



● POLITY

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## Docking trial: ISRO overcomes drift, nudges satellites closer

SCIENCE &amp; TECHNOLOGY

**CONTEXT:** The Indian Space Research Organisation trying to dock two satellites in space for the first time announced bringing satellites within three metres of each other in a trial attempt before moving them back to a safe distance.



The SPaDeX mission was designed to develop and demonstrate the technology needed for spacecraft rendezvous, docking and undocking using two small satellites. A PSLV C60 rocket carried SDX01 (Chaser) and SDX02 (Target) to space from the Satish Dhawan Space Centre in Sriharikota on December 30.

### Roadblocks averted

On January 8, hours before the experiment was to be carried out, the agency announced its postponement as the drift was

more than expected. It later arrested the drift. The docking was initially scheduled for January 7.

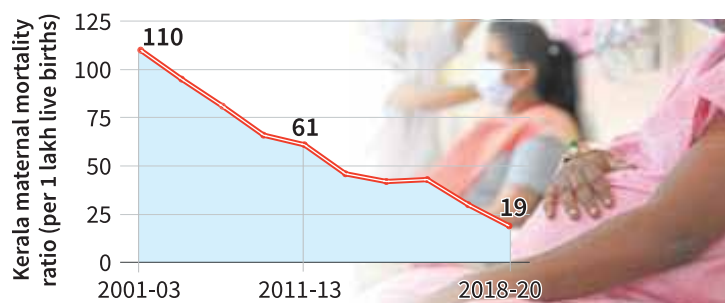
The demonstration of this technology is essential for futuristic missions such as sending an Indian astronaut to the moon, sample return from the moon, and the building and operation of an Indian space station. India will become the fourth country after the U.S., Russia and China to accomplish the docking experiment.

## Kerala's maternal mortality ratio climbs as fertility levels fall to a new low

POLITY &amp; GOVERNANCE

### A worrying trend

Kerala's MMR is beginning to climb now because of fewer child births than ever in the State



Source: Sample Registration System bulletin of Registrar General of India

**CONTEXT:** Kerala's maternal mortality ratio, the lowest in the country at 19 per one lakh live births, is now climbing steadily.

The latest Sample Registration System special bulletin on maternal mortality in India (2018-20), brought out by the Registrar-General of India, put Kerala's MMR at 19. However, while it depended on a sample survey to arrive at the figure, the State Health Department's actual estimates of maternal deaths put the figure at 29.

Except during 2020-21, when Kerala lost many women to COVID-19 during pregnancy and childbirth, the State had consistently held a firm grip over maternal

mortality. Ironically, the current spike is not because more women are dying but because there are fewer childbirths than ever in the State.

The State has now hit a low of 3,93,231 births from an average of 5-5.5 lakh annually earlier, show the latest data of the Economics and Statistics Department of the State. The Health Department puts live births in the State between 3.4 lakh and 3.9 lakh currently.

#### Impact on social fabric

From an average of 5.5 lakh annual births since the 1980s, the graph went below the five-lakh mark for the first time in 2016, when 4,96,262 live births were recorded. Since 2018, the figure has been plummeting steadily, never going above the five-lakh mark again. The last published VSR (2021) recorded the total number of live births as 4,19,767.

As part of the Sustainable Development Goals, Kerala was targeting an MMR of 20 by 2030. However, that looks quite unlikely now, given that birth rates are falling steeply.

#### Demographic transition

Kerala led the demographic transition in the South, attaining the replacement level fertility rate of 2.1 in 1987-88. The State's total fertility rate (TFR) went below the replacement level in 1991 and remained stagnant at 1.8-1.7 for years, before touching 1.5 in 2020. The current TFR of Kerala (2021 VSR) is 1.46. It is possible that the TFR will drop to 1.35 once the latest data on live births are accounted for.

A chunk of those in the reproductive age group are going abroad for higher education or jobs and choosing to settle down there, and the economic impact of the loss of a young workforce and changing attitudes regarding marriage and fertility are hurting us. In the next 10 years, the proportion of elderly population in Kerala is expected to go above that of children and the magnitude of the issues related to the care and welfare of this population is likely to overwhelm us.

The birth rate is expected to plummet further and the consequences will be starkly evident in the next two decades itself. Kerala is beginning to see the consequences of a higher age at marriage and delayed childbearing. The proportion of older mothers and the increase in pregnancy-related morbidities in this group and their reproductive health issues are emerging concerns.

Kerala attained the replacement level fertility rate over 35 years ago and a new cohort has replaced those women in the reproductive age of 15-49. The fertility is low in this new cohort of women, either by will or by nature, driving down the number of childbirths. And even the number of women in this cohort has begun to dwindle.

#### 'Data not available'

The female population in the reproductive age group of 15-49 in Kerala as per By the Census 2011 was 93,32,494, while the Registrar-General's projected figure for 2021 was 92,23,500.

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## Los Angeles fires growing despite efforts to contain

### INTERNATIONAL RELATIONS

**CONTEXT:** Firefighters battled on Sunday to get on top of massive wildfires around Los Angeles as winds ramped up, pushing the blazes toward previously untouched neighbourhoods.



At least 16 persons were confirmed dead from fires that have ripped through the city, leaving communities in ruins and testing the mettle of thousands of firefighters — and millions of California residents.

Despite heroic efforts, including precision sorties from aerial crews, the Palisades Fire continued to grow, pushing east towards the priceless collections of the Getty Center art museum and north to the densely populated San Fernando Valley.

