casual and subject-specific conversations.

The new entries to the ISL dictionary reflect both cultural and technological relevance. They feature English terms like algorithm, Aadhaar card, blockchain, and cognitive load, alongside traditional words such as Bihu festival. It also includes signs for Hindi words corresponding to energy, Ursa Nebula, estrogen, and many other essential terms in science, sports, accessibility, and everyday infrastructure.

Bengaluru also witnessed events that spotlight the expressive power of ISL. 'Beyond Signs: The Power of Gesture', organised by EnAble India exhibited a blend of artworks, sculptures, and short films. One of the highlights was visual vernacular, a unique storytelling technique that combines expressive body movements, facial expressions, and ISL to create immersive experiences that can help foster a connection between people with hearing disability and hearing communities.

Music meets gestures

Dr. Alim Chandani, Mission Leader of 'Hear A Million', an Initiative of EnAble India, shares his experience at a Diljit Dosanjh concert in 2017 where he had an interpreter in the audience. Despite facing hurdles such as interpreters not being allowed on stage and people from the audience bumping into him, this event allowed him to showcase how access should be granted even in informal settings.

He later collaborated with the organisers of the A.R. Rahman Sufi concert to select a team of interpreters to sign the songs. He worked with them to help them grasp the lyrical content, and after a week of dedicated practice, they were ready to convey music with gestures.

"Music in sign language is like a fully visual depiction. The interpreters have to be mindful to carefully interpret the true intent of the song. The key is to forget the words, focus on the meaning, and make

sure there is clarity," said Chandani in an email correspondence with *The Hindu*.

This aspect of visual richness and the intuitive nature of signing is what Kanika Agarwal, a Thane-based educator with hearing disability loves about ISL. Speech is often arbitrary, with no direct relationship between an object and the word assigned to it but ISL offers signs that visually capture the essence of the object.

This philosophy is echoed by Shivoy Sharma, CODA (Child of Deaf Adults) and ISL interpreter, who recalled collaborating with Chandani during the preparations for an A.R. Rahman concert. He was part of the discussions with signers with hearing disability and hearing experts, ensuring that the interpretation was visually appealing, musically, and culturally appropriate. Sharma recalls how instrumental sections such as guitar and drum solos are conveyed through body language that reflects the mood of the music. Also, when a song switches between male and female voices the interpreters subtly shift their body posture from say left or right to indicate the change. Sharma also emphasises the importance of adhering to ethical boundaries. It is essential to ensure that interpreters act as neutral linguistic facilitators, conveying the words and emotions of the individual they are signing for without introducing personal bias. "The interpreting profession here lacks the understanding of the 'role' of an interpreter. They are supposed to act as a bridge between two languages. However, many people with hearing disability and hearing people themselves are not fully aware of the boundaries that apply to an interpreter's role, which can contribute to confusion," said Chandani.

Need for awareness

Based on her experience as a deaf educator, Ms. Agarwal has observed a lack of awareness in society. Parents often face pressure from society to fit in and be "normal". Also, until very recently even doctors in India discouraged the use of sign language. They were warned that exposure to signing would hinder the child's ability to speak and thereby their

success as individuals.

One of the first things Chandani chose to do after moving to India was to "turn off" his voice even though he could speak. "This decision stemmed from the societal perception that people with hearing disability who can speak and hear are often considered more successful than those who primarily communicate through sign language. It is a misguided assumption that vocal ability somehow defines success... I wanted to show that a person with hearing disability who signs and does not speak can succeed just like any other 'normal' person." A crucial step towards breaking this notion is to build awareness and foster a sense of community within the diverse spectrum of individuals with hearing disability. This includes encouraging them to learn sign language and embrace the beauty of culture of hearing disability thereby recognising the shared experiences of "audism", he said.

