



**To watch an in-depth discussion on the topic, click on the YouTube link below: <https://www.youtube.com/@PatrioticIAS>**

**For regular updates on UPSC and PCS preparation, join our Telegram Channel: <https://t.me/patrioticIAS>**

## **2024\_10\_24 DAILY CURRENT AFFAIRS**

### **TOPICS COVERED**

- 1. Modi, Xi hail border pact, seek to mend ties (GS Paper-II: IR)**
- 2. Supreme Court upholds State legislatures' right to regulate industrial alcohol as an 'intoxicant' (GS Paper-II: Center State Relations)**
- 3. Stubble burning violates right to clean environment: court**
- 4. SC sets aside NCLAT order on settlement by Byju's group (GS Paper-II)**
- 5. Chhota Rajan gets bail in 2001 hotelier murder case**
- 6. Cyberfraud losses could amount to 0.7% of GDP, projects Ministry's study**
- 7. Centre tightens norms for disability certificates; activists seek withdrawal**
- 8. Germany prepared to discuss Ariha case: envoy (PCS)**
- 9. Restrictions removed on non-basmati rice exports (PCS)**
- 10. 'Germany has given India special status for military purchase' (GS Paper-II: IR)**
- 11. India close to finalising industry carbon targets ahead of COP meet (GS Paper-III: Environment)**
- 12. Researchers meld AI and genomics to find thousands of new viruses (GS Paper-III: Basic Science)**
- 13. Ancient meteorite was 'giant fertilizer bomb' for life on earth (GS Paper-III: S&T)**
- 14. The Manipur crisis, the issue of managing diversity (GS Paper-II: Special Status)**
- 15. The shifting sands within global supply chains (GS Paper-II)**
- 16. Growth prescription (GS Paper-III: Economy)**



**17. Celebration and vigil (GS Paper-III: S&T)**

**18. On Boeing 737's 'defective' rudder system (GS Paper-III: DM)**

# Modi, Xi hail border pact, seek to mend ties

The talks on the sidelines of BRICS summit follow agreement to end the four-year stand-off at LAC

Bilateral meeting comes 5 years after last formal meet between the top leaders of India and China

Leaders decide to restart dialogue mechanisms between Foreign Ministers to stabilise relations

**GS Paper II: IR**

**Suhasini Haldar**  
NEW DELHI

In their first formal bilateral meeting in five years, Prime Minister Narendra Modi and Chinese President Xi Jinping have welcomed the agreement for a resolution of the military stand-off at the Line of Actual Control (LAC) announced earlier this week, as officials said they have now “set the process in motion for bringing [India-China] relations back to a normal path”.

In his opening remarks on Wednesday, Mr. Modi told Mr. Xi that maintaining peace and stability on the border should be a “priority” for both sides, but did not go into details of how the stand-off began in April 2020, when the Chinese People’s Liberation Army amassed troops along the LAC and transgressed the border, leading to a counter-deployment by the Indian Army.

“We believe that the India-China relationship is very important not only for our people but also for global peace, stability and progress,” Mr. Modi said.

“Maintaining peace and stability on the border should remain our priority. Mutual trust, mutual respect and mutual sensitivity should remain the basis of our relations,” he added.

**Stabilising relations**

In the talks held on the sidelines of the ongoing BRICS summit in Kazan, the leaders decided to restart dialogue mechanisms between Foreign Ministers and other officials to “stabilise and rebuild bilateral relations” that have been suspended on most issues other than the border situation, the Ministry of External Affairs said in a statement after the leaders’ meeting.

They tasked Special Re-



**Firm backing:** Chinese President Xi Jinping, Russian President Vladimir Putin, and Prime Minister Narendra Modi ahead of the BRICS Summit plenary session in Kazan, Russia, on Wednesday. AP

presentatives on the border question; National Security Adviser Ajit Doval and Chinese Foreign Minister and senior Politburo member of the Chinese Communist Party Wang Yi were to meet at an “early date” to take forward the larger question of resolving the border dispute.

Mr. Modi and Mr. Xi had last met for formal talks in Mamallapuram and the BRICS Summit in Brasilia in 2019, and held unscheduled interactions at the G-20 Summit in Indonesia in 2022, and the BRICS Summit in South Africa in 2023.

“Both the people in our two countries and the international community are paying great attention to our meeting,” Mr. Xi began his comments, calling on both India and China as “ancient civilisations, major developing countries, and important members of the Global South” to take

bilateral relations in the “right direction” as they had historically. “It is important for both sides to have more communication and cooperation, properly handle our differences and disagreements to facilitate each other’s development,” he added.

Briefing journalists in Kazan before departing for Delhi, Foreign Secretary Vikram Misri, who had on Monday first announced the agreement on “patrolling arrangements” and resolution of pending issues, gave more details of the breakthrough, although neither side has yet released the text of the agreement.

Mr. Misri said that after an impasse on the disengagement process in 2022, both Indian and Chinese officials had been involved in trying to find a resolution in the areas of Depsang and Demchok. He said that the “next steps” would involve

“activating” bilateral mechanisms on various fronts.

While stating that the agreement would “certainly lead to an easing of the situation along the LAC”, Mr. Misri declined to comment on whether it would mean that Indian and Chinese soldiers would now not need to spend another “freezing” winter season at the boundary.

“I would defer this question to our military leadership because this relates to operational matters and I think it would be best that we let our military leaders dwell on this particular issue,” he said, also side-stepping questions about the resumption of the Kailash-Mansarovar yatra or the restoration of direct travel routes between the two countries until the officials concerned meet.

When asked whether Russian President Vladimir Putin had played a “peace-

making” role in the timing of the LAC agreement, Mr. Misri said that both sides could “certainly thank Russia for providing the venue”. If the disengagement process, followed by the “de-escalation and de-induction” process, goes ahead, officials said that they expect to see meetings between Mr. Wang and both Mr. Doval and External Affairs Minister S. Jaishankar in the next few weeks.

While Mr. Modi might meet Mr. Xi or Chinese Premier Li Qiang at other multilateral events in the next few months, he is also due to visit China for the SCO Heads of State Summit in 2025. Mr. Misri said that Mr. Modi had promised “India’s full support to China’s SCO presidency” next year during the meeting on Wednesday.

**QUESTIONS REMAIN: CONG.**  
» PAGE 4

## BRICS nations should strengthen financial integration, says PM

**Kalol Bhattacharjee**  
NEW DELHI

India favours greater financial integration among the member-countries of the BRICS grouping, Prime Minister Narendra Modi declared on Wednesday at the 16th BRICS meeting in Kazan.

He placed India’s uncompromising position on international terrorism at the plenary session of the BRICS summit that blamed Israel for “unprecedented escalation of violence” in Gaza Strip and expressed “alarm” over the situation in Lebanon.

“We welcome efforts to increase financial integration among BRICS countries. Trade in local currencies and smooth cross-border payments will strengthen our economic cooperation. The Unified Payments Interface [UPI] developed by India is a huge success story and has been adopted in many countries,” said Mr. Modi, urging more countries to join India in doing trade in local currencies or locally developed payment mechanisms.

The plan to conduct trade in local currencies – away from the powerful U.S. dollar – has gained support, especially in the backdrop of the Russian military campaign in Ukraine that invited Western sanctions against it.

Reflecting that sentiment, the BRICS member-countries recognised “widespread benefit” of conducting trade in local currencies, saying, “We welcome the use of local



Plan to conduct trade in local currencies has gained support in the backdrop of sanctions against Russia. GETTY IMAGES

currencies in financial transactions between BRICS countries and their trading partners. We encourage strengthening of correspondent banking networks within BRICS and enabling settlements in local currencies in line with BRICS Cross-Border Payments Initiative (BCBPI), which is voluntary and non-binding.” Mr. Modi reminded the summit that as BRICS becomes more assertive in expressing collective aspirations, it should not try to replace other global institutions.

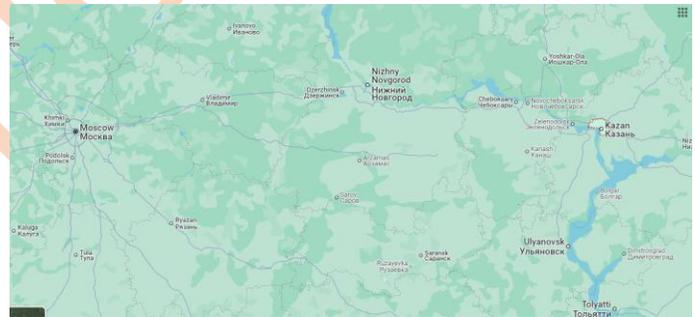
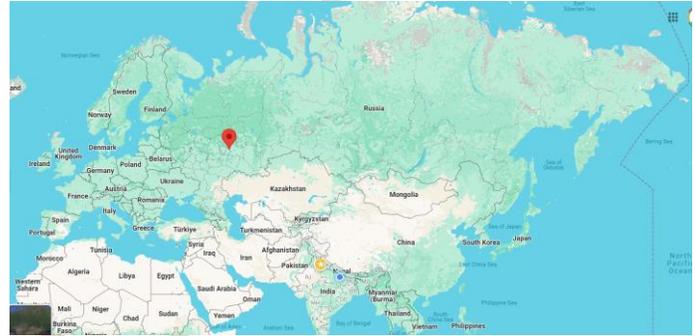
**Common statement**

The 16th BRICS summit that was attended for the first time by the leaderships of new member-countries Egypt, UAE, Saudi Arabia, Ethiopia, and Iran came out with a common statement – Kazan Declaration – that summed up BRICS’s position on challenges facing the world like conflicts in Gaza and Ukraine and creating more “responsive” international financial architecture.



## Modi, Xi hail border pact, seek to mend ties (24 October)

- Prime Minister Narendra Modi and Chinese President Xi Jinping held their first formal bilateral meeting in five years.
- They welcomed an agreement to resolve the military standoff at the Line of Actual Control (LAC).
- Both leaders aim to bring India-China relations back to a normal path.
- Modi emphasized that maintaining peace and stability on the border should be a priority, without detailing the origins of the standoff.
- He stated the India-China relationship is crucial for global peace, stability, and progress.
- The talks took place on the sidelines of the ongoing BRICS summit in Kazan.
- The leaders decided to restart dialogue mechanisms between Foreign Ministers and other officials to stabilize and rebuild bilateral relations.
- Special Representatives on the border issue, National Security Adviser Ajit Doval and Chinese Foreign Minister Wang Yi, are to meet soon.
- Modi and Xi last held formal talks in Mamallapuram and at the BRICS Summit in Brasilia in 2019, with informal interactions at G-20 and BRICS summits in 2022 and 2023.
- Xi highlighted the need for communication and cooperation to handle differences and facilitate development.
- Foreign Secretary Vikram Misri provided more details about the agreement on "patrolling arrangements" and pending issues.
- After a disengagement impasse in 2022, officials worked on resolutions in Depsang and Demchok areas.
- Misri indicated that the agreement would ease the situation along the LAC but did not confirm whether Indian and Chinese soldiers would avoid spending winter at the boundary.
- He deferred operational matters to military leadership and sidestepped questions about the Kailash-Mansarovar yatra and travel routes.



- When asked about Russia's role in the agreement's timing, Misri acknowledged Russia's contribution in providing the venue.
- If the disengagement and de-escalation process proceeds, meetings between Wang, Doval, and External Affairs Minister S. Jaishankar are expected soon.
- Modi may meet Xi or Chinese Premier Li Qiang at future multilateral events and is set to visit China for the SCO Heads of State Summit in 2025.
- Misri noted Modi's commitment to support China's SCO presidency during their meeting.

## Supreme Court upholds State legislatures' right to regulate industrial alcohol as an 'intoxicant'

### GS Paper II: Center State Relations

A Constitution Bench of nine judges, in an 8:1 majority judgment, upheld the State legislatures' right to regulate industrial alcohol.

The majority opinion authored by Chief Justice D.Y. Chandrachud held that the phrase "intoxicating liquor" in Entry 8 of the State List in the Seventh Schedule of the Constitution would include industrial alcohol within its ambit. Entry 8 gives States the power to regulate the production, manufacture, possession, transport, purchase and sale of "intoxicating liquor".