### Dire warning

A brief lull in the wind was rapidly giving way to gusts that forecasters warned would feed the blazes for days to come. The National Weather Service forecast critical fire-weather conditions to ramp up again today for southern California and last through at least early next week. This may lead to the spread of ongoing fires as well as the development of new ones. The Palisades Fire was 11 % contained on Saturday but had grown to 23,600 acres, while the Eaton Fire was at 14,000 acres and 15 % contained.

## Centre's panel clears exploratory drilling in Assam gibbon sanctuary

### ECOLOGY & ENVIRONMENT

**CONTEXT:** The Centre's wildlife panel has approved a proposal to carry out oil and gas exploration in the ecosensitive zone of the Hoollongapar Gibbon Wildlife Sanctuary in Assam's Jorhat district.

The Standing Committee of the National Board for Wildlife (NBWL), chaired by Union Environment Minister Bhupender Yadav, approved the proposal by Vedanta Group's Cairn Oil and Gas during its meeting on December 21. Assam's Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden had recommended clearance for the project last August, citing "national interest". The Forest Advisory Committee of the Union Environment Ministry had also granted in-principle approval during its meeting on August 27 last year.

According to the minutes of the NBWL meeting, a team comprising officials from the Union Environment Ministry, the Wildlife Institute of India, and the Assam Forest Department inspected the project site, located about 13 km from the sanctuary.

The inspection committee found that exploratory drilling would cause minimal damage, but said commercial drilling would not be allowed. Vedanta Group has given a written assurance that no commercial drilling will be conducted at the site. It also assured that no hazardous substances would be used during the exploration process, the officials said.

A senior official in the Ministry pointed out that exploratory drilling is a key step in hydrocarbon extraction, which could lead to commercial drilling. The inspection committee's report recommended no oil or gas extraction from within the eco-sensitive zone (ESZ), even if reserves were discovered.

## Silver Notice more effective than MLAT: CBI Director

### POLITY & GOVERNANCE

**CONTEXT:** CBI Director Praveen Sood noted the recently introduced Interpol 'Silver Notice' a "more effective" tool than the Mutual Legal Assistance Treaties for gathering information on illicit assets parked offshore.

Mr. Modi had proposed in 2015 a system under Interpol to trace money laundered offshore, and it has now taken shape as the Silver Notice. The notice, aimed at locating illicit assets laundered across borders, is the newest addition to Interpol's suite of eight colour-coded Notices and Diffusions, which enable countries to share alerts and requests for information worldwide.

### Usual method

Conventionally, the information on illicit assets is gathered through MLATs which are treaties between two countries whereby they cooperate to provide and obtain formal assistance in the prevention, suppression, investigation, and prosecution of crime. Common complaints under MLAT include requests being transferred from one agency to another. Sometimes difficulties arise in obtaining a response because of a large number of requests.

## Bangladesh govt. expresses 'concern' over border tensions

### INTERNATIONAL RELATIONS

**CONTEXT:** The interim government of Bangladesh on Sunday expressed "deep concern" about the prevailing situation along the India-Bangladesh borders.

Dhaka's message was conveyed by Foreign Secretary Mohammad Jashim Uddin to the Indian High Commissioner Pranay Verma during a meeting held soon after the Adviser on Home Affairs, Jehangir Alam Chowdhury, and informed presspersons that India has been erecting fences in five locations on the Indo-Bangladesh borders, and alleged that Bangladesh authorities were not consulted before starting the construction work. He announced that the Indian envoy was being "summoned" to discuss the situation.

Foreign Secretary Ambassador Md. Jashim Uddin today expressed deep concern of Government of Bangladesh to High Commissioner of India Pranay Verma at his office at the Ministry of Foreign Affairs over the recent activities of the Border Security Force (BSF) of India along the Bangladesh-India Border, which referred to the attempts to construct barbed-wire fencing as "unauthorised".

He emphasised that the construction of barbed wire fences without proper authorisation undermines the spirit of cooperation and friendly relations between the two countries. He hoped the upcoming BGB [Border Guard Bangladesh]-BSF DG-level talks would be able to discuss the matter at length. Earlier Mr. Chowdhury had described India-Bangladesh border agreements concluded during 2010- 2023 as "unequal" and blamed these agreements for being responsible for the problems that Bangladesh is facing. India and Bangladesh concluded the landmark Land Boundary Agreement (LBA) in 2015 but the killing of Bangladesh citizens by the BSF has been a major issue for Dhaka. Foreign Secretary Jashim Uddin raised the recent killing of a Bangladeshi citizen in Sunamganj by the BSF. He strongly resented these acts of killing and called for urgent action by the Indian authorities to stop recurrence of such incidents and conduct enquiries into all these border killings and take actions against those responsible.

India-Bangladesh border has been under focus since the fall of the Sheikh Hasina government on August 5, 2024, as subsequently, on several locations of the border, members of the erstwhile ruling party Awami League's members and Bangladeshi citizens were spotted trying to enter Indian territories. In late August 2024, the dead body of Awami League leader Ishfaq Ali Khan Panna was found inside Meghalaya close to the Indo-Bangladesh border amid suspicion that he was chased and killed by his political rivals.

## Companies look to localise data storage, telecom tech

### SCIENCE & TECHNOLOGY

**CONTEXT:** Indian firms are capitalising on key policy developments to indigenise the Indian tech stack, from both hardware and software point of view from data centres to telecom equipment. The main movers are emerging from markets that sell to large businesses.