Ms. Soumya, who lost her hearing in middle school and spent much of the following 23 years relying on lip reading to communicate, reflects on how navigating hospital visits during COVID-19 was a major challenge. As masks obstructed her ability to read lips, it forced her to confront that something was missing from her life. "I was able to figure out that what I was missing was the community with hearing disability which I had not been part of for the first 23 years since my hearing loss," she said.

Fortunately, she was introduced to the Bengaluru community of people with hearing disability where she not only learnt ISL but also observed children's grasp of bilingual education in English and ISL. "I am happy to report that having a sense of community and belonging has increased which further boosts the morale and sense of living as a person with hearing disability. It is having an inclusive environment where I do not have to struggle hard to meet my communication needs," added Ms. Soumya. *Sanjukta Mondal is a chemist-turned-science-writer with experience in writing science articles and scripts for STEM YouTube channels*

How differently abled communities are embracing music through sign language



दिव्यांग समुदाय किस प्रकार सांकेतिक भाषा के माध्यम से संगीत को अपना रहे हैं

People with hearing disabilities in India are enjoying music through Indian Sign Language with interpreters translating concerts into visual and emotional experiences; recent expansions in the ISL lexicon have introduced terms to make communication more inclusive and culturally relevant

भारत में श्रवण विकलांगता वाले लोग भारतीय सांकेतिक भाषा के माध्यम से संगीत का आनंद ले रहे हैं, जहां दुभाषिए संगीत कार्यक्रमों को दृश्य और भावनात्मक अनुभवों में अनुवाद कर रहे हैं; आईएसएल शब्दावली में हाल ही में विस्तार करके संचार को अधिक समावेशी और सांस्कृतिक रूप से प्रासंगिक बनाने के लिए शब्द शामिल किए गए हैं

- She sat in front of the stage, lights flickering as people on stage swayed and danced. वह मंच के सामने बैठी, लाइट्स झिलमिलाते हुए लोगों को मंच पर झूमते और नाचते देख रही थी।
- The bass thumped deep in her chest, and the vibrations resonated through her bones. बेस की आवाज़ उसके सीने में गूँज रही थी, और कंपन उसकी हड्डियों में महसूस हो रहा था।
- But she craved more as music was not just vibrations. It was rhythm, beats, and emotions woven into notes. पर वह और अधिक चाहती थी क्योंकि संगीत केवल कंपन नहीं था। यह लय, ताल, और भावनाओं का संगम था।
- Soon, however, her heart leapt with joy as she noticed interpreters off the stage, creating a musical experience with hand gestures in Indian Sign Language (ISL). जल्द ही उसका दिल खुशी से भर गया जब उसने मंच से दूर हाथ के इशारों के साथ भारतीय सांकेतिक भाषा (ISL) में संगीत को अनुभव कराया जा रहा था।
- "My first live concert left me with a sense of peace and calmness one gets after extreme happiness akin to feeling what hearing people get," said A. Soumya Rao, an individual with profound hearing disability, who consults for tech startups and NGOs. "मेरे पहले लाइव कॉन्सर्ट ने मुझे वह शांति और सुकून दिया जो सुनने वाले लोगों को मिलती है," ऐसा ए. सौम्या राव ने कहा, जो गहरी सुनने में असमर्थता के साथ रहती हैं और तकनीकी स्टार्टअप्स और एनजीओ के लिए परामर्श करती हैं।
- Profound deafness is a short form of bilateral profound sensorineural hearing loss. गहरी बधिरता द्विपक्षीय गहरी संवेदनाश्रयी श्रवण हानि का संक्षिप्त रूप है।
- "Profound means 100% deafness and above," said Ms. Soumya. "गहरा बधिरता का अर्थ है 100% बधिरता या उससे अधिक," श्रीमती सौम्या ने कहा।
- Ms. Soumya enjoys music by letting her body absorb vibrations from the floor and surroundings. श्रीमती सौम्या संगीत का आनंद फर्श और आसपास से कंपन को महसूस करके लेती हैं।
- But at a recent concert in Delhi, she experienced music interpreted in sign language for the first time. लेकिन हाल ही में दिल्ली में एक कॉन्सर्ट में, उन्होंने पहली बार सांकेतिक भाषा में संगीत का अनुभव किया।