Justice B.V. Nagarathna, in her lone dissent, however, held that "industrial alcohol" cannot be brought within the ambit of "intoxi-

cating liquor" in Entry 8. The judge said the States did not have legislative competence to regulate industrial alcohol or denatured spirit.

Multiple States had challenged the Centre's position that it had exclusive control over industrial alcohol. The Centre had traced its power to Entry 52 of the Union List.

Entry 52 says "industries, the control of which by the Union is declared by Parliament by law to be expedient in public interest".

#### 'Public interest'

"Entry 8 of List II is based on public interest. It seeks to enhance the scope of the Entry beyond potable alcohol. This is inferable from the use of the phrase 'intoxicating' and other accompanying words in the Entry. Alcohol is inherent-



Entry 8 of List II... seeks to enhance the scope of the Entry beyond potable alcohol. This is inferable from the use of the phrase 'intoxicating'

**D. Y. CHANDRACHUD**  
Chief Justice of India

ly a noxious substance that is prone to misuse affecting public health at large. Entry 8 covers alcohol that could be used noxiously to the detriment of public health. This includes alcohol such as rectified spirit, ENA [extra neutral alcohol] and denatured spirit which are used as raw materials in the production of potable alcohol and other products." Chief Justice Chandrachud held in the majority opinion.

The primary questions

referred to the nine-judge Bench included whether Entry 52 in the Union List overrode Entry 8 of the State List and if the expression 'intoxicating liquors' in Entry 8 of List II included alcohol other than potable alcohol.

The Supreme Court held that Entry 8 was both an industry-based as well as a product-based entry in the State List. It covered the regulation of everything from the raw materials to the consumption of 'in-

toxicating liquor'. "The Parliament cannot occupy the field of the entire industry merely by issuing a declaration under Entry 52 of List I," Chief Justice Chandrachud held.

The State Legislature's competence to make laws on industries under Entry 24 of the State List was deduced only to the extent of the field covered specifically by a Parliamentary law under Entry 52 of the Union List, the majority on the Bench agreed.

The term 'intoxicating liquor' in Entry 8 should be given a definition as broad as possible, the CJI wrote. "That is, alcoholic beverages that produce intoxication. All the judgments interpreted the expression to cover alcohol that could be noxiously used to the detriment of health," he explained.

## Supreme Court upholds State legislatures' right to regulate industrial alcohol as an 'intoxicant' (24 October)

- A Constitution Bench of nine judges delivered an 8:1 majority judgment upholding State legislatures' right to regulate industrial alcohol.
- Chief Justice D.Y. Chandrachud authored the majority opinion, stating that "intoxicating liquor" in Entry 8 of the State List includes industrial alcohol.





- Entry 8 gives States the authority to regulate the production, manufacture, possession, transport, purchase, and sale of "intoxicating liquor."
- Justice B.V. Nagarathna dissented, arguing that "industrial alcohol" should not fall under "intoxicating liquor" in Entry 8.
- Nagarathna stated that States lack legislative competence to regulate industrial alcohol or denatured spirit.
- Multiple States challenged the Centre's claim of exclusive control over industrial alcohol, which the Centre based on Entry 52 of the Union List.
- Entry 52 states that the Union can control industries deemed expedient in public interest.
- Chief Justice Chandrachud emphasized that Entry 8 is based on public interest and aims to include alcohol beyond just potable forms.
- He noted that alcohol is inherently a noxious substance that can affect public health and includes rectified spirit, ENA (extra neutral alcohol), and denatured spirit.
- The primary questions for the Bench included whether Entry 52 in the Union List overrides Entry 8 of the State List and whether "intoxicating liquors" includes non-potable alcohol.
- The Supreme Court determined that Entry 8 is both industry-based and product-based, covering regulation from raw materials to consumption.
- Chandrachud asserted that Parliament cannot occupy the entire industry field solely through Entry 52 declarations.
- The State Legislature's authority to make laws on industries under Entry 24 of the State List is limited only by specific Parliamentary laws under Entry 52.
- The term "intoxicating liquor" in Entry 8 should be broadly defined to include alcoholic beverages that cause intoxication.
- All judgments interpreted "intoxicating liquor" to encompass alcohol that could be misused to harm health.



# Stubble burning violates right to clean environment: court

**The Hindu Bureau**

NEW DELHI

The Supreme Court on Wednesday said continuing cases of stubble burning and the “pick-and-choose” policy adopted by the Punjab and Haryana governments to penalise a few while letting many violators go “scot-free” after paying a nominal fine violated citizens’ right to live in a pollution-free environment.

“There is a fundamental right vested in every citizen under Article 21 of the Constitution to live in an environment free of pollution,” a three-judge Bench headed by Justice A.S. Oka observed. The court said officials had failed in not only effectively implementing existing laws but

also allowed blatant violation of the fundamental rights guaranteed under Article 21. “It is time governments addressed the question of how they are going to protect the rights of citizens to live with dignity in a pollution-free environment,” the court said.

Justice Ahsanuddin Amanullah said the onset of every winter brought cases of pollution to the court, which has passed orders. “But what has actually changed,” he asked.

Justice Oka pointed out that a proper machinery for collection of fines under Section 15 of the Environment (Protection) Act, 1986 had not been formulated.

**DELHI’S POLLUTION WOES**

» PAGE 9

## Stubble burning violates right to clean environment: court (24 October)

- The Supreme Court stated that ongoing cases of stubble burning and the selective penalization by the Punjab and Haryana governments violate citizens’ right to a pollution-free environment.
- A three-judge Bench led by Justice A.S. Oka emphasized that Article 21 of the Constitution guarantees every citizen the fundamental right to live in an unpolluted environment.
- The court criticized officials for failing to implement existing laws effectively and allowing clear violations of fundamental rights under Article 21.
- The court urged governments to address how they will protect citizens’ rights to live with dignity in a pollution-free environment.
- Justice Ahsanuddin Amanullah noted that pollution cases arise every winter, questioning what has actually changed in the response to these issues.
- Justice Oka highlighted the lack of a proper mechanism for collecting fines under Section 15 of the Environment (Protection) Act, 1986.



## SC sets aside NCLAT order on settlement by Byju's group

### GS Paper II

Krishna Das Rajagopal

NEW DELHI

The Supreme Court on Wednesday set aside a decision of the National Company Law Appellate Tribunal allowing a ₹158-crore settlement between ed-tech firm Byju's and the Board of Control for Cricket in India.

A three-judge Bench headed by Chief Justice D.Y. Chandrachud said there was "grave deviations" in the procedure adopted for bringing the case to the NCLAT itself.

It directed that the ₹158-crore settlement amount along with accrued interest be deposited with the Committee of Creditors.

## SC sets aside NCLAT order on settlement by Byju's group (24 October)

- The Supreme Court set aside a decision by the National Company Law Appellate Tribunal (NCLAT) that allowed a ₹158-crore settlement between Byju's and the Board of Control for Cricket in India (BCCI).
- A three-judge Bench led by Chief Justice D.Y. Chandrachud identified "grave deviations" in the procedure used to bring the case to the NCLAT.
- The court ordered that the ₹158-crore settlement amount, along with accrued interest, be deposited with the Committee of Creditors.

### National Company Law Appellate Tribunal (NCLAT)

- The **National Company Law Appellate Tribunal (NCLAT)** is a quasi-judicial body in India that was constituted under Section 410 of the **Companies Act, 2013** to hear appeals against the orders of the **National Company Law Tribunal (NCLT)**.
- It also handles appeals from orders passed by the **Insolvency and Bankruptcy Board of India (IBBI)** and the **Competition Commission of India (CCI)**, among others.

#### Background and Structure:

- **Historical Background:** The NCLAT was established to ensure faster resolution of corporate disputes, with the aim of strengthening the insolvency resolution framework in India. It became operational on **June 1, 2016**.



- **Constitutional Provisions:** Article 323B of the Indian Constitution provides for tribunals dealing with specific subjects, and the NCLAT was established to streamline corporate dispute resolution, reducing the burden on regular courts.
- **Headquarters:** The NCLAT is headquartered in **New Delhi**, with a proposal to set up more benches in different regions.

#### **Jurisdiction and Powers:**

- **Hears Appeals:**
  1. **From NCLT:** Appeals against decisions of the National Company Law Tribunal (NCLT), relating to companies and insolvency resolution processes.
  2. **From IBBI:** Decisions taken by the Insolvency and Bankruptcy Board of India (IBBI).
  3. **From CCI:** Appeals against any order passed by the Competition Commission of India (CCI) under the **Competition Act, 2002**.
  4. **From other Statutory Tribunals:** In certain cases, NCLAT hears appeals from other statutory bodies.
- **Final Authority:** NCLAT's decisions can be further appealed only in the **Supreme Court of India**.

#### **Important Data and Facts:**

- **Insolvency and Bankruptcy Code (IBC), 2016:** The NCLAT plays a crucial role in the implementation of the Insolvency and Bankruptcy Code (IBC). According to data from the **Insolvency and Bankruptcy Board of India (IBBI)**, the NCLAT has resolved several landmark cases involving insolvency, like the **Essar Steel case**.
- **Corporate Governance:** NCLAT plays a pivotal role in improving corporate governance and strengthening the business environment by providing speedy redressal of corporate disputes.

#### **Recent Updates:**

- **Virtual Hearings:** In response to the COVID-19 pandemic, the NCLAT, like many other judicial bodies, adapted to the situation by conducting **virtual hearings**, allowing disputes to be heard despite physical restrictions.
- **Landmark Judgments:** In 2019, NCLAT upheld the **CCI's Rs. 135.86 crore fine on Google** for abuse of its dominant position in the Android mobile operating system market, making it a landmark judgment in competition law in India.
- **Recent Expansion:** In 2021, the government announced plans to expand the NCLAT with additional benches across different regions to cater to the growing number of corporate and insolvency cases.

#### **Significance:**

- **Speedy Resolution of Cases:** NCLAT, along with NCLT, has greatly reduced the time taken for resolving insolvency and corporate matters in India. Earlier, such cases would take years to resolve through civil courts.





- **Corporate Efficiency:** The functioning of NCLAT has enhanced the ease of doing business by enabling faster resolution of disputes, which is a key factor in India's rising ranking in the **World Bank's Ease of Doing Business** report.

**Challenges:**

- **Caseload:** The NCLAT faces a significant backlog of cases, particularly with the rising number of insolvency cases under IBC.
- **Judicial Vacancies:** There are issues related to unfilled vacancies and the need for more benches in other regions.

PATRIOTIC IAS



# Cyberfraud losses could amount to 0.7% of GDP, projects Ministry's study

**Vijaita Singh**

NEW DELHI

Indians are likely to lose over ₹1.2 lakh crore over the next year to cyber-frauds, shows a projection made by the Indian Cyber Crime Coordination Centre (I4C), which runs under the Union Home Ministry.

A senior government official said that according to the I4C study, mule bank accounts are one of the significant contributors to the online financial scams that could potentially siphon off 0.7% of the country's GDP.

"A majority of the defrauded money is being taken out of the country and most scams have origins in China or Chinese-linked entities. There are domestically run scams too, where money is withdrawn from ATMs after jumping through several accounts," the official said.

According to a presentation by I4C, seen by *The*



The government has identified "scam compounds" in South East Asian countries.

*Hindu*, the investigating agency identifies around 4,000 mule bank accounts each day.

The Citizen Financial Cyber Fraud Reporting and Management System of I4C has identified 18 ATM hotspots across the country from where money was fraudulently withdrawn. Cash withdrawals have also been reported from overseas ATMs using the debit cards of mule accounts in Dubai, Hong Kong, Bangkok, and Russia.

The government has identified "scam compounds" in South East

Asian countries such as Cambodia, Myanmar, and Laos which resemble call centres and have emerged as a hub of investment scams. Fraudsters – including a large number from India – make calls to unsuspecting people from Indian mobile phone numbers and dupe people of their money. The official said that scam compounds have been recently identified in Azerbaijan.