CloudPhotonix, recently established by veterans of the transceiver industry started selling the product to telecom firms, as networks look to move away from foreign, specifically Chinese-made components. DigiBoxx, is offering cloud storage and enterprise backup locally in India, anticipating demand from firms seeking to pre-emptively comply with localisation requirements in the wake of laws such as the Digital Personal Data Protection Act, 2023. The Act does not currently require data localisation within Indian borders, it leaves that possibility open in some sectors; the Reserve Bank of India requires payment data of Indians to be stored locally.

CloudPhotonix co-founder Tarun Sibal hosted a small event in Delhi gathering academics and industry players, outlining the importance of transceivers, a key component in networking and telecom equipment to transmit and receive data. The optical transceiver market worldwide could grow to \$ 47.64 billion by 2035, over four times its current value as per an estimate by the Mohali-based Roots Analysis. DigiBoxx, meanwhile, bills itself as the "first swadeshi SaaS [Software as a Service]-based digital storage and sharing platform" and its "servers and data centres are based in India, so customers can be assured their digital assets and IP are stored safely in the country". Security isn't always a function of the location of data, but over the years, localisation mandates like the RBI's have pushed firms in other industries to seek local storage options, even if they are more expensive due to a lack of scale.

The reason local storage is "becoming an even hotter topic is obviously the rise of privacy". He admitted that local storage was more expensive but added that firms looked out for their reputation when making storage decisions for regulatory purposes.



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## Centralising control

### POLITY & GOVERNANCE

**CONTEXT:** The Draft UGC Regulations, 2025, which propose to centralize the appointment of Vice Chancellors (VCs) by vesting powers in the Chancellor (usually the Governor), are seen as undermining State governments' role in higher education.

The regulations suggest removing State governments from the selection process and giving the Chancellor authority to appoint a VC from a list recommended by a search committee. This move has faced opposition from several States, particularly Tamil Nadu, where the Chief Minister M.K. Stalin has criticized the draft for violating federal principles and threatening the higher education system. Other political figures and parties, including Kerala's Chief Minister and the AIADMK, have supported this opposition.

The proposal to make non-academics eligible for the Vice Chancellor (VC) position has sparked criticism, with concerns that it could lead to the appointment of loyalists, particularly from the Sangh Parivar. However, non-academics like former President K.R. Narayanan and scientist Y. Nayudamma have made valuable contributions to universities. The draft's suggestion to extend the VC's tenure from three to five years is seen positively. The UGC is urged to remove anti-federal provisions from the draft and focus on reforms that promote university autonomy, limiting government involvement to funding and fostering excellence.

## India's data protection rules need some fine-tuning

### POLITY & GOVERNANCE

**CONTEXT:** On January 3, 2025, the Ministry of Electronics and Information Technology (MeitY) released the much-anticipated Draft Digital Personal Data Protection (DPDP) Rules — a key moment in India's journey to regulate digital personal data.

The draft rules represent a departure from the earlier and controversial Personal Data Protection Bill, which many deemed was overly restrictive and even hostile to industry interests. The Bill underwent extensive framing, reframing and consultations over nearly a decade, only to be rescinded when committees and government stakeholders wisely decided it was untenable.

In contrast, the positive response to the DPDP Act and its accompanying rules, reflected in conversations with businesses and in media coverage, stems from the less prescriptive, principles-based approach of the draft rules.

Unlike the earlier rush to regulate under the so-called "Brussels Effect", where global digital rulemaking mirrored the European Union (EU)'s interventionist regulatory ethos, India has taken a more pragmatic stance. The EU's General Data Protection Regulation (GDPR), once hailed as a gold standard by privacy experts, now faces criticism for unintended consequences — favouring well-resourced corporations, stifling smaller enterprises, and failing to significantly enhance public trust in the Internet. India's measured approach thus far offers a refreshing alternative to Europe's interventionist policies.

### The hits as pragmatism and flexibility

One of the draft rules' standout features is their principles-based framework for notice and consent. While the GDPR has cumbersome requirements, such as notifying users of indirect data acquisition, cross-border data transfers, and automated decision-making processes, India's rules emphasise simplicity and clarity. This helps reduce "consent fatigue", a significant issue in Europe, where users are

inundated with unnecessary details, such as the location of data processing — information of little practical use.

In 2023, the European Commission introduced the Cookie Pledge Initiative to address growing frustration over incessant consent pop-ups. However, such course correction would have been unnecessary had the EU taken a less invasive approach to regulating user interfaces and consent mechanisms. The very existence of this pledge highlights the burdens created by prescriptive regulation. India's DPDP Rules sidestep these pitfalls by focusing on outcomes rather than processes, empowering users without drowning businesses and consumers in unnecessary complexities. The rules avoid dictating how entities should enable users to exercise their rights to correction, erasure, nomination, withdrawal of consent and to seek information from entities. They require only the publication of relevant information on apps and websites. In contrast, the GDPR is prescriptive about how similar information should be presented, including instances where entities may need to provide this information orally to users. Why should the state dictate every aspect of an app or website's design or user interface? India's approach, thankfully, respects business autonomy and innovation.

