## Editorial



#### Tighten the process

The ECI must address legitimate concerns about voter rolls, transparency

concerns about voter rolls, transparency
he Leader of the Opposition in the Lok
Sabha, Rahul Gandhi, has raised troubling questions about the conduct of
elections based on what transpired in the 2024
Assembly elections in Maharashtra. There are
specific issues: the abnormal increase in voters
isted in electoral rolls between the general election and Assembly elections, higher turnout
numbers after 5 p.m. on voting day, and the
Centre amending the Conduct of Election Rules,
1961 to restrict access to CCTV footage of the poliniap process. Mr. Gandhi has also questioned the
process of appointing Election Commissioners,
with the Union government refusing to implement a Supreme Court judgment in 2023 that recommended having the Chief Justice of India as a
part of the selection panel. While political parties, including the BjP and the Congress, have
raised complaints about Electronic Voting Machines in the past, many did not stand scrutiny
considering the administrative and technological
safeguards. The Congress has now focused on the
electoral process, raising more fundamental issues that need to be unpacked separately.

A preliminary analysis by The Hindu of registered voters in States where the general election
and Assembly elections were proximate showed
that there were precedents of sharp increases in

and Assembly elections were proximate showed that there were precedents of sharp increases in the electorate before Assembly elections. While the number of new voters added before the Assembly elections was high – more than 39 lakh voters in just six months following the general election – similar increases were observed in 2014 as well. The increases were observed in voters is a large number and the ECI should proactively release machine-readable data on the rolls for verification. Regarding the allegation that turnout increases were abnormal after 5 p.m, the argument does not hold water. This is based on provisional turnout figures, and Elec-tion Commission of India (ECI) data show that there was no significant increase in voting after 5 p.m. in Maharashtra. Provisional turnout figures shared via an application. there was no significant increase in voting after 5 p.m. in Maharashtra. Provisional turnout figures shared via an app by the ECI are not entirely accurate as these are dependent on the manual entry of numbers during elections and may have discrepancies when compared to the accurate machine count. As final figures via Form 17C data from each booth are released only after a lag, it would be incorrect to rely on provisional turnout