The Home Ministry is likely to convene a meeting with the Union Finance Ministry and the Reserve Bank of India to develop a mechanism to rein in mule accounts.

"The bank officials have to alert if they see unusually high-value transactions in accounts which have low balances or belong to salaried people. The defrauded money is usually parked in these accounts before being taken out of the country in the form of cryptocurrency," the official said.



## **Cyber fraud losses could amount to 0.7% of GDP, projects Ministry's study (23 October)**

- Indians are projected to lose over ₹1.2 lakh crore to cyberfrauds over the next year, according to the Indian Cyber Crime Coordination Centre (I4C).
- Mule bank accounts are significant contributors to online financial scams, potentially siphoning off 0.7% of the country's GDP.
- A majority of the defrauded money is taken out of India, with many scams originating in China or Chinese-linked entities.
- Domestically run scams involve money being withdrawn from ATMs after being funneled through several accounts.
- The I4C identifies around 4,000 mule bank accounts each day.
- The Citizen Financial Cyber Fraud Reporting and Management System of I4C has pinpointed 18 ATM hotspots for fraudulent withdrawals.
- Cash withdrawals have also been reported from overseas ATMs using mule account debit cards in locations like Dubai, Hong Kong, Bangkok, and Russia.
- The government has identified "scam compounds" in Southeast Asian countries, resembling call centers, that are hubs for investment scams.
- Fraudsters, including many from India, use Indian mobile numbers to dupe unsuspecting individuals.
- Recent scam compounds have also been identified in Azerbaijan.
- The Home Ministry plans to meet with the Union Finance Ministry and the Reserve Bank of India to create a mechanism to address mule accounts.
- Bank officials are advised to be alert for unusually high-value transactions in accounts with low balances or those belonging to salaried individuals.
- Defrauded money is typically parked in these accounts before being transferred out of the country, often in the form of cryptocurrency.



# Centre tightens norms for disability certificates; activists seek withdrawal

GS Paper II: Governance

**The Hindu Bureau**

NEW DELHI

A day after the Union government notified amendments to the Rights of Persons with Disabilities Rules, tightening the norms for getting a disability certificate, the National Platform for the Rights of the Disabled (NPRD) on Wednesday denounced them and called for their withdrawal.

The NGO said the amendments “are regressive in nature and will only add to the already existing hurdles for genuine persons with disabilities to get certified, so essential for identification, accessing services and entitlements”.

The government notified the final amendments in an Extraordinary Gazette published on October 22.

The amendments to the rules came in the wake of the row over Puja Khedkar, a dismissed IAS probation-

**Amendments came in the wake of the row over Puja Khedkar, accused of faking her disability certificate**

er accused of faking her disability certificate, among other transgressions.

The new rules will require people with disabilities to mandatorily submit proof of identity. They further require only medical authorities to be considered competent to receive and process applications for disability certificates, also increasing the time taken to process each application from one to three months.

The amended rules also have a clause in Rule 18 that allows for an application to lapse or become “inactive” if the medical authority concerned is unable to decide on it for over two years – following which the applicant will

have to re-apply or approach the authority to reactivate it.

The NPRD, along with over five dozen disability rights bodies and activists, had raised objections to the new rules. “It is regrettable that none of the concerns expressed by various disability rights organisations and activists were considered,” NPRD general secretary V. Muralidharan said in a statement on Wednesday.

“The proposed amendments are based on the wrongful understanding that persons with disabilities alone are to be blamed for manipulation of the process. The number of fake certificates being issued is a very small percentage of the total number of disability certificates being issued, and similar flaws exist in almost all systems of documentation in India. Thus, the response of making the process more stringent and difficult is totally flawed,” he added.



## **Centre tightens norms for disability certificates; activists seek withdrawal (24 October)**

- The National Platform for the Rights of the Disabled (NPRD) condemned the Union government's recent amendments to the Rights of Persons with Disabilities Rules.
- NPRD called for the withdrawal of the amendments, stating they are regressive and will increase hurdles for genuine persons with disabilities to obtain certification.
- The amendments were notified in an Extraordinary Gazette published on October 22.
- The changes followed a controversy involving Puja Khedkar, a dismissed IAS probationer accused of faking her disability certificate.
- New rules require individuals with disabilities to mandatorily submit proof of identity.
- Only medical authorities will be deemed competent to receive and process disability certificate applications.
- The processing time for each application has increased from one month to three months.
- A new clause in Rule 18 allows applications to lapse or become “inactive” if not decided upon within two years, requiring re-application or reactivation.
- NPRD, alongside over fifty disability rights organizations and activists, raised objections to the new rules.
- NPRD general secretary V. Muralidharan expressed regret that concerns from disability rights groups were ignored.
- The amendments reflect a wrongful belief that persons with disabilities are primarily to blame for manipulation of the certification process.
- The number of fake certificates issued is a small percentage of total disability certificates, and similar issues exist in other documentation systems in India.
- Making the certification process more stringent and difficult is seen as flawed by the NPRD.



# Germany prepared to discuss Ariha case: envoy

PCS

**Suhasini Haidar**  
NEW DELHI

German Chancellor Olaf Scholz will be prepared to discuss the issue of three-year-old Ariha Shah, an Indian child taken into foster care by German authorities, when he visits India this week, German Ambassador Philipp Ackermann said on Wednesday. He added that the government in Berlin “continues to work to find a satisfactory solution for the future of the child”.

Ariha’s parents and members of the Jain community are urging the Ministry of External Affairs (MEA) to push for a solution that would see the child return to India, or at least be raised according to their culture. Ariha was removed from her parents’ custody by German authorities

in 2021, over allegations that she had been physically abused and had sustained grievous injuries while in their care. Although her father, Bhavesh Shah, an engineer working in Germany, and her mother, Dhara Shah, a homemaker, and Ariha herself are all Indian citizens, a German court decreed that she would live in foster care in Germany until she turns 18.

## Language training

In response to a question during a briefing on Mr. Scholz’s visit, slated to take place from October 24 to 26, Mr. Ackermann said that through close contact between the MEA, the German Embassy, and the Youth Authorities in Berlin, they had been able to procure an “in-principle” agreement that Ariha



A German court decreed that Ariha would live in foster care in Germany until she turns 18. SPECIAL ARRANGEMENT

would receive training in an Indian language and some exposure to Indian culture as she grows up with a foster parent.

“What we have achieved in the last couple of months is: this language training in-principle is there, an exposure to [Indian] culture is there, and exposure to festivals is there,” Mr. Ackermann said, referring to Ariha’s

participation in the Paryushan celebrations, and her interactions with a priest who flew from Mumbai to teach her some rituals.

The Shahs are also allowed to meet their daughter once or twice a month, though their interactions are restricted and monitored by German authorities.

Mr. Scholz will arrive in

Delhi late on Thursday night and will meet Prime Minister Narendra Modi on Friday. Both leaders will address the 18th Asia-Pacific Conference of German Business 2024. They will also hold talks as part of their biannual Inter-Governmental Consultations followed by agreements on several issues. Topics include skilling and employment, strategic and military exchanges, and science and technology cooperation, including collaborations between the Indian Space Research Organisation and the German Space Agency.

Mr. Ackermann said there is a “clear possibility” that India will raise Ariha’s case during these talks, making it clear that the Germans are “prepared to answer any queries”.

## Germany prepared to discuss Ariha case: envoy (24 October)

- German Chancellor Olaf Scholz is prepared to discuss the case of three-year-old Ariha Shah during his visit to India this week.
- German Ambassador Philipp Ackermann stated that the Berlin government is working to find a satisfactory solution for the child's future.
- Ariha’s parents and the Jain community are urging the Ministry of External Affairs (MEA) to seek her return to India or ensure she is raised according to their culture.
- Ariha was taken into foster care by German authorities in 2021 over allegations of physical abuse and grievous injuries.
- Despite being Indian citizens, a German court decreed that Ariha would remain in foster care in Germany until she turns 18.





- Ackermann mentioned that through cooperation between the MEA, the German Embassy, and Youth Authorities in Berlin, an “in-principle” agreement has been reached for Ariha to receive training in an Indian language and exposure to Indian culture.
- Ariha has participated in Paryushan celebrations and interacted with a priest from Mumbai for cultural rituals.
- The Shahs can meet their daughter once or twice a month, but these interactions are restricted and monitored.
- Scholz will arrive in Delhi late on Thursday night and meet Prime Minister Narendra Modi on Friday.
- Both leaders will address the 18th Asia-Pacific Conference of German Business 2024 and hold biannual Inter-Governmental Consultations.
- Topics of discussion will include skilling and employment, strategic and military exchanges, and science and technology cooperation.
- Ackermann noted there is a “clear possibility” that India will raise Ariha’s case during the talks, and Germany is ready to respond to any queries.

## **Restrictions removed on non-basmati rice exports (24 October)**

- The Directorate General of Foreign Trade (DGFT) has removed the minimum export price for non-basmati white rice.
- A notification issued on Wednesday stated the removal of the \$490 per tonne minimum export price on non-basmati white rice, effective immediately.
- The Revenue Department removed the export duty on parboiled rice on Tuesday.
- The government had introduced restrictions on rice exports in 2022.
- With the recent notifications, the export of non-basmati white rice and parboiled rice is now without any restrictions.

## **Restrictions removed on non-basmati rice exports**

**PCS**  
**The Hindu Bureau**  
COIMBATORE

The Directorate General of Foreign Trade (DGFT) has removed the minimum export price for non-basmati white rice.

In a notification on Wednesday, the DGFT removed the \$490 a tonne minimum export price on non-basmati white rice with immediate effect. The Revenue Department on Tuesday removed the export duty on parboiled rice.

The government introduced restrictions on rice exports in 2022. With the notifications issued, the export of non-basmati white rice and parboiled rice is without any restrictions.



# 'Germany has given India special status for military purchase'

**GS Paper II: International Relations**

Germany has accorded a special status to India so that approvals for military purchases can be accelerated, German Ambassador **Philipp Ackermann** said on Wednesday, adding that the German seller was awaiting the Indian government to complete its decision-making processes with regard to the **P-75I submarine deal**.

The multi-billion dollar deal will top the agenda during this week's visit to India by German Chancellor **Olaf Scholz** and over the weekend when **Spanish Prime Minister Pedro Sanchez** is due to visit.

Germany's **TKMS** (Thyssenkrupp Marine Systems) and **Navantia** of Spain are the two contenders in the fray to sell six advanced conventional submarines to the Indian Navy, in a deal estimated at over ₹43,000 crore. Having completed the field evaluation trials, the bids are now under evaluation for technical compliance.

"The German defence industry is mostly privatised. It is basically a private business, but we are very clearly committed to make these deals possible. So if the Indian armed forces want to buy something



Philipp Ackermann

from German companies, what you have now is a focus paper in the German Cabinet that is looking very, very favourably at these purchases, and that means that approval time is much accelerated," the German envoy said at a press conference ahead of the Chancellor's visit.

Regarding the submarine deal, Mr. Ackermann said it was now up to the Indian government to make a decision. The German government will be ready to engage formally in this deal.

"But an in-principle decision has to be taken before entering," he said, terming it a heavy decision, because a lot of money is involved.

While an Indian Navy team visited the **TKMS** shipyard in March for field evaluation trials, the evaluation of **Navantia's** offer was conducted at the end of June.

# 'Germany has given India special status for military purchase' (24 October)

- Germany has accorded special status to India to accelerate approvals for military purchases, according to German Ambassador **Philipp Ackermann**.
- The German seller is awaiting the Indian government's decision on the **P-75I submarine deal**.
- This multi-billion dollar deal will be a key agenda item during German Chancellor **Olaf Scholz's** visit to India and the upcoming visit from Spanish Prime Minister **Pedro Sanchez**.
- Germany's **TKMS** (Thyssenkrupp Marine Systems) and Spain's **Navantia** are the two contenders for selling six advanced conventional submarines to the Indian Navy, in a deal estimated at over ₹43,000 crore.
- Field evaluation trials have been completed, and the bids are now under evaluation for technical compliance.
- The German defence industry is primarily privatized, but there is a commitment to facilitate these deals.
- The German Cabinet has issued a focus paper favorably looking at these purchases, resulting in accelerated approval times.
- The decision regarding the submarine deal now rests with the Indian government, and the German government is ready to engage formally once an in-principle decision is made.
- An Indian Navy team visited the **TKMS** shipyard in March for field evaluation trials, and **Navantia's** offer was evaluated at the end of June.