The processing of children's personal data requires stricter protection compared to other types of data processing — which the rules provide for. However, as more children engage with digital technologies online, they increasingly benefit from certain activities, such as monitoring and tracking, which are of value in specific contexts. Take the case of educational institutions, including supplementary education and vocational training services. They rely on activities such as behavioural monitoring and tracking to deliver targeted interventions tailored to students' academic performance. These practices leverage the benefits of learning management systems, which personalise instruction and improve educational outcomes. Recognising this, the rules thoughtfully allow exemptions for specific industries. Educational institutions, clinical and mental health establishments, allied health-care providers, and child-care centres are not required to verify parental consent for tracking and behavioural monitoring, as long as they adhere to guardrails. The exemption for such industries demonstrates a nuanced understanding of industry-specific needs, reflecting the principles of thoughtful policymaking.

### **The misses as data localisation, overreach**

However, the draft rules are not without flaws. Their provisions for restricting cross-border data flows introduce unnecessary complexity and ambiguity. Significant Data Fiduciaries (SDFs) — large enterprises handling substantial data volumes — face potential localisation mandates that extend beyond the legislation's original scope. While the DPDP Act allows the government to restrict personal data transfers, it limits such action to specific notified countries. Differentiating between SDFs and smaller entities, where the second enjoy relaxed transfer rules for the same data, creates the risk of regulatory arbitrage. Smaller entities could exploit the lighter regime to gain an unfair advantage. These inconsistencies may deter investment and drive businesses out of India. The localisation provision likely stems from the challenges faced by law enforcement agencies in accessing cross-border data for investigations. While these agencies undeniably need access to such data, a narrower sectoral approach to localisation could prove more effective than a centralised one. The Reserve Bank of India's 2018 mandate for localising payment data is a prime example of proportionate regulation. Tailored specifically to the financial sector, it effectively addressed legitimate industry concerns without causing too many business disruptions. Applying this approach to personal data could balance security and compliance with economic competitiveness.

Some areas still require greater clarity. Businesses need safeguards to verify whether users requesting information about data processing are legitimate. This necessity is acknowledged even in the GDPR. However, India's draft rules do not address scenarios where businesses face incessant information

requests or provide scope for businesses to charge a reasonable fee for requests which are excessive or even unfounded. A related ambiguity is whether the government can demand access to sensitive business data. If so, how will it ensure the protection of such information from falling into the hands of competitors? What if this information is a trade secret? These gaps highlight the need for thinking about procedural integrity.

### What lies ahead

According to IBM, data breaches cost Indian businesses an average of ₹19.5 Cr (\$2.35 million) in 2024. Compliance with data protection laws should not be seen as a regulatory obligation, but as critical to protecting business reputation and ensuring continuity.

India must also move beyond reliance on notice-and-consent mechanisms to safeguard citizens' privacy in future laws. Notice and consent originate from the medical profession, where they can still be deemed to work effectively in controlled settings. However, in environments such as malls, airports, or even beaches, individuals have little opportunity to provide consent. With the convergence of the Internet of Things, 5G, and artificial intelligence enabling unprecedented data collection, India must envision privacy frameworks that do not exclusively rely on the fallible principle of consent. As public consultations refine the draft rules, prioritising preservation of the framework's flexibility and industry-specific accommodations is key. This approach will help maintain a balance between innovation, economic growth, and individual rights — something not many jurisdictions have managed to get right.

## Is Trump justified in asking EU to buy more oil and gas from the U.S.?

### INTERNATIONAL RELATIONS

**CONTEXT:** U.S. President-elect Donald Trump threatened to impose tariffs on many countries if they do not fulfil certain conditions. In November last year, he said he would impose sweeping tariffs on imports from Canada, China, and Mexico if these countries failed to stem illegal border crossings into the U.S. and the trafficking of drugs — in particular Fentanyl, which is a deadly opioid.

He has also threatened the European Union (EU) with tariffs, as the U.S. runs a trade deficit with the bloc. This means that its imports from the EU are higher than its exports. Data show that the U.S. had a trade deficit of more than \$ 208.7 billion with the EU at the end of 2023, second only to China with which it had a trade deficit of \$ 279.4 billion. The third on the list is Mexico (trade deficit of \$ 152.4 billion). With Canada, the U.S. had a trade deficit of \$ 67.9 billion. **Chart 1** shows the U.S.'s trade deficit with select countries at the end of 2023. The other countries which have been threatened with tariffs are also part of the list of countries with which the U.S. runs the highest trade deficits.

It is debatable whether imposition of tariffs is the most efficient way of dealing with this. In 2023, the U.S. imported € 40.7 billion worth of motor cars and vehicles from the EU. This was the second biggest commodity in terms of value, from the bloc. If there are higher tariffs on the import of European cars, these cars would become more expensive. This would benefit U.S. car manufacturers.

At the same time, consumers in the U.S. have been importing cheaper goods from countries such as China. They imported over \$ 35 billion worth of smartphones in 2023 from China. If the higher tariffs proposed by Mr. Trump come into force, consumers will need to look for alternatives. This means that they will spend more on these products. This means manufacturers will benefit, but not consumers.