- The world observed the International Day of Sign Languages in September and India joined the global celebration with a remarkable milestone. दुनिया ने सितंबर में अंतर्राष्ट्रीय सांकेतिक भाषाओं का दिवस मनाया और भारत ने इस जश्न में एक उल्लेखनीय मील का पत्थर जोड़ा।
- Some 2,500 new terms including words in English and Hindi were added to the ISL dictionary. लगभग 2,500 नए शब्द जिसमें अंग्रेजी और हिंदी के शब्द शामिल हैं, ISL शब्दकोश में जोड़े गए।
- Another aspect of this expansion was facilitating the community of people with hearing disability's engagement with one of the core human experiences — music. इस विस्तार का एक और पहलू सुनने में असमर्थता वाले लोगों के संगीत जैसे मुख्य अनुभव के साथ जुड़ाव को सुगम बनाना था।
- "They were signing and I was looking at them to understand what the song was about. Then for a while I felt the vibrations and let the sounds travel through the body." "वे सांकेतिक भाषा का उपयोग कर रहे थे और मैं देख रही थी कि गीत में क्या कहा जा रहा है। फिर कुछ देर के लिए मैंने कंपन को महसूस किया और ध्वनियों को शरीर में प्रवाहित होने दिया।"
- "There were women dressed in traditional clothes dancing to the beats for us to imitate their movements and danced along. This entire process was so much fun," Ms. Soumya recalled. "वहाँ पारंपरिक कपड़े पहनी महिलाएँ ताल पर नृत्य कर रही थीं ताकि हम उनके आंदोलनों की नकल कर सकें। यह पूरा अनुभव बहुत मज़ेदार था," श्रीमती सौम्या ने याद किया।

Expansion of ISL Dictionary आईएसएल शब्दकोश का विस्तार

- The expansion of the ISL lexicon was spearheaded by the Indian Sign Language Research and Training Centre. ISL शब्दावली का विस्तार भारतीय सांकेतिक भाषा अनुसंधान और प्रशिक्षण केंद्र द्वारा किया गया था।
- Often people from the community with hearing disability who communicate via ISL have to spell out individual letters by hand due to the lack of appropriate signs for niche scientific, cultural terms, or new internet lingo. अक्सर ISL का उपयोग करने वाले सुनने में असमर्थता वाले लोगों को विशिष्ट वैज्ञानिक और सांस्कृतिक शब्दों के उचित संकेतों की कमी के कारण हाथ से अक्षर लिखने की आवश्यकता होती है।
- This latest expansion aims to reduce such challenges by providing signs for casual and subject-specific conversations. इस नवीनतम विस्तार का उद्देश्य अनौपचारिक और विषय-विशिष्ट संवाद के लिए संकेत उपलब्ध कराकर ऐसी चुनौतियों को कम करना है।
- The new entries to the ISL dictionary reflect both cultural and technological relevance. ISL शब्दकोश में नए प्रविष्टियाँ सांस्कृतिक और तकनीकी प्रासंगिकता दोनों को दर्शाती हैं।
- They feature English terms like algorithm, Aadhaar card, blockchain, and cognitive load, alongside traditional words such as Bihu festival. इसमें एल्गोरिथम, आधार कार्ड, ब्लॉकचेन और कॉग्निटिव लोड जैसे अंग्रेजी शब्दों के साथ-साथ बिहू त्योहार जैसे पारंपरिक शब्द भी शामिल हैं।
- It also includes signs for Hindi words corresponding to energy, Ursa Nebula, estrogen, and many other essential terms in science, sports, accessibility, and everyday infrastructure. इसमें ऊर्जा, उर्सा नेबुला, एस्ट्रोजन जैसे हिंदी शब्दों के संकेत शामिल हैं, जो विज्ञान, खेल, पहुंच, और दैनिक बुनियादी ढांचे के कई अन्य आवश्यक शब्दों के लिए हैं।