# India close to finalising industry carbon targets ahead of COP meet

GS Paper III:  
Environment

NEW DELHI

In the run-up to the 29th edition of the Conference of Parties (COP) in Baku, Azerbaijan, next month, India is at an advanced stage in deciding the carbon dioxide emissions intensity targets for select industries, a senior official in the Union Environment Ministry told *The Hindu* on Wednesday.

Numerically specifying the targets is a precursor to the setting up of a “compliance” carbon market. This means that companies have to ensure that their carbon emissions intensity are within the specified limit or they must “buy” credits from organisations that have surplus credits. Every tonne of carbon dioxide saved, over and above the target, is worth one credit. The



Specifying emission targets in the run-up to Baku COP summit next month is a precursor to creating a ‘compliance’ carbon market. AP

price of a credit varies depending on demand and supply, and regulatory pressure, and this is mediated by the market. Emissions intensity is carbon dioxide emission per unit of production.

“We expect a final position on this very soon. There are still discussions going on with industry, but we want to ensure that the

final document is clear and covers all aspects,” the official said.

As per a notification by the Bureau of Energy Efficiency (BEE) in December 2023, India is obliged to launch its compliance market in the financial year 2025-26.

A body called the National Steering Committee for Indian Carbon Market

(NSC-ICM), which is co-chaired by Secretary, Ministry of Environment, Forest and Climate Change, and Secretary, Ministry of Power, is tasked with having “direct oversight” of the functioning of the Indian carbon market.

India’s emission caps for industries are expected to build on an existing scheme called the Perform, Achieve and Trade Scheme under which industries are expected to meet prescribed energy-efficiency targets. The sectors that are expected to come under the compliance industry are the aluminium, chlor alkali, cement, fertilizer, iron and steel, pulp and paper, petrochemicals, petroleum refinery, and textiles. These are “hard to abate” sectors as the costs of implementing technology to curb emissions is costly.

## India close to finalising industry carbon targets ahead of COP meet (24 October)

- India is finalizing carbon dioxide emissions intensity targets for select industries ahead of COP 29 in Baku, Azerbaijan.
- Setting specific targets is a precursor to establishing a “compliance” carbon market.
- Companies must keep their carbon emissions intensity within specified limits or buy credits from organizations with surplus credits.
- Each tonne of carbon dioxide saved beyond the target earns one credit, with the price varying based on market demand, supply, and regulatory pressure.
- Emissions intensity refers to carbon dioxide emissions per unit of production.
- A senior official indicated that final discussions with industry stakeholders are ongoing, aiming for a clear and comprehensive final document.





- According to a Bureau of Energy Efficiency notification, India must launch its compliance market in the financial year 2025-26.
- The National Steering Committee for Indian Carbon Market (NSC-ICM) oversees the Indian carbon market, co-chaired by the Secretaries of the Ministries of Environment and Power.
- Emission caps will build on the existing Perform, Achieve and Trade Scheme, which mandates energy-efficiency targets.
- Sectors expected to fall under the compliance market include aluminium, chlor alkali, cement, fertilizer, iron and steel, pulp and paper, petrochemicals, petroleum refinery, and textiles.
- These sectors are classified as "hard to abate" due to high costs associated with implementing emissions-reduction technologies.

### Culture-based methods

- Culture-based methods are techniques used by scientists to grow and study microorganisms (like bacteria and fungi) in a lab by creating a controlled environment, such as a **petri dish or a nutrient-rich broth**.
- This helps them observe how these organisms grow, multiply, and behave. For microbes, it's relatively easy because scientists can mimic their natural surroundings, providing the right food, temperature, and conditions for them to thrive.
- However, viruses are more challenging to study using these methods. Unlike bacteria, viruses can't grow on their own; they need to infect living cells to reproduce.
- Since viruses depend on host cells, scientists can't just grow them on a dish the same way they grow bacteria, making it difficult to study them using traditional culture-based methods.



# Researchers meld AI and genomics to find thousands of new viruses

Computational algorithms look for proteins similar to sequences in databases. As a result, they risk missing proteins that have evolved and changed. This risk may not hold for long, however, thanks to scientific approaches that combine genetics, gene-sequencing, and deep-learning methods

**GS Paper III: Basic Science**

Sridhar Sivasubbu  
Vinod Scaria

**F**or most of modern history, people have overlooked viruses, even though they are the most abundant biological entity on the planet and carry immense ecological significance. Viruses are found in every nook and corner of the world – from soil and water to the atmosphere and even extreme environments like hot springs and hydrothermal vents.

Viruses are obligate parasites; they require a host to infect and replicate. This relationship goes both ways. Thanks to advances in research, scientists are increasingly recognising viruses as agents of disease but also as integral components of ecosystems. Viruses drive genetic evolution through horizontal gene transfer, control microbial population balance, and even affect biogeochemical cycles.

They play critical roles in maintaining biodiversity and may even influence climate regulation. Understanding their influence is thus key to unravelling the complexities of life on earth. Yet only a small fraction of the roughly 100 million to a trillion viral species has been identified to date.

## The unknown-unknown threat

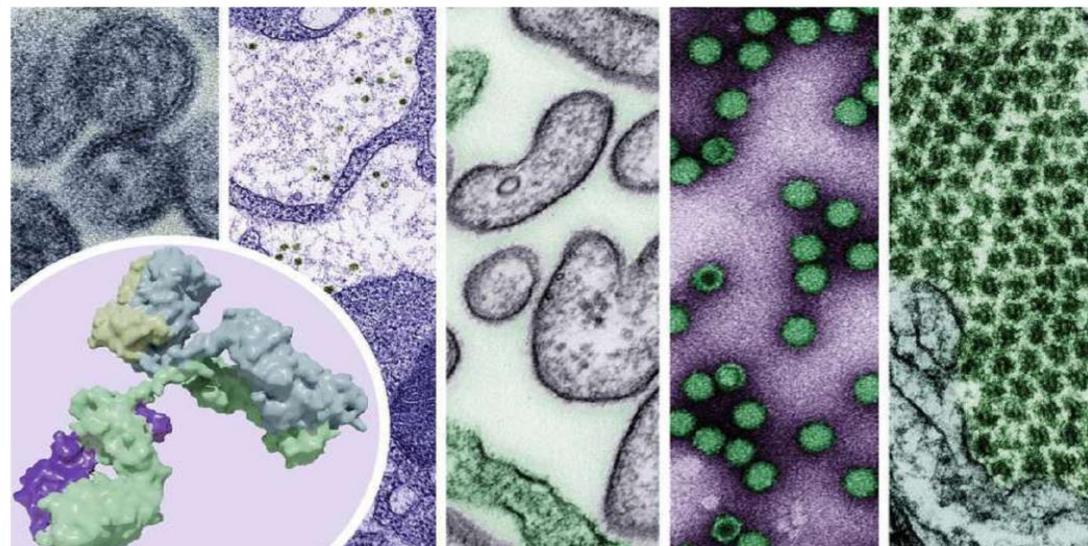
Beyond their environmental roles, understanding viruses is crucial for us to anticipate emerging infectious diseases. Some studies have estimated there are around 300,000 mammalian viruses yet to be discovered, many of which pose zoonotic threats. Unlike microbes, which scientists have studied using culture-based methods, viruses have remained understudied because of challenges to culturing them.

The rapidly improving scale and declining costs of nucleotide sequencing have resulted in the widespread use of genome-sequencing approaches to understand microbes in the environment, particularly in metagenomics studies. These approaches have transformed our ability to explore the vast diversity of microbes and viruses in the last decade. In a metagenomic study, researchers analyse genetic material directly from environmental samples, allowing them to identify and study an organism without the need for culturing organic material like tissues in an intermediate step.

## Bugger but faster

In recent years, metagenomics has helped scientists identify a staggering number of previously unknown microbes in diverse environments. These discoveries have significantly expanded our understanding of microbial ecosystems. As sequencing technologies continue to improve – becoming more accurate, faster, and more affordable – alongside better global data-sharing practices, scientists are beginning to unlock the secrets of the microbial world at an unprecedented pace.

In this regard, RNA viruses are of especial significance primarily because they mutate rapidly and adapt quickly to new conditions. More specifically, DNA viruses have more stable genomes, and their genome-replicating mechanism makes fewer 'mistakes' when they



A 3D rendering of an antibody (foreground left) and examples of high-priority "prototype" pathogens that threaten human health, which are the focus of pandemic preparedness research efforts worldwide. From left to right: hantavirus, yellow fever virus, Nipah virus, picornavirus, and Chikungunya. NIAID

proliferate – whereas RNA viruses replicate faster with higher error rates. This characteristic is also particularly relevant in the context of emerging infectious diseases: COVID-19, Ebola, and influenza are all caused by RNA viruses.

## Serratus ups the ante

One way to identify an RNA virus is to track down and isolate fragments of a specific gene that is essential for the virus to replicate: RNA-dependent RNA polymerase, or RdRP. RdRP is one of the most ancient of genes, so much so that many researchers believe it was among the world's first genes. RdRP proteins have regions that are well-conserved (i.e., which the organism preserves as it evolves) and motifs in the protein that are essential for its function, which is to replicate RNA using a template.

In 2022, Canadian researchers led by Artem Babaian built an open source tool called Serratus. When scientists sequenced a gene, Serratus could match the sequence data with sequences known to be related to viral RdRP proteins. The researchers collected more than 10 petabytes of sequencing data encompassing 5.7 million sequencing libraries from diverse ecologies. When they fed this dataset to Serratus, it uncovered the presence of more than 100,000 viruses, considerably expanding the diversity of viruses known to humankind. Their findings were published in *Nature* in January 2022.

In another study published in *Science* in the same year, U.S. researchers led by Ahmad Zayed at the University of Ohio used computational tools to sift through terabytes of RNA sequence data to identify thousands of new RNA virus species. In particular, this team identified a new viral species to fill an important gap in our scientists' understanding of RNA virus evolution; a new species that dominated the oceans; and another species that could infect mitochondria (organelles in cellular organisms that

**Understanding viruses is crucial to anticipating emerging diseases. Studies estimate there are around 300,000 mammalian viruses yet to be discovered. Unlike microbes, viruses have remained understudied**

serve as the energy source, believed to have originated from microbes).

## A transformative effect

An important shortcoming of the metagenomic approach is that computational algorithms typically look for proteins very similar to sequences already in databases. As a result they risk missing proteins that have evolved and changed form. This risk may not hold for long, however. In a recent study, researchers from multiple Chinese research organisations combined genomics with a transformer.

In deep-learning, a transformer is a type of machine learning model known for its ability to train rapidly to identify specific patterns.

In the study, researchers fed genome-sequencing data and data from ESMFold, another machine-learning model adept at predicting the structures of proteins, to their transformer and trained it to spot genetic patterns corresponding to RdRP.

Then they used the transformer to analyse large tranches of metagenomic data, where it identified more than 160,000 new RNA viruses. More than half of these viruses were described for the first time and many came from unique and/or extreme environmental niches, including hot springs, salt lakes, and air. Their findings are to be published in a forthcoming issue of *Cell*.

Because transformers look for patterns rather than amino-acid sequences, they can find proteins even when they have diverged significantly. They can also help

computers design proteins based on these patterns, to perform functions that no natural proteins can. The discovery of new RNA viruses from new places in the environment is also important to our understanding of public health. Each new discovery betters our ability to identify and characterise similar viruses better, teaches us what to keep an eye out for and how/where to improve our methods, and helps us discover more species faster.