Mr. Trump's solution to bridge the EU's trade deficit with the U.S. is also questionable: he has asked the bloc to buy more oil and gas from the U.S. By the end of 2023, the EU had sourced close to 43 % of

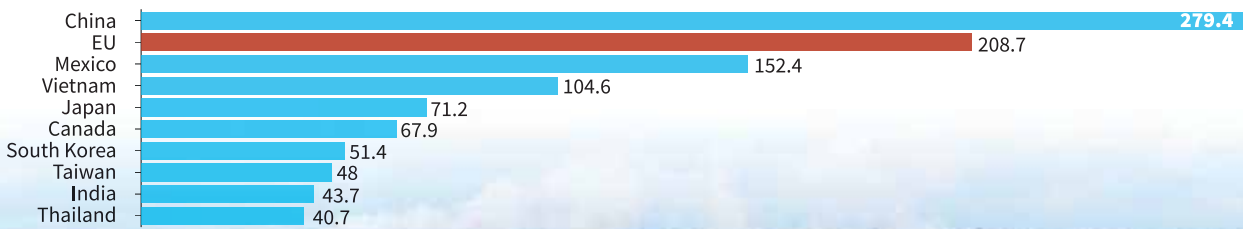


its Liquefied Natural Gas needs from the U.S. Just three years before that, in 2020, the EU had sourced below 20 % from the U.S. (**Chart 2**). This means that the EU's dependency on the U.S. had more than doubled in just three years. This was because sanctions were imposed on Russia after it invaded Ukraine.

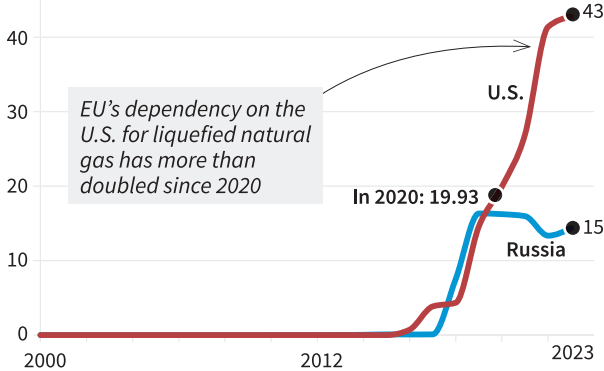
# Shifting the balance

The data for the charts were sourced from Eurostat, the U.S. Energy Information Administration, and the International Trade Administration, U.S. Department of Commerce.

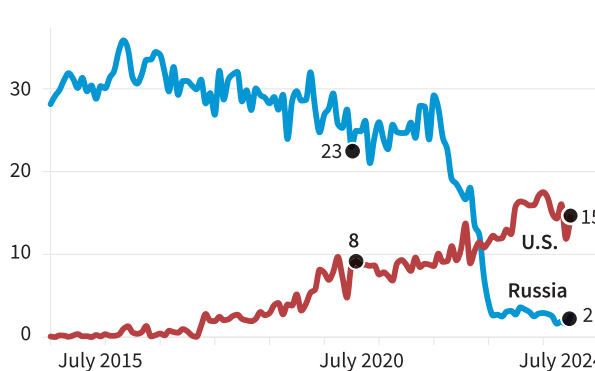
**Chart 1:** The chart shows the U.S.'s trade deficit with select countries at the end of 2023. Values in billion USD



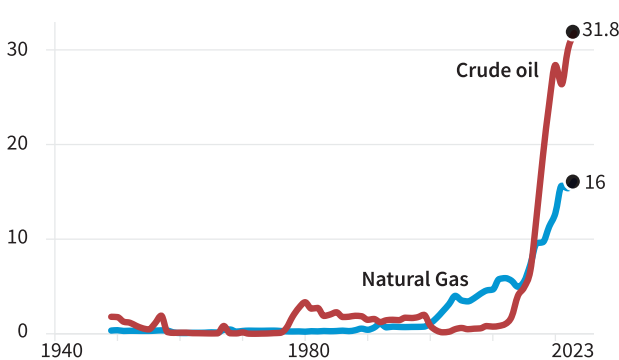
**Chart 2:** The chart shows EU's imports of liquefied natural gas from the U.S. and Russia. (Figures in %)



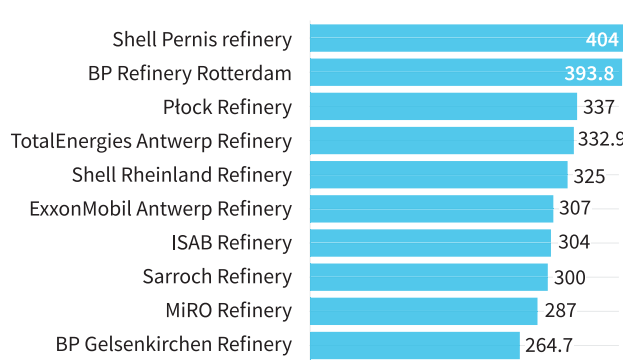
**Chart 3:** The chart shows EU's crude oil imports from the United States and Russia. (Figures in %)



**Chart 4:** The chart shows the U.S.'s exports of crude oil and natural gas as a share of production. (Figures in %)



**Chart 5:** The chart shows the largest crude oil refineries in Europe by capacity (in thousand barrels per day)



Thus, import of gas from Russia had to be cut, which benefited the U.S.

In July 2024, the EU sourced close to 15 % of its crude oil from the U.S. compared to just 8 % in July 2020. In the same period, crude oil imports from Russia were reduced from 23 % to 2 % (**Chart 3**). So, the question is, why is Mr. Trump threatening the EU when the bloc's dependency on the U.S. for oil and gas is already increasing at a rapid pace?