Celebration of ISL in Bengaluru बेंगलुरु में आईएसएल का जश्न



- Bengaluru also witnessed events that spotlight the expressive power of ISL. **बंगलुरु** ने भी ISL की **अभिव्यक्तिपूर्ण शक्ति** को दर्शाने वाले कार्यक्रमों का आयोजन देखा।
- 'Beyond Signs: The Power of Gesture,' organised by EnAble India exhibited a blend of artworks, sculptures, and short films. **'बिगॉन्ड साइन: द पावर ऑफ जेस्चर'**, एनेबल इंडिया द्वारा आयोजित, कला कार्यों, मूर्तियों और लघु फ़िल्मों का **संयोजन** प्रदर्शित किया।
- One of the highlights was visual vernacular, a unique storytelling technique that combines expressive body movements, facial expressions, and ISL. इसमें एक **मुख्य आकर्षण** दृश्य भाषा थी, जो एक अनोखी **कहानी कहने की तकनीक** है जिसमें शरीर की गतिशीलता, चेहरे के भाव, और ISL का संयोजन होता है।
- It creates immersive experiences that can help foster a connection between people with hearing disability and hearing communities. यह **सुनने में असमर्थ लोगों** और सुनने वाली **समुदायों के बीच एक संबंध** बनाने में मदद कर सकता है।

Music meets gestures (संगीत और संकेतों का मेल)

- Dr. Alim Chandani, Mission Leader of 'Hear A Million', an initiative by **EnAble India**, shares his experience at a **Diljit Dosanjh concert in 2017**, where he had an interpreter in the audience. डॉ. आलिम चंदानी, **हियर ए मिलियन** पहल के मिशन लीडर (जो **EnAble India** द्वारा शुरू की गई है), ने **2017 में दिलजीत दोसांझ के एक कॉन्सर्ट** में अपने अनुभव साझा किए, जिसमें उनके साथ एक अनुवादक भी मौजूद था।
- Despite facing hurdles such as **interpreters not being allowed on stage** and audience members bumping into him, this event allowed him to showcase how access should be granted even in informal settings.

अनुवादकों को मंच पर अनुमति न मिलने और दर्शकों के टकराने जैसी चुनौतियों के बावजूद, इस घटना ने उन्हें दिखाने का मौका दिया कि अनौपचारिक कार्यक्रमों में भी **पहुँच की सुविधा** कैसे दी जानी चाहिए।

- He later collaborated with **A.R. Rahman concert** organizers to select a team of interpreters to sign the songs.

बाद में उन्होंने **ए.आर. रहमान के कॉन्सर्ट** आयोजकों के साथ मिलकर गीतों के संकेत अनुवाद के लिए अनुवादकों की एक टीम का चयन किया।

- He worked with them to help them grasp the **lyrical content**, and after a week of dedicated practice, they were ready to convey music with gestures.

उन्होंने **गीतों की सामग्री** को समझने के लिए उनके साथ काम किया, और एक सप्ताह की समर्पित अभ्यास के बाद वे संकेतों के माध्यम से संगीत प्रस्तुत करने के लिए तैयार थे।

- "Music in **sign language** is like a fully visual depiction. Interpreters have to carefully interpret the **true intent** of the song, focusing on meaning over words," said Chandani.

'संकेत भाषा में संगीत एक पूरी तरह से दृश्य रूपांतरण के समान है। अनुवादकों को गीत के **असली उद्देश्य** को सावधानीपूर्वक समझना होता है, जिसमें शब्दों के बजाय अर्थ पर ध्यान देना होता है," चंदानी ने कहा।

- This visual richness and the intuitive nature of signing is what **Kanika Agarwal**, a Thane-based educator with a **hearing disability**, loves about ISL.