## Fighting pandemics ere they begin

On the ground, a key advantage of such discoveries is with regards to pandemic preparedness. As sequencing technology becomes more widespread and data-sharing increasingly the norm, we are equipped better than ever to identify pathogenic viruses with zoonotic potential – i.e. those that could spill over from animals to humans – long before they pose a significant threat. Early detection allows us the opportunity for timely intervention and even the chance to prevent large-scale outbreaks.

Looking ahead, the deeper understanding of viruses and their evolution through genomics, with help from ecological surveillance and machine-learning, will enhance our preparedness against pandemics. By continuously mapping viral diversity in nature and improving our understanding of viral-host interactions, we can also develop machine-learning models that can anticipate and mitigate viral spill overs. This future holds the promise of not only managing emerging viruses but also tackling the risk of pandemics at the microscopic rather than at the planetary scale.

(The authors work at Karkinos Healthcare and are adjunct professors at IIT Kanpur and the Dr D.Y. Patil Medical College, Hospital and Research Centre. Views expressed are personal. sridhar.sivasubbu@gmail.com, vinod.scaria@karkinos.in)

## **Researchers meld AI and genomics to find thousands of new viruses (24 October)**

**Computational algorithms look for proteins similar to sequences in databases. As a result, they risk missing proteins that have evolved and changed. This risk may not hold for long, however, thanks to scientific approaches that combine genetics, gene-sequencing, and deep-learning methods**

- Viruses are the most abundant biological entities on the planet and have immense ecological significance.
- They are found in diverse environments, including soil, water, the atmosphere, and extreme locations like hot springs and hydrothermal vents.
- Viruses are obligate parasites that require a host to infect and replicate.
- The relationship between viruses and hosts is reciprocal; viruses are agents of disease but also integral to ecosystems.
- Viruses drive genetic evolution through horizontal gene transfer, control microbial population balance, and affect biogeochemical cycles.
- They play critical roles in maintaining biodiversity and may influence climate regulation.
- Understanding viruses is key to unraveling the complexities of life on Earth.
- Only a small fraction of the estimated 100 million to a trillion viral species has been identified.
- Approximately 300,000 mammalian viruses are believed to remain undiscovered, many posing zoonotic threats.
- Challenges in culturing viruses have resulted in them being understudied compared to microbes.
- Advances in nucleotide sequencing have facilitated genome-sequencing approaches in metagenomics studies.
- Metagenomics allows researchers to analyze genetic material directly from environmental samples without culturing.
- Recent metagenomic studies have identified many previously unknown microbes, expanding our understanding of microbial ecosystems.
- Improvements in sequencing technologies have made it more accurate, faster, and affordable, aiding in exploring microbial diversity.
- RNA viruses are particularly significant due to their rapid mutation rates and quick adaptation to new conditions.
- DNA viruses have more stable genomes and fewer replication errors compared to RNA viruses.
- The rapid replication and higher error rates of RNA viruses are relevant in the context of emerging infectious diseases like COVID-19, Ebola, and influenza.



## Serratus ups the ante

- RNA viruses can be identified by isolating fragments of a specific gene essential for replication: RNA-dependent RNA polymerase (RdRP).
- RdRP is considered one of the world's first genes, with well-conserved regions and essential motifs for replicating RNA using a template.
- In 2022, Canadian researchers led by Artem Babaian developed an open-source tool called Serratus to match sequenced genes with known viral RdRP sequences.
- Serratus analyzed over 10 petabytes of sequencing data from 5.7 million libraries, uncovering more than 100,000 viruses and expanding known viral diversity.
- Their findings were published in Nature in January 2022.
- In a separate study, U.S. researchers led by Ahmad Zayed used computational tools to analyze terabytes of RNA sequence data to identify thousands of new RNA virus species.
- This team identified a new viral species that dominated the oceans and another species capable of infecting mitochondria.
- A limitation of metagenomic approaches is their reliance on existing protein sequences, which may miss evolved proteins.
- Chinese researchers combined genomics with deep learning using a transformer model to identify genetic patterns related to RdRP.
- This transformer analyzed large metagenomic datasets and identified over 160,000 new RNA viruses, many of which were first described.
- These viruses came from unique and extreme environments, such as hot springs, salt lakes, and air.
- Transformers identify patterns rather than specific amino-acid sequences, allowing them to detect significantly diverged proteins and aid in protein design.
- Discoveries of new RNA viruses enhance public health understanding by improving identification and characterization methods.
- These findings are crucial for pandemic preparedness by identifying pathogenic viruses with zoonotic potential before they pose significant threats.
- Early detection enables timely intervention and the possibility of preventing large-scale outbreaks.
- A deeper understanding of viruses through genomics, ecological surveillance, and machine learning can enhance pandemic preparedness.
- Continuous mapping of viral diversity and understanding viral-host interactions will help develop models to anticipate and mitigate viral spillovers.
- This approach promises to manage emerging viruses and address pandemic risks at a microscopic level.





## Ancient meteorite was 'giant fertilizer bomb' for life on earth (24 October)

- A meteorite that struck Earth 3.26 billion years ago was up to 200 times larger than the asteroid that caused the extinction of the dinosaurs 66 million years ago.
- This ancient impact triggered worldwide destruction but may have been beneficial for early life, acting as “a giant fertilizer bomb” for bacteria and archaea.
- Researchers studied ancient rocks in the **Barberton Greenstone Belt in northeastern South Africa** to assess the impact's effects.
- **Geochemical signatures and fossils of marine bacteria indicated that life rebounded quickly and thrived after the disaster.**
- The **Earth at that time was mostly a water world with limited volcanic activity, no oxygen in the atmosphere, and no cells with nuclei.**
- The **meteorite was a carbonaceous chondrite**, approximately 37-58 km in diameter, and **contained phosphorus and carbon.**
- The impact caused a rapid and violent reaction, vaporizing the meteorite and the sediment it struck, creating a global dust cloud that darkened the sky.
- The impact likely occurred in the ocean, generating tsunamis that disturbed the seafloor and inundated coastlines.
- **The energy from the impact created heat, boiling the upper layers of the oceans.**
- It would take years to decades for the dust to settle and the atmosphere to cool enough for water vapor to return to the ocean.
- While sunlight-dependent microbes in shallow waters would have been decimated, the meteorite delivered crucial **phosphorus for microbial growth.**
- The tsunami mixed iron-rich deep waters into shallower waters, creating favorable conditions for many types of microbes, as iron provides an energy source.



# The Manipur crisis, the issue of managing diversity

GS Paper II: Special Status

**Y**et another round of escalation of violence in Manipur has reportedly led to the Chief Minister of the State making multiple demands that include greater control over security operations. This means that the Chief Minister has not been in charge for some time. Another jarring revelation, as in media reports, is even the supposed invocation of **Article 355** of the Constitution, where the Union has a duty to protect States against external aggression and internal disturbance. The **breakdown of the constitutional machinery in Manipur is an open secret**. The alarming situation raises significant questions about the capacity of the Constitution to reconcile identitarian differences.

## The basis for 'special provisions'

Diversity management is a unique feature of the Indian Constitution. In keeping with the unique problems of different States, not just erstwhile Jammu and Kashmir, several others such as **Maharashtra, Gujarat, Nagaland, Assam, Manipur, Andhra Pradesh, Sikkim, Mizoram, Arunachal Pradesh and Karnataka** were considered entitled to "special provisions". The circumstances warranting such "special" provisions have been either to allay concerns over ensuring equitable development or to provide safeguards to preserve cultural identities. Federalism is not a matter of choice but compulsion in a huge and diverse nation such as India.

The Constitution has evolved to reconcile seemingly competing and even conflicting interests of identities in several north-eastern States. A chief feature of such reconciliation within the constitutional scheme has been to institutionalise a scheme of power sharing and representation and guaranteed autonomy in governance. The purpose of such reconciliatory measures is to ensure a sensitivity to the concerns of group identities and their respective socio-political backgrounds, and allow the Article 371F(f) presence of such identities to engender political stability rather than sow discord and fragment society. It may be of value to revisit examples of such constitutional pragmatism as the number of deaths and displaced people is increasing each day and any indifference to the fast deteriorating situation will not be in national interest.

The accession of Sikkim to India in 1975 led to the inclusion of Article 371F. These "special provisions" included **Article 371F(f) which empower Parliament to protect "the rights and interests of different sections of the population"**. Additionally, **Article 371F(g) also provided that the Governor would have the special responsibility for a scheme of "equitable arrangement for ensuring the social and economic advancement of different sections of the population of Sikkim..."** The broad import of Article 371F envisaged power sharing through representation and the preservation of cultural autonomy to achieve the goal of political stability. The



**Dheeraj Murthy**

an advocate of the  
Telangana High  
Court, Hyderabad



**Faizan Mustafa**

Vice-Chancellor,  
Chanakya National  
Law University,  
Patna, Bihar

The healing touch of constitutional accommodation is the only way out

**Representation of Peoples Act 1951** was amended to reflect the scheme of Article 371F(f) and **seats were earmarked for different communities in the Legislative Assembly**. This arrangement came to be challenged along with the constitutionality of Article 371F(f) in *R.C. Poudyal (1993)* before the Supreme Court of India **as the increased representation of the Bhutia-Lepcha community was alleged to be in the teeth of norms of proportionate reservation**. In upholding the constitutionality of Article 371F(f) and the amendment to the Representation of Peoples Act 1951, the Court reasoned that the **increased representation of the Bhutia-Lepcha community was an inheritance of the socio-political history of Sikkim, which necessitated the framing of Article 371F**.

This was part of a broader discourse which the Court had concluded as part of a scheme of "accommodations and adjustments" to facilitate the co-existence of different tribal identities in Sikkim. The Court held that "historical considerations and compulsions do justify inequality". Resultantly, the proportionality of seats reserved for the Bhutia-Lepcha community was justified to protect the identity of the community and a political process to ensure political stability. There was an explicit recognition of group identities as the basis of power sharing and representation in governance.

## The case of Tripura and peace

**Tripura emerged as an example of peace brokered through the Constitution at the height of the insurgency movement**. The Sixth Schedule of the Constitution provides for the administration of tribal areas by devolving power to district and regional councils which are empowered to make laws on various areas such as **education, social customs, alienation of land and usage of forests, and establishment of village and town committees**. However, the **Sixth Schedule was not made applicable to Tripura until 1984**. By virtue of the **49th Constitutional Amendment, the provisions of the Sixth Schedule were made applicable to the tribal inhabited areas of Tripura**. However, the legislative autonomy accorded by the Sixth Schedule devolved markedly greater powers to the district council to **exercise discretion regarding the application of Union laws to Scheduled Areas**. This was the result of the **Tripura Accord signed in 1988** between the Union Government, the State government and the **Tripura National Volunteers (TNV), a militant group** which even sought secession. The accord reserved a third of the seats in the State Assembly to the Scheduled Tribe population – beyond the proportion of their population in the total population. Consequently, **sub-article (3B) in Article 332 was inserted in 1992**.

The disproportionate representation of the tribal population was challenged in *Subrata Acharjee (2002)*. In deciding the question, the Supreme Court took into account the background

of the accord which required violence to be abjured and efforts at securing stability in the region. The Court ultimately rejected the contention seeking proportional reservation based on "arithmetical precision" and reiterated the scheme of "accommodations and adjustments".

It concluded that **Article 332(3B) was inserted to give "greater share" in governance, as per the terms of accord**. The Court ruled that the reservation scheme was not violative of the scheme in **Article 332(3) and Article 170 as it was a temporary measure to ensure an inclusive scheme of governance in Scheduled Tribe-inhabited areas**. The approval of the scheme of power sharing to reconcile differences through the Constitution was found to be in order despite it being a unique measure not in "symmetry" with the Constitution.

Significantly, as was the case with Tripura, the Sixth Schedule does not apply to the State of Manipur. Instead, Manipur is governed by Article 371C which provides for the creation of a Hill Area Committee consisting of elected representatives from such areas. Curiously, the approval or concurrence of the Hill Area Committee regarding matters affecting the governance of such areas is not necessary. The latest judgment of the apex court on citizenship upholding different cut-off dates for Assam is another example of accommodation due to its geographical location. Here again, the Court preferred promotion of fraternity.