The U.S. exported 31.8 % of its crude oil production in 2023 compared to just 18.7 % five years prior. It exported 16 % of its natural gas production in 2023 compared to 9.6 % five years prior (**Chart 4**). Are producers in the U.S. equipped to sustainably increase production if the export share increases further, given that the U.S. is also the biggest consumer of oil and natural gas domestically?

Finally, of all the top 10 oil refineries (in terms of processing capacity) that operate in

Europe, most are owned by private players (**Chart 5**). While Mr. Trump's tirade is directed against the governments in Europe, will the bloc be able to convince the private refineries, whose best interest is to choose the cheapest and most viable oil, to get supply from the U.S.

## The reforms needed in the MEA

### INTERNATIONAL RELATIONS

**CONTEXT:** India's rise on the global stage is driven by its strong economic growth, political stability, and assertive foreign policy, demonstrated through successes like its G20 presidency, strategic stance during the Russia-Ukraine conflict, leadership in vaccine diplomacy, and advocacy for the Global South. However, to sustain this momentum, the Ministry of External Affairs (MEA) must evolve its staffing, structure, and operational approach to meet the demands of a more prominent global role.

#### Areas of improvement

The Ministry of External Affairs (MEA) currently has around 850 Indian Foreign Service (IFS) officers, which is insufficient compared to countries like the U.S., U.K., and Russia. With India's current intake of 32-35 officers annually, it would take decades to reach an optimal workforce of 1,500. To address this, the MEA should consider lateral hiring, including officers from other government services and defence personnel, and engage consultants for specialized roles. Such recruitment should have strict selection criteria and probation periods to ensure quality.

The MEA's internal structure is fragmented, particularly with its small territorial divisions, leading to inefficiencies. For example, India's immediate neighbourhood is managed by four separate divisions, which complicates coordination and increases the risk of oversight. This fragmentation hampers cohesive regional engagement despite higher-level coordination efforts.

The MEA's division structure includes misalignments, such as Iran being managed by the PAI Division and Türkiye by the Central Europe Division, which complicates regional coordination. There is a need to restructure and consolidate divisions for a more efficient approach. While officers abroad receive substantial support, those in Delhi face challenges, such as inadequate housing and limited financial incentives. Improving housing, medical coverage, and educational facilities, as well as offering financial incentives for Delhi postings, could boost morale and enhance the effectiveness of domestic officers.

The MEA faces a challenge in balancing generalist and specialist roles within the IFS, particularly regarding language skills. Officers trained in foreign languages are often posted to countries where their expertise is not utilized, diminishing the value of their training. To address this, each embassy should have at least one language-trained officer, and officers should be encouraged to specialize in specific fields as their careers progress. As technology increasingly shapes foreign policy, the MEA should also hire domain specialists in areas like cybersecurity, space policy, and AI, rather than expecting all officers to master these technical fields.

#### Steps in the right direction

Despite these challenges, the MEA has made significant efforts to evolve. The establishment of divisions such as Policy, Planning and Research, and the Centre for Contemporary China Studies, reflects its intent to adapt to emerging global trends. The dynamic leadership of Dr. S. Jaishankar has been instrumental in the display of innovation and greater assertiveness in foreign policy and also, as he emphasises, in aligning foreign policy with India's aspirations to become a 'Viksit Bharat' (Developed India).

# Should voter IDs be linked with Aadhaar?

## POLITY & GOVERNANCE

**CONTEXT:** The Aam Aadmi Party (AAP) and the Bharatiya Janata Party (BJP) have accused each other of manipulating electoral rolls before the Delhi Assembly elections reigniting the debate about linking voter IDs/Election Photo Identity Card (EPIC) with respective Aadhaar numbers.

### What is the history of the proposal?

The Election Commission (EC) in February 2015 launched the National Electoral Rolls Purification and Authentication Program (NERPAP) to address the issue of duplicate entries in the electoral roll and to remove such entries. The EC began authenticating EPIC data by linking it with the Aadhaar database linking more than 300 million voters in a span of three months. The Supreme Court in an interim order, in August 2015, held that the mandatory use of Aadhaar should only be for welfare schemes and PAN linking. Following this order, the NERPAP exercise was discontinued.

The EC sought amendments to the Representation of the People Act, 1950 (RP Act, 1950), after the Supreme Court's final order in Puttuswamy in September 2018 upheld the constitutional validity of the Aadhaar Act. The Parliament amended the RP Act, 1950 and The Registration of Electors Rules, 1960 in December 2021 to enable the linking of EPIC with Aadhaar. It provided the format in which Aadhaar information may be submitted to the electoral registration officer by a new voter at the time of fresh registration (Form 6: to establish identity) or an existing voter already included in the electoral roll (Form 6B: for the purpose of authentication). Any other listed document may be submitted only if the voter is unable to furnish their Aadhaar number because they do not have one. However, in order to keep these amendments voluntary in nature, the word 'may' have been used in the amendments. Further, the amendment also specifies that no application for inclusion of name in the electoral roll shall be denied and no entries shall be deleted due to the inability of an individual to furnish or intimate the Aadhaar number due to 'sufficient cause.' Such individuals may furnish alternate documents like PAN card, Driving Licence, Passport, Bank passbook etc.

While the above amendments were challenged in the Supreme Court, the EC in September 2023 informed the court that submission of the Aadhaar number is not mandatory. It added that it is looking into issuing appropriate clarificatory changes in the forms introduced for this purpose. However, it may be noted that Form 6 and 6B have not been amended till date and they continue to seek the same details as before from the applicants. The forms require the voters to declare that they do not have an Aadhaar number to avoid providing the same.