ठाणे की एक शिक्षिका **कनिका अग्रवाल**, जिन्हें **श्रवण बाधा** है, को इस दृश्य समृद्धता और संकेतों की सहज प्रकृति पसंद है।

- Speech is often arbitrary, but **ISL offers signs that visually capture the essence of an object**.

भाषण अक्सर मनमाना होता है, लेकिन ISL **ऐसी संकेत प्रदान करता है जो वस्तु का सार दृश्य रूप में प्रकट करते हैं।**



• This philosophy is echoed by **Shivoy Sharma**, a CODA (Child of Deaf Adults) and ISL interpreter, who recalled collaborating with Chandani during **A.R. Rahman concert** preparations. यह दर्शन **शिवोय शर्मा** (CODA और ISL अनुवादक) द्वारा भी व्यक्त किया गया है, जिन्होंने **ए.आर. रहमान कॉन्सर्ट** की तैयारियों में चंदानी के साथ सहयोग किया।

• He discussed with signers and hearing experts to ensure the interpretation was **visually appealing, musically, and culturally appropriate**.

उन्होंने सांकेतिक भाषा उपयोगकर्ताओं और श्रवण विशेषज्ञों के साथ चर्चा की ताकि अनुवाद **दृश्य रूप से आकर्षक, संगीतात्मक, और सांस्कृतिक रूप से उपयुक्त** हो।

• Sharma recalls how **instrumental sections like guitar and drum solos** are conveyed through body language reflecting the music's mood.

शर्मा बताते हैं कि कैसे **गिटार और ड्रम के सोलो जैसे वाद्य खंड** को शारीरिक भाषा के माध्यम से प्रस्तुत किया जाता है जो संगीत के मूड को दर्शाता है।

• When a song switches between male and female voices, interpreters subtly **shift their posture** to indicate the change.

जब गाना पुरुष और महिला आवाज़ों के बीच बदलता है, तो अनुवादक अपनी **मुद्रा में बदलाव** करते हैं ताकि परिवर्तन का संकेत मिल सके।

• Sharma emphasizes the importance of **ethical boundaries** in interpretation, ensuring that interpreters act as neutral linguistic facilitators.

शर्मा अनुवाद में **नैतिक सीमाओं** के महत्व पर जोर देते हैं, यह सुनिश्चित करते हुए कि अनुवादक तटस्थ भाषाई सेतु के रूप में कार्य करें।

• Chandani states that a lack of understanding about an interpreter's **role** among both hearing and non-hearing individuals can cause **confusion**.

चंदानी बताते हैं कि सुनने वाले और न सुनने वाले दोनों व्यक्तियों में अनुवादक की **भूमिका** के बारे में जानकारी की कमी **भ्रम** का कारण बन सकती है।

Need for awareness

जागरूकता की आवश्यकता

• Based on her experience as a **deaf educator**, Ms. Agarwal has observed a **lack of awareness in society**. Parents often face pressure from society to fit in and be "normal". अपनी **बधिर शिक्षक** के रूप में अनुभव के आधार पर, सुश्री अग्रवाल ने **समाज में जागरूकता की कमी** देखी है। माता-पिता अक्सर समाज से फिट होने और "सामान्य" बनने के लिए दबाव महसूस करते हैं।

• Until very recently, even **doctors in India discouraged the use of sign language**. They were warned that exposure to signing would hinder the child's ability to speak and thereby their success as individuals. हाल तक, **भारत में डॉक्टरों ने भी सांकेतिक भाषा के उपयोग को हतोत्साहित** किया। उन्हें चेतावनी दी गई थी कि सांकेतिक भाषा सीखने से बच्चे की बोलने की क्षमता और इसके साथ उनकी व्यक्तिगत सफलता में बाधा आ सकती है।

• One of the first things Chandani chose to do after moving to India was to "turn off" his voice even though he could speak. भारत आने के बाद, चंदानी ने सबसे पहले **अपनी आवाज को "बंद" करने** का निर्णय लिया, भले ही वह बोल सकते थे।