## Words that Manipur needs to ponder over

Moreover, unlike the Sixth Schedule, the establishment of a "District Council" in Manipur is governed under a separate statute, i.e., the Manipur Hill Areas Autonomous District Council Act, 2000. Under the statute, a "District Council" is required to be incorporated and membership to the council is based on classification as a "Scheduled Tribe". Strangely, unlike the veto power possessed by the Scheduled Tribes in States such as Nagaland, Sikkim and Tripura, no specific provisions exist in the case of Manipur.

In the background of tensions in Manipur, concerns over representation, allocation of resources, and perceived domination of any community have heightened anxieties and exacerbated social division.

The Constitution, as a living and transformative document, has repeatedly evolved its capacity to adapt to demanding circumstances. The words of the Court in *R.C. Poudyal* may shed some light on a brighter future in Manipur: "pluralist societies are the result of irreversible movements of history. They cannot be washed away. The political genius of a people should be able to evolve within the democratic system, adjustments and solutions". It is only a reminder that ultimately, peace will have to be evolved through the Constitution without which any attempt to solve issues of diversity would remain illusory.



## **The Manipur crisis, the issue of managing diversity (24 October)**

- Recent escalation of violence in Manipur has led to the Chief Minister making demands for greater control over security operations.
- This indicates that the Chief Minister has not been effectively in charge for some time.
- Reports suggest the invocation of Article 355 of the Constitution, highlighting the breakdown of constitutional machinery in Manipur.
- The situation raises significant questions about the Constitution's capacity to reconcile identitarian differences.
- The Indian Constitution features diversity management, providing “special provisions” for various States like Jammu and Kashmir, Maharashtra, Gujarat, Nagaland, Assam, Manipur, Andhra Pradesh, Sikkim, Mizoram, Arunachal Pradesh, and Karnataka.
- Special provisions aim to ensure equitable development and safeguard cultural identities.
- Federalism is essential in a diverse nation like India.
- The Constitution has evolved to reconcile competing identity interests in northeastern States.
- A key feature of this reconciliation is power sharing, representation, and guaranteed autonomy in governance.
- Such measures aim to address group identity concerns, fostering political stability rather than discord.
- Revisiting constitutional pragmatism is important as the number of deaths and displaced people increases.
- The accession of Sikkim to India in 1975 included Article 371F, which empowers Parliament to protect the rights and interests of different population sections.
- Article 371F(g) assigns special responsibilities to the Governor for ensuring social and economic advancement in Sikkim.
- Article 371F envisions power sharing and cultural autonomy for political stability.
- The Representation of Peoples Act 1951 was amended to reflect Article 371F(f), earmarking seats for different communities in the Legislative Assembly.
- This arrangement faced challenges in R.C. Poudyal (1993) regarding the constitutionality of Article 371F(f) due to increased representation of the Bhutia-Lepcha community.
- The Supreme Court upheld Article 371F(f), stating the representation was justified by Sikkim's socio-political history.
- The Court recognized the need for accommodations and adjustments to facilitate coexistence of different tribal identities in Sikkim.
- It concluded that historical considerations justify inequality in representation to protect community identities and ensure political stability.



## The case of Tripura and peace

- Tripura serves as an example of peace brokered through the Constitution during the insurgency movement.
- The Sixth Schedule of the Constitution allows for the administration of tribal areas by devolving power to district and regional councils.
- These councils can make laws on education, social customs, land alienation, forest usage, and establish village and town committees.
- The Sixth Schedule was made applicable to Tripura in 1984 through the 49th Constitutional Amendment.
- The amendment granted legislative autonomy, allowing district councils greater powers regarding the application of Union laws in Scheduled Areas.
- The Tripura Accord of 1988, signed between the Union Government, State government, and the Tripura National Volunteers (TNV), facilitated this autonomy.
- The accord reserved a third of the State Assembly seats for the Scheduled Tribe population, exceeding their proportion in the total population.
- Sub-article (3B) in Article 332 was inserted in 1992 to formalize this arrangement.
- The disproportionate representation was challenged in Subrata Acharjee (2002).
- The Supreme Court considered the context of the accord, which aimed to promote stability by abjuring violence.
- The Court rejected claims for proportional reservation based on "arithmetical precision," emphasizing a scheme of "accommodations and adjustments."
- The ruling affirmed that Article 332(3B) aimed to provide a "greater share" in governance, aligning with the accord's terms.
- The Court deemed the reservation scheme temporary and not in violation of Articles 332(3) and 170, supporting inclusive governance in Scheduled Tribe areas.
- The Sixth Schedule does not apply to Manipur; instead, it is governed by Article 371C, which allows for the creation of a Hill Area Committee.
- The Hill Area Committee's concurrence on governance matters is not mandatory.
- A recent Supreme Court judgment upheld different cut-off dates for Assam, showcasing accommodation due to geographical factors.
- Unlike the Sixth Schedule, Manipur's "District Council" is governed by the Manipur Hill Areas Autonomous District Council Act, 2000.
- Membership in the District Council is based on classification as a "Scheduled Tribe," but it lacks veto power like in Nagaland, Sikkim, and Tripura.
- Tensions in Manipur heighten concerns over representation, resource allocation, and perceived community domination.
- The Constitution is a living document that adapts to changing circumstances.
- The Court's words in R.C. Poudyal emphasize that pluralist societies are products of historical movements and cannot be erased.



- Peace must evolve through the Constitution; without this, efforts to address diversity issues will remain illusory.

## Article 332

Article 332 of the Indian Constitution focuses on reserving seats in State Legislative Assemblies for Scheduled Castes (SCs) and Scheduled Tribes (STs) to ensure they have representation in state governance.

### 1. Reservation of Seats for SCs and STs:

- Every state's Legislative Assembly must have reserved seats for SCs and STs based on their population. This doesn't apply to Scheduled Tribes in the autonomous districts of Assam, who have specific provisions.

### 2. Special Provision for Autonomous Districts in Assam:

- Additional seats are reserved in the Assam Legislative Assembly specifically for these autonomous districts, which have unique administrative structures.

### 3. Proportion of Reserved Seats:

- The number of reserved seats should be proportional to the SC and ST population in each state. For example, if 20% of a state's population belongs to Scheduled Castes, then around 20% of Assembly seats should be reserved for them.

### 4. Temporary Rules for Certain Northeastern States:

- For the states of Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, and Tripura, special seat reservation rules are in place until the next census after 2026. These rules ensure that representation for STs in these states remains at least as strong as it was in 1987 for the first group of states and in 1992 for Tripura.

### 5. Reservation within Assam's Autonomous Districts:

- The number of seats reserved for each autonomous district in Assam should match the district's population size compared to the whole state, ensuring fair representation.

### 6. Restriction for Non-ST Candidates in Assam's Autonomous Districts:

- Only members of Scheduled Tribes from Assam's autonomous districts can stand for election from these constituencies. This is to ensure local representation.

### 7. Special Representation in Bodoland:

- For the Bodoland Territorial Area District within Assam, a balance is maintained between seats for ST and non-ST communities, based on the pre-existing composition before Bodoland was formed.

Thus, Article 332 ensures that SC and ST communities have a fair share of seats in state legislative bodies, reflecting their population and unique circumstances in different states, especially in the northeastern region and Assam.



# The shifting sands within global supply chains

## GS Paper II

**G**lobal supply chains are at an inflection point. While the COVID-19 pandemic shifted the focus from efficiency (just in time) to resilience (just in case), two developments in September 2024 indicate that another shift is underway in how supply chains are envisioned and operationalised – this time towards security (just to be secure).

### Moves by the U.S. and Israel's pager attack

On September 23, the United States Department of Commerce proposed rules which, if accepted “would prohibit the import or sale of certain connected vehicle systems designed, developed, manufactured, or supplied by entities with a sufficient nexus to the PRC or Russia”. The proposed rules target both the software and hardware associated with vehicle connectivity systems as well as automated driving systems. While the 100% tariffs on Chinese EVs announced by the U.S. earlier this year stemmed from competition concerns aimed at reducing their sale in the domestic market, the newly proposed rules, which stem from national security concerns, would effectively ban their sale in the U.S.

The U.S. case against Chinese connected car tech is that both hardware and software components in cars employing some form of external communication capabilities can be potentially misused. The idea is that cars with connected car tech are essentially mobile listening posts, and that malicious actors can use their cameras and sensors for espionage purposes. Worse, these cars may even be disabled or hijacked – especially those level 3 and above on the Society of Automotive Engineers' levels of driving automation. For security hawks, handing over such control to a state with which you may be in a future conflict simply carries overwhelming risks.

If there was any strand of thought moderating the hawkish focus on supply chain security, that



**Lokendra Sharma**

a research analyst with the Takshashila Institution's High-Tech Geopolitics Programme, Bengaluru



**Pranay Kotasthane**

Deputy Director of the Takshashila Institution and chairs the High-Tech Geopolitics Programme

Proposed U.S. rules on Chinese connected car tech and Israel's pager attacks indicate the changing focus of global supply chains – from resilience to security

evaporated as the world came to terms with the Israeli supply chain attack, on September 17-18, targeting pagers and walkie-talkies used by Hezbollah in Lebanon. More than 30 people including children were killed while thousands were injured. The fallout was felt far and wide leaving everyone wondering about the state of advanced technologies used or embedded in products across industries when even basic old-fashioned devices could be made to explode.

While the U.S. proposed rules and the Israeli pager attack have reignited and amplified the supply chain security debate, it arguably began a few years ago when the U.S., Australia, Japan and even India effectively banned Huawei and other Chinese telecom players from participating in the 5G rollout for security considerations. The motivating fear was that China could install backdoors in the telecom infrastructure giving it the capability to surveil or sabotage the same. Since then, supply chain security concerns have spread to other tech industries such as semiconductors.

### From efficiency to resilience to security

During the heydays of globalisation, especially from the 1980s till the 2010s, supply chains were configured to ensure maximum efficiency; that is, weaving a complex supply chain for each product or service in a way that components were procured and assembled at various locations across the world based on cost and other considerations. These “just in time” supply chains were to some extent immune from great power politics. China established itself as a central supply node in this arrangement. A combination of various factors in the late 2010s and early 2020s such as the U.S.-China rivalry and resultant technology decoupling and the COVID-19 pandemic shifted the focus away from “just in time” to “just in case”.

That is, there was a recognition in the U.S., Europe, India and elsewhere that supply chains

had become too dependent on Chinese exports. Supply chain resilience, as a result, became all the rage. But, almost simultaneously, security considerations around Chinese involvement in telecom infrastructure also led to another shift – from resilience to security. This shift has only solidified in the wake of Israel's supply chain attack.

### India and supply chain security

How can India ensure that its supply chains are secure? Extreme measures such as outright banning import of a range of tech products and services would not work. Neither would fully subscribing to the “just in case” strategy that focuses on supply chain resilience.

What can work is a two-pronged approach involving both “just to be secure” and “just in case” strategies. The “just to be secure” strategy can be put in motion through “trust but verify” and “zero trust.” Certain tech products and services (say those used in communications, transport or critical infrastructure broadly defined) can be subjected to trust but verify entailing methods such as periodic audits, on-site inspections, and establishment of a mechanism that ensures compliance with national and international security standards. But a more narrowly defined set of technologies that are most critical (say those used by Indian military, intelligence agencies, or for cutting edge research and development) should be subjected to zero trust. Assuming by default that all tech products and services are compromised and applicable to friends and foes alike, zero trust would entail developing the most stringent checks during procurement as well as continuous monitoring and verification. For all the rest less critical technologies, the “just in case” strategy involving diversification of vendors and friendshoring would suffice in taking care of larger supply chain concerns about cascading fallouts due to single points of vulnerabilities and failures.

## The shifting sands within global supply chains (24 October)

- Global supply chains are undergoing a shift from efficiency (just in time) to resilience (just in case), and now towards security (just to be secure).
- On September 23, 2024, the U.S. Department of Commerce proposed rules to prohibit the import or sale of connected vehicle systems associated with entities linked to China or Russia.
- The proposed rules target software and hardware related to vehicle connectivity and automated driving systems, effectively banning their sale in the U.S. due to national security concerns.