### What are the pros and cons?

EPIC linkage with the respective Aadhaar number would definitely help in weeding out duplicate entries; that is essential. At present, more than 650 million Aadhaar numbers have already been uploaded in the process of finalising the electoral rolls. However, there are some concerns about this exercise that need to be considered.

Firstly, the errors in the Aadhaar database, however miniscule, may result in wrongful rejection or deletion of entries from the electoral roll. Secondly, Aadhaar is only a proof of residence and not a proof of citizenship. Thus, it may not help in removing voters who are not citizens from the electoral roll. It would require a separate effort from the EC.

Finally, while the linkage is to happen at the back end and a mere mention of the Aadhaar number on the EPIC/electoral roll may not by itself be a violation of right to privacy, it may still result in misuse as the electoral rolls are widely circulated amongst political parties.

## What can be the way forward?

The right to vote is a constitutional right and declared so by the Supreme Court in various cases. It is part of the basic structure of free and fair elections and cannot be constricted through legislative action. Citizens are the most important stakeholders in a democracy and any electoral process should gain their confidence. There must be wide publicity about the benefits of linking EPIC and Aadhaar to clean up the electoral roll of duplicate entries, which in turn strengthens the electoral process. Any misplaced concern amongst voters about the secrecy of their vote being compromised because of this linking should be assuaged.

Meanwhile, the forms should be suitably modified without any delay, to reflect that providing Aadhaar is not mandatory, as per the submission of the EC in the Supreme Court in September 2023.

## What is different about small language models?

SCIENCE & TECHNOLOGY

### Why are smaller models in demand?

The race towards building large AI models has been building up ever since OpenAI released their 175 billion parameter LLM, GPT-3, in 2020. In the next three years, the company's LLMs further increased in size with GPT-4 trained on 1.7 trillion parameters. But, in 2024, researchers started to look at language models differently as scaling training data, scoured from the Internet, was giving marginal gains. The idea of building smaller language models emerged then.

This is evident in announcements made by Big Tech firms. Most of them released a nifty language model alongside their flagship AI models. Google DeepMind released Gemini Ultra, Nano and Flash models, while OpenAI and Meta launched their GPT-4o mini and Llama 3 models. Amazon-backed Anthropic AI launched Claude 3 and Haiku alongside its Opus.

### What are the pros and cons of small language models?

Small Language Models (SLMs) are cheaper and ideal for specific use cases. For a company that needs AI for a set of specialised tasks, a large AI model is not required. Training small models require less time, less compute and smaller training data. French start up Mistral AI, an SLM provider, pitched its AI model to be as efficient as LLMs for specialised, focused applications. Microsoft released a family of small language models called Phi (the latest Phi-3-mini comprised 3.8 billion parameters).

Apple Intelligence, the AI system deployed in the latest iPhones and iPads, runs on-device AI models that can sort of match the performance of top LLMs. If LLMs are built to achieve Artificial General Intelligence (AGI), small language models are made for specific use cases.

### How do use cases differ?

Small language models, like Llama 8B, are effective for tasks like translation and basic functions in applications like WhatsApp, but they struggle with complex tasks such as coding or logical problems. The reason for this limitation is not fully understood, but Dandwate compares it to how human brains, with more neurons, are capable of greater intelligence compared to smaller animals with fewer neurons. Similarly, large language models are better suited for complex tasks due to their larger capacity.

### How does it work for India?

In India, where AI adoption has great potential but resources are limited, small language models (SLMs) are ideal. IIIT Hyderabad's Visvam initiative is creating datasets to develop SLMs for sectors like healthcare, agriculture, education, and to preserve cultural and language diversity. Sarvam AI's co-founder, Vivek Raghavan, emphasized the goal of building generative AI (GenAI) that can be widely used by a billion Indians.

## Railways targets 80% of coal freight

### ECONOMICS AND DEVELOPMENT

**CONTEXT:** According to the latest figures from the national transporter, Indian Railways is set to redouble efforts to increase freight movement, with coal loading witnessing 8 % - 9 % increase in both volume and value terms. Other major freight categories like cement, raw materials, and imported coal witnessed a decline in loading.



Coal loading accounts for nearly 50 % of Railways' freight earnings. By January 2025, coal loading (excluding imported coal) reached 528 million tonnes, up by 41 million tonnes YoY, with earnings at ₹ 59,100 Cr, a rise of ₹ 4,709 Cr. However, imported coal loading dropped by 10 % YoY to 74.38 million tonnes, and earnings from this segment fell 18 % to ₹ 7,210 Cr. Other freight categories, such as refined petroleum products and containers, saw increased loading. Total freight earnings until December 2024 stood at ₹ 1,25,109 Cr, up by 3.5 % YoY.

The National Coal Logistics Plan — which aims to increase the country's

annual coal production to 1.5 billion tonnes by FY30 — about 37 railway projects have been identified to plug critical gaps. One lakh additional wagons would be needed for the projected 86 % of coal evacuation by rail to by FY 2030.

The Ministry of Railways has undertaken the procurement of these wagons for coal evacuation, adding that an origin-destination study of coal movement is currently underway, based on congestion analysis and other scientific data.

This has led to the identification of gaps in railway infrastructure in the blocks currently in operation and those set to be operationalised for the country's peak production requirement. Incidentally, there is a suggestion to increase coastal movement of coal from 40 mt per annum to about 120 mtpa, for which critical railway infrastructure gaps have been identified.