• "This decision stemmed from the societal perception that people with hearing disability who can speak and hear are often considered more successful than those who primarily communicate through sign



language." "यह निर्णय समाज की उस धारणा से प्रेरित था कि जो लोग सुनने में असमर्थ होते हुए भी बोल सकते हैं उन्हें सांकेतिक भाषा का उपयोग करने वालों की तुलना में अधिक सफल माना जाता है।

• "It is a misguided assumption that vocal ability somehow defines success... I wanted to show that a person with hearing disability who signs and does not speak can succeed just like any other 'normal' person." "यह गलत धारणा है कि वोकल एबिलिटी सफलता को परिभाषित करती है... मैं यह दिखाना चाहता था कि जो व्यक्ति सुनने में असमर्थ होते हुए भी सांकेतिक भाषा का उपयोग करता है, वह किसी अन्य 'सामान्य' व्यक्ति की तरह ही सफल हो सकता है।"

• A crucial step towards breaking this notion is to **build awareness and foster a sense of community** within the diverse spectrum of individuals with hearing disability. इस धारणा को तोड़ने के लिए एक महत्वपूर्ण कदम है जागरूकता बढ़ाना और बधिर व्यक्तियों में सामुदायिक भावना का विकास करना।

• This includes encouraging them to learn **sign language** and embrace the **culture of hearing disability**, thereby recognising the shared experiences of "audism", he said. इसमें उन्हें सांकेतिक भाषा सीखने के लिए प्रोत्साहित करना और बधिरता की संस्कृति को अपनाना शामिल है, जिससे "ऑडिज़्म" के साझा अनुभवों को पहचाना जा सके।

• Ms. Soumya, who **lost her hearing in middle school** and spent much of the following 23 years relying on **lip reading** to communicate, reflects on how navigating hospital visits during **COVID-19** was a major challenge. सुश्री सौम्या, जिन्होंने मध्य विद्यालय में अपनी सुनने की क्षमता खो दी और अगले 23 वर्षों तक लिप रीडिंग पर निर्भर रही, वे कोविड-19 के दौरान अस्पताल में संचार की कठिनाइयों को याद करती हैं।

• As masks obstructed her ability to **read lips**, it forced her to confront that something was missing from her life. मास्क के कारण लिप रीडिंग में बाधा आने पर उन्हें महसूस हुआ कि उनकी जिंदगी में कुछ कमी है।

• "I was able to figure out that what I was missing was the **community with hearing disability** which I had not been part of for the first 23 years since my hearing loss," she said. "मुझे पता चला कि मुझे बधिर समुदाय की कमी थी, जिसका हिस्सा मैं अपनी सुनने की क्षमता खोने के बाद पहले 23 वर्षों तक नहीं थी," उन्होंने कहा।

• Fortunately, she was introduced to the **Bengaluru community of people with hearing disability** where she not only learnt ISL but also observed children's grasp of **bilingual education** in English and ISL. सौभाग्य से, उन्हें बेंगलुरु के बधिर समुदाय से परिचित कराया गया, जहां उन्होंने न केवल आईएसएल सीखा बल्कि द्विभाषी शिक्षा (अंग्रेजी और आईएसएल) में बच्चों की समझ को भी देखा।

• "I am happy to report that having a sense of community and belonging has increased which further boosts the morale and sense of living as a person with hearing disability." "मैं यह बताते हुए प्रसन्न हूँ कि सामुदायिक भावना और संबंधितता का अनुभव बढ़ा है, जिससे बधिरता के साथ जीने का आत्मबल भी बढ़ा है।"

• "It is having an inclusive environment where I do not have to struggle hard to meet my **communication needs**," added Ms. Soumya. "यह एक समावेशी वातावरण है जहां मुझे अपनी संचार आवश्यकताओं को पूरा करने के लिए संघर्ष नहीं करना पड़ता," सुश्री सौम्या ने कहा।



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