- The U.S. argues that connected cars could be misused for espionage, as they can serve as mobile listening devices with cameras and sensors.
- There are fears that connected vehicles could be disabled or hijacked, particularly those with higher levels of automation.
- The Israeli supply chain attack on September 17-18, which targeted pagers and walkie-talkies used by Hezbollah, intensified concerns about supply chain security.
- The attack resulted in significant casualties and raised questions about the security of advanced technologies in everyday devices.
- The supply chain security debate intensified after countries like the U.S., Australia, Japan, and India banned Huawei and other Chinese telecom companies from participating in 5G rollouts due to fears of surveillance and sabotage.
- Security concerns have since spread to other tech industries, notably semiconductors.

### **From efficiency to resilience to security**

- During the height of globalization (1980s-2010s), supply chains focused on maximum efficiency through complex networks for cost-effective procurement and assembly.
- These "just in time" supply chains were relatively insulated from great power politics, with China serving as a central supply node.
- In the late 2010s and early 2020s, factors like the U.S.-China rivalry and the COVID-19 pandemic prompted a shift from "just in time" to "just in case" strategies due to over-dependence on Chinese exports.
- Supply chain resilience gained prominence, but security concerns regarding Chinese telecom involvement led to a further shift towards prioritizing security.
- For India, ensuring secure supply chains requires a balanced approach rather than outright bans or full reliance on resilience strategies.
- A two-pronged approach involving both "just to be secure" and "just in case" strategies is proposed.
- The "just to be secure" strategy includes "trust but verify" for certain tech products and services, involving periodic audits and compliance checks.
- Critical technologies for military and intelligence should follow a "zero trust" approach, assuming potential compromise and requiring stringent procurement checks and continuous monitoring.
- For less critical technologies, a "just in case" strategy involving vendor diversification and friendshoring can address supply chain vulnerabilities.



**GS Paper III: Economy**

## **Growth prescription**

**IMF's 'mediocre' medium-term outlook merits policy attention**

The latest World Economic Outlook released by the International Monetary Fund (IMF) has some good tidings, and some ominous assessments. The good news – that largely pertains to the short term – is that a much-feared global recession has been averted, the global war against inflation ‘almost’ won, and growth is holding steady. The U.S. is likely to grow faster this year than anticipated earlier, balancing out lower estimates for some large European nations. Among developing countries, the IMF downgraded growth hopes for West Asia, sub-Saharan Africa and Central Asia as conflicts and unrest disrupt production and shipping. However, brighter prospects for emerging Asia, enhanced by higher public investments in China and India, offset those downward pressures. The IMF expects the world to grow 3.2% in 2024, as in 2023. The moderation in inflation has been partly attributed to the unwinding of shocks since the COVID-19 pandemic and the Ukraine war, but tight monetary policies played a crucial role too, it noted. With inflation returning near central banks’ targets, there is now room for pivoting monetary policy to a neutral stance and supporting economic activity. Yet, the IMF has cautioned about food price pressures again in some emerging economies, and services inflation being too high, at almost double the pre-pandemic levels.

For India, the IMF has maintained its GDP growth estimate at 7% for 2024-25, followed by 6.5% next year, but linked the moderation in growth from last year to the exhaustion of “pent-up demand accumulated during the pandemic”. Some of this is visible in car and consumer non-durable sales, with urban demand stumbling. A Reserve Bank of India index pegs second quarter GDP growth at 6.8% – it was 6.7% in the first. The favourable monsoon and improved rural incomes could lift the tide in coming months, but may not be taken for granted yet. Of concern, however, is the IMF’s prognosis that global growth should reach a “mediocre” 3.1% in five years, underwhelming relative to pre-COVID trends, with protectionist industrial and trade policies gaining more traction. India’s economy may hinge more on domestic momentum but weaker exports and investment flows will not help. The Centre’s recent averments on the reform agenda have signalled that most work now needs to be done in the States. While that is a truism, central policy-makers also need to work doubly hard to lift potential growth: be it to make India a more open economy by lowering import tariffs and FDI barriers as the World Bank has mooted, as well as undertake “ambitious” domestic reforms to improve competition, economic integration and spur private investments, suggested by the IMF.

## **Growth prescription (24 October)**

### **IMF’s ‘mediocre’ medium-term outlook merits policy attention**

- The latest World Economic Outlook from the IMF presents a mix of positive and negative assessments.
- Good news includes the avoidance of a feared global recession and steady growth, with the U.S. expected to grow faster than previously anticipated.
- However, growth estimates for West Asia, sub-Saharan Africa, and Central Asia have been downgraded due to conflicts and unrest affecting production and shipping.
- Brighter prospects for emerging Asia, driven by increased public investments in China and India, offset these downgrades.
- The IMF forecasts global growth of 3.2% in 2024, consistent with 2023.
- Moderation in inflation is attributed to unwinding shocks from the COVID-19 pandemic and the Ukraine war, alongside tight monetary policies.
- Inflation is returning near central bank targets, allowing for a shift in monetary policy to support economic activity.
- Caution is advised regarding food price pressures in some emerging economies and high services inflation, nearly double pre-pandemic levels.
- For India, the IMF maintains a GDP growth estimate of 7% for 2024-25, followed by 6.5% in the following year.
- The moderation in growth is linked to the exhaustion of pent-up demand from the pandemic, evident in consumer sales and urban demand.
- A Reserve Bank of India index shows second-quarter GDP growth at 6.8%, slightly up from 6.7% in the first quarter.
- Favorable monsoon and improved rural incomes could boost growth in the coming months, but this is uncertain.
- The IMF warns that global growth may reach only 3.1% in five years, below pre-COVID trends, influenced by rising protectionist policies.





- India's economy may rely more on domestic momentum, but weaker exports and investment flows are a concern.
- The Centre's recent emphasis on the reform agenda indicates that much work is needed at the State level.
- Central policymakers must also focus on boosting potential growth through reduced import tariffs, lower FDI barriers, and ambitious domestic reforms to enhance competition and spur private investments.

## unwind

,अन्'वाइन्ड्: *verb*

gerund or present participle: **unwinding**

1. if you unwind something or if something unwinds, it comes away from something that it had been put round

धागे, ऊन आदि का लिपटे होने की अवस्था से खुल जाना या उसे खोल देना



GS Paper III: S&T

## Celebration and vigil

**India must not let its guard down on kala-azar**

The furore that accompanies an outbreak of a disease is seldom matched by the triumph over the cause of the disease, with some exceptions. The recent achievement India has struck with **kala-azar**, bringing it to the brink of elimination as a public health issue, or with eliminating bacterial eye infection trachoma, sits squat in that quarter. India will seek WHO certification for eliminating kala-azar, after it brought down the number of cases to under **one in 10,000, for two consecutive years now**. It is considered the second deadliest parasitic disease after malaria in India. As per figures by the Union Health Ministry, **India registered 595 cases and four deaths in 2023, and 339 cases and one death so far this year**. The country must retain this achievement for another year to be eligible for WHO certification. Epidemiology makes the differentiation between elimination and eradication of a disease; with elimination, a nation needs to keep the number of cases under a specified limit, which means it ceases to be a public health problem, whereas with eradication, no further cases can occur. While disease eradication is very challenging, and has been achieved only with smallpox, elimination is no cakewalk. Particularly for diseases that do not have a vaccine. Even modern armamentaria come up short while trying for a vaccine for either **kala-azar, or trachoma**, making the public health achievement all the more special. Kala-azar is **spread by the sandfly** which passes on the **protozoan parasite, Leishmania donovani**, and is present in only one of its forms, **visceral leishmaniasis**. **Trachoma, caused by the bacteria, Chlamydia trachomatis**, is the leading infectious **cause of blindness** in the world. **India contributed about 11.5% of the cases of kala-azar globally and in the 1970s, trachoma was responsible for 5% of all blindness in the country**.

Kala-azar and trachoma share other commonalities – they are classified under the category **'neglected tropical disease'**, and are **caused by conditions of poverty and inadequate sanitation**; it was a sustained government-run public health campaign that addressed the disease spread, and its social implications – including income, access to nutrition and health services – that finally managed to crack elimination. However, sustained surveillance, post declaration for trachoma and as India moves towards elimination for kala-azar, is key. While celebration post such a well-fought public health campaign is necessary, complacency will erode all gains, considering the disease remains in the community, below the WHO-recommended radar. Efforts to find better cures and vaccines must not be suspended because of present gains; indeed, the vigil must be eternal, or, until the disease is eradicated.

## Celebration and vigil (24 October)

### India must not let its guard down on kala-azar

- Outbreaks of diseases often lead to significant public concern, but achievements in overcoming these diseases are less celebrated.
- India has made notable progress in tackling kala-azar, nearing its elimination as a public health issue.
- The country plans to seek WHO certification for eliminating kala-azar after reducing cases to under one per 10,000 for two consecutive years.
- Kala-azar is considered the second deadliest parasitic disease in India after malaria.
- In 2023, India recorded 595 cases and four deaths from kala-azar; in the current year, there have been 339 cases and one death so far.
- To qualify for WHO certification, India must maintain its low case numbers for another year.
- Epidemiology distinguishes between elimination (keeping cases under a specific limit) and eradication (no further cases).
- Disease eradication is challenging and has only been achieved with smallpox; elimination, while easier, is still difficult, especially without vaccines.
- No effective vaccines exist for kala-azar or trachoma, making the public health achievements even more significant.
- Kala-azar is spread by the sandfly, transmitting the protozoan parasite *Leishmania donovani*, while trachoma is caused by the bacteria *Chlamydia trachomatis*, the leading infectious cause of blindness globally.
- India accounted for approximately 11.5% of global kala-azar cases, and trachoma was responsible for 5% of blindness in India during the 1970s.
- Both diseases are categorized as 'neglected tropical diseases' and are linked to poverty and inadequate sanitation.





- A sustained government-run public health campaign has been crucial in addressing disease spread and its social implications, such as income and access to nutrition and healthcare.
- Continued surveillance is essential post-declaration for trachoma and as India approaches kala-azar elimination.
- While celebrating public health successes is important, complacency could undermine progress, as the disease remains present in communities.
- Ongoing efforts to find better cures and vaccines must continue despite current achievements; vigilance is necessary until the disease is fully eradicated.

PATRIOTIC IAS



# On Boeing 737's 'defective' rudder system

Why are certain variants of the Boeing 737 under the scanner? What did the investigation of the United States National Transportation Safety Board into the aircraft find? What is the function of a rudder rollout guidance actuator?

GS Paper III: DM

## EXPLAINER

Murali N. Krishnaswamy

### The story so far:

Certain variants of the Boeing 737 (fitted with a 'rollout guidance actuator') are under the scanner over an issue that concerns the potential for the occurrence of a jammed or restricted rudder control system. The United States National Transportation Safety Board (NTSB) has put out safety alerts to the manufacturer, Boeing, and the Federal Aviation Administration (FAA). Flowing from this, India's Directorate General of Civil Aviation has issued directives to Boeing 737 operators in India. The issue has arisen after an NTSB investigation into an incident on February 6, 2024, involving a United Airlines Boeing 737-8 MAX flight, UA 1539, from Nassau in the Bahamas to Newark, U.S. In 2019, two similar events had occurred with foreign airlines.

### What was the issue?

During the landing rollout phase of flight 1539, the rudder pedals were found to be "stuck" in the neutral position. Despite the use of pedal force of about 42 pounds by the crew there was no movement which resulted in the captain having had to use the nosewheel steering tiller to control the aircraft's direction. The crew then found the copilot to be experiencing the same problem.

The crew applied more pedal force (flight data recorded it to be about 59 pounds) which resolved the issue. The problem was reported to the airline's maintenance department. There was no damage to the aircraft which was removed from service for checks.

### What did the flight data show?

Examination of the Flight Data Recorder (FDR) data aligned with the pilot's statements of a malfunction. The data also showed increasing force inputs to the rudder pedals 'even as the rudder surface position remained near its neutral position'. But with significant pedal force by the crew for the second time after landing, the rudder pedals and rudder began to function normally.

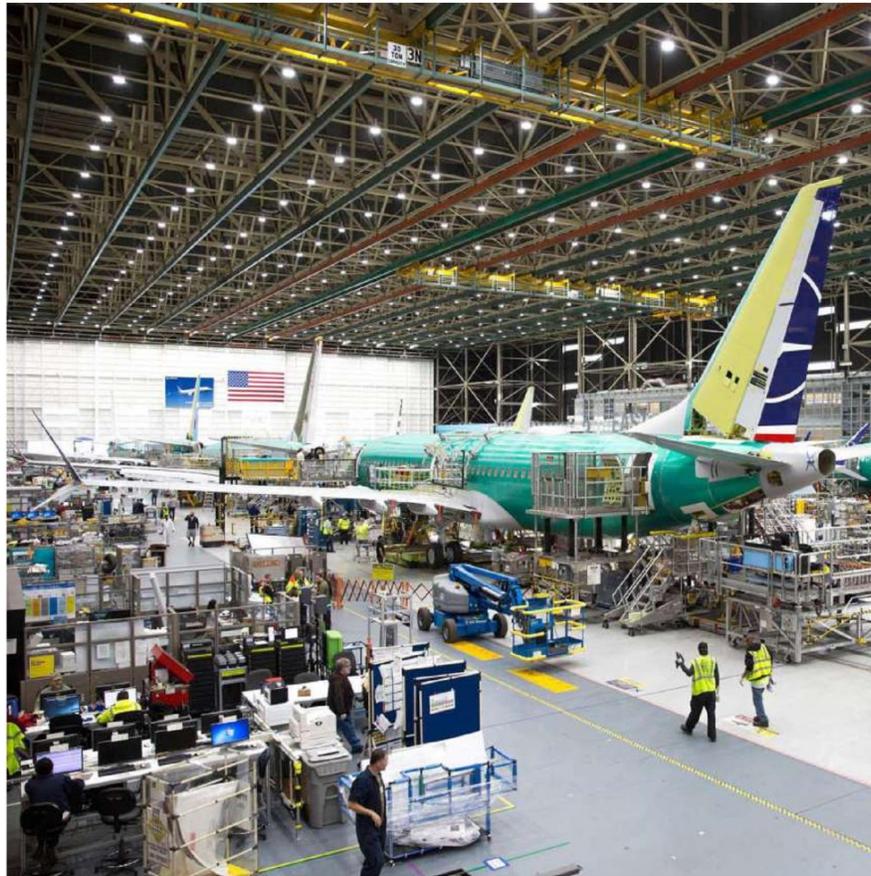
On February 9, 2024, United Airlines did a test flight with the incident aircraft wherein there was a recurrence of the malfunction. After landing, the NTSB was notified. An investigation began which included United, the FAA, Boeing and Collins Aerospace, the manufacturer of the rudder component in question, called the rollout guidance actuator. A preliminary report which detailed the circumstances of the event was published on March 12.

The FDR data were analysed at the NTSB laboratory in Washington DC. In addition, there was an inspection of the rudder control system but no obvious malfunctions were detected. But still, certain parts of the rudder system components were removed for detailed inspections. After this, United conducted a second test flight where the rudder control system operated normally.

### How does the rudder issue come into the picture?

As a part of the aircraft tail, the rudder plays a crucial role in aircraft control around the yaw axis (one of the axis of aircraft motion) and is vital in coordinated turning, ground directional control, crosswind landings and even in the event of engine failure.

As a Boeing 737 pilot explains, the rudder pedals on the 737 which move the rudder in different ways are connected



**Assembling aircraft:** Employees work on Boeing 737 MAX airplanes at the Boeing Renton Factory in Renton, Washington on March 27, 2019. AFP

through cables to what is called a torque tube mechanism. This in turn is connected to a Power Control Unit or PCU; there is a standby unit as well. All this is in what is called a closed loop mechanism, so the position of the pedals corresponds to the position of the rudder. While in flight, the PCU also helps the flight crew coordinate turns with the roll from the ailerons (on the aircraft wings) which help in banking to turn.

Some 737s have a separate system to move the rudder and this is where the component made by Collins Aerospace comes into the picture. The United Airlines 737 was fitted with a Collins Aerospace SVO-730 rudder rollout guidance actuator. This is a component that is linked to another aspect of aircraft operations. In conjunction with the aircraft autopilot, the actuator plays a role in a certain type of instrument landing system (ILS) approach called CAT III, more specifically in CAT IIIb operations. In normal aircraft operations, ILS approaches are also linked to weather and visibility. In India, 'CAT III landing' is a term that comes into focus in airports and flight operations in northern India especially during the winter season when fog/bad weather affects visibility.

There is another aspect of aircraft operations in CAT III and when the aircraft's autoland function is used. Here the aircraft will basically land by itself using the autopilot system. In CAT III, the crew inputs occur during the landing phase where, after the autopilot is disconnected, there is need for directional control. In CAT IIIb, the

autopilot remains connected. And the rudder rollout guidance actuator, which is an additional rudder component feature, enables the autopilot to work directly with the rudder through the landing phase. Out of the thousands of 737s that have been manufactured, only a small number of 737s have been equipped to carry out CAT IIIb autolands.

In the course of the investigation, the NTSB conducted 'cold chamber' tests on the actuator. The component was found to jam, with significant force (which were beyond the design limits) having to be applied to get parts moving. There was also evidence of moisture and corrosion. In its technical review, Collins determined that a seal in the actuator, in a clutch bearing, had not been assembled correctly during the manufacturing process. In August 2024, Collins notified Boeing that 353 rudder rollout guidance actuators it had delivered to Boeing from February 2017 were affected. Reports are that this could impact about 40 airlines across the world.

### What has Boeing said?

In an email to *The Hindu*, Boeing has said that it has reminded operators of the proper actions that flight crew should take were they to encounter rudder restriction. This includes following the checklist for jammed or restricted controls during flight and using various tools to maintain 'centerline' on the ground. It added that it has also shared technical guidance from the supplier.

Boeing also said, "In March and August, we informed affected 737

operators of a potential condition with the rudder rollout guidance actuator, which is part of an optional autoland system. The optional system allows landing during limited visibility CAT IIIb autoland conditions. The actuator is the part of the system that assists pilots to maintain centerline steering. Redundancies within the 737 design allow continued safe operations while the potential condition is being addressed."

About the defence variant of the Boeing 737 or the P-8 (which the Indian Navy operates), Boeing said, "We are working to determine the full scope of this issue as it relates to the P-8 Poseidon maritime surveillance aircraft based on the 737 NG and are in contact with our customers. Redundancies within the 737 design allow continued safe operations of the P-8 fleet."

### What has the DGCA said?

The DGCA has asked Indian operators of the 737 to simulate scenarios that involve a jammed or restricted rudder control system during pilot recurrent training and instrument rating/pilot proficiency checks. It has also asked airlines to discontinue CAT IIIb operations that include practice or actual autoland until further notice.

Of the three main 737 operators in India, Air India Express has said that five of its aircraft are under inspection while SpiceJet said none of its aircraft is affected. Akasa Air did not respond to queries, but an aviation source said that around 14 of its 737s might have to be checked.

## THE GIST

Certain variants of the Boeing 737 (fitted with a 'rollout guidance actuator') are under the scanner over an issue that concerns the potential for the occurrence of a jammed or restricted rudder control system.

During the landing rollout phase of flight 1539, the rudder pedals were found to be "stuck" in the neutral position. Despite the use of pedal force of about 42 pounds by the crew there was no movement.

The DGCA has asked Indian operators of the 737 to simulate scenarios that involve a jammed or restricted rudder control system during pilot recurrent training and instrument rating/pilot proficiency checks.

## **On Boeing 737's 'defective' rudder system (24 October)**

**Why are certain variants of the Boeing 737 under the scanner? What did the investigation of the United States National Transportation Safety Board into the aircraft find? What is the function of a rudder rollout guidance actuator?**

- Certain Boeing 737 variants with a 'rollout guidance actuator' are under scrutiny for potential rudder control issues.
- The NTSB issued safety alerts to Boeing and the FAA following an investigation into an incident on February 6, 2024.
- The incident involved a United Airlines Boeing 737-8 MAX flight from Nassau to Newark.
- In 2019, two similar incidents occurred with foreign airlines.
- During the landing rollout of flight UA 1539, the rudder pedals were "stuck" in the neutral position.
- The crew exerted around 42 pounds of force, resulting in no movement; the captain had to use the nosewheel steering to control direction.
- Both the captain and copilot experienced the same issue.
- The crew then applied more pedal force (approximately 59 pounds), which resolved the issue.
- The problem was reported to the airline's maintenance department; no damage was done to the aircraft.
- Flight Data Recorder (FDR) data confirmed a malfunction, showing increased force inputs with no corresponding rudder movement.
- After the crew applied significant pedal force again, the rudder began to function normally.
- On February 9, 2024, United conducted a test flight with the incident aircraft, where the malfunction recurred.
- The NTSB initiated an investigation involving United, the FAA, Boeing, and Collins Aerospace (the actuator manufacturer).
- A preliminary report was published on March 12 detailing the event.
- FDR data analysis and inspections of the rudder control system found no obvious malfunctions.
- Some components were removed for detailed inspection, and a second test flight showed normal rudder operation.
- The rudder is crucial for aircraft control around the yaw axis, affecting coordinated turning, ground control, crosswind landings, and engine failure scenarios.





- The rudder pedals connect through cables to a torque tube mechanism linked to a Power Control Unit (PCU).
- The Collins Aerospace SVO-730 rudder rollout guidance actuator is used in some 737s for CAT IIIB ILS approaches.
- CAT III landings are important for operations in low visibility, particularly in northern India during winter.
- The NTSB conducted ‘cold chamber’ tests on the actuator, finding it could jam with excessive force required for movement, and moisture and corrosion were present.
- Collins identified an incorrectly assembled seal in the actuator during manufacturing.
- In August 2024, Collins notified Boeing about 353 affected actuators delivered since February 2017, potentially impacting 40 airlines globally.
- Boeing reminded operators of procedures for handling rudder restrictions and provided technical guidance from the actuator supplier.
- Boeing confirmed that redundancies in the 737 design ensure continued safe operations while the issue is addressed.
- Regarding the P-8 Poseidon variant, Boeing is assessing the impact of this issue and is in contact with customers.
- The DGCA instructed Indian 737 operators to simulate jammed rudder scenarios in pilot training and suspended CAT IIIB operations until further notice.
- Air India Express has five aircraft under inspection; SpiceJet reported none affected; Akasa Air did not respond, but around 14 of its 737s might require checks.

## Rudder System

- A **rudder** is an underwater fin attached to a ship's stern or a **vertical control surface attached to an aircraft's tail**, crucial for maneuvering and direction control.
- It works on the principle of **hydrodynamics (in ships) or aerodynamics (in aircraft)**, creating resistance against water or air to steer the vessel.

## Key Components of a Rudder System

1. **Rudder Blade:** The primary surface creating the turning force.
2. **Rudder Stock:** The axis through which the blade turns, transferring control movements.
3. **Steering Gear:** Provides the power needed to move the rudder.
4. **Control Linkage:** Transmits commands from the wheel or control surfaces to the rudder.

## Functioning Mechanism

- **Ships:** When the rudder blade turns, it changes the water flow, creating pressure differences on either side. This difference pushes the stern in the opposite direction, turning the ship.





- **Aircraft:** The rudder controls yaw (left and right movement) around the vertical axis, complementing ailerons and elevators to achieve coordinated turns.

### Types of Rudders

- **Balanced Rudders:** Part of the blade lies forward of the stock, easing movement by balancing forces.
- **Semi-Balanced Rudders:** A portion of the blade is forward of the stock but requires more steering effort than balanced types.
- **Unbalanced Rudders:** Entirely behind the stock; generally less efficient but easier to construct.