These gaps include the need for rail-over-rail at Cuttack and the four-lining (to be upgraded to four tracks) of the Cuttack-Paradip railway line. Port authorities of Paradip, Dhamra and Gangavaram port are taking measures to enhance their coal handling capabilities. With the Integrated Coal Logistics Plan in place, railways' share of coal transportation is expected to increase to 87 %, while lowering the share of road transportation. Integrated first- to last-mile rail connectivity and identification of infra gaps could help cut rail logistics cost by 14 %.

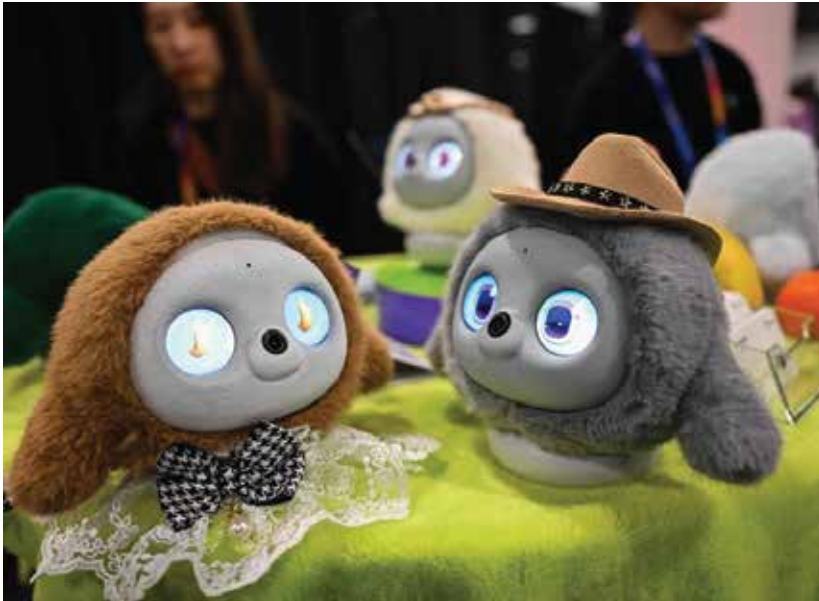
The cost savings identified as per the plan is around ₹ 21,000 Cr per annum, adding that the plan also envisages lowering of carbon dioxide emissions by 1,00,00 tonnes per annum, with around 10 % savings in average turnaround time.

# WE AIM TO INSPIRE YOU

# This year will belong to AI, the Consumer Electronics Show suggests

SCIENCE & TECHNOLOGY

**CONTEXT:** At the Consumer Electronics Show (CES), the influential tech event in Las Vegas that opens every calendar year and gives us a glimpse of trends to come, there was a flying car, solar-powered AI-helmet, an AI-powered radio, a robotic vacuum cleaner with arms, unusual wellness gadgets and plenty of other exciting stuff.



## Robotic tech

At virtual CES event, where AI-based products and news took center stage, alongside robotics and futuristic mobility. Wellness, sustainability, and age tech also made significant progress. Nvidia generated the most buzz, while Asian companies like Samsung, LG, and Panasonic drew attention. Small brands also showcased innovative tech. For marketers and brands, the event offered valuable insights. More details are available on CES.tech.

## Agentic AI

The Consumer Electronics Show (CES) 2025 demonstrated the significant impact of AI on businesses and individuals. A key trend is the rise of

Agentic AI, where every brand will have an AI agent, and individuals can create their own agents. These agents, which may interact with other AI agents, are being developed with distinct personalities. Notable examples include LG's Furon (an affectionate AI agent), Panasonic's Umi (a wellness assistant for caregivers), and Delta's Delta Concierge.

## Gadgets get smarter

The Consumer Electronics Show (CES) 2025 showcased highly intelligent gadgets, including Samsung's AI-powered fridge that recommends shopping based on consumption patterns and LG's AI radio that adapts to your tastes and moods. AI was featured across various categories, from healthcare to cars, TVs, and helmets. For example, Exeger and Cosonic's solar-powered helmet enhances rider safety by alerting them to obstacles. LG also introduced a car solution that detects driver distractions. Additionally, smart TVs with AI integrations were prominent, indicating that televisions remain a significant part of daily life.

## Age tech comes of age

CES 2025 highlighted a focus on inclusive tech, especially assistive technology for seniors. The event featured an Age Tech arena, showcasing gadgets like a robotic puppy to comfort dementia patients and a fall detection system by Japanese firm Asahi Kasei that alerts caregivers. Many home gadgets included features designed for seniors, and beauty tech companies introduced solutions to help seniors with shaky hands apply makeup without smudging.

## Wellness, sustainability

Healthcare and wellness are now mainstream, with consumer electronics companies offering a wide range of products, from wearables for sleep and fitness to glucose monitoring and mental health updates. Sustainability was also a key focus, with many gadgets powered by renewable energy, particularly solar.

Additionally, there were significant advancements in battery and energy storage technologies, including a charging hub that can fully charge a mobile device in just two seconds through a battery change.

### Riding on partnerships

CES 2025 highlighted a trend of increased collaboration among major companies. Notable partnerships included Sony and Honda for the EV Afeela, Nvidia assisting Toyota with autonomous vehicles, and Microsoft working with Volkswagen, GM, and Ford to accelerate innovation. The future of tech lies in such collaborations between big brands.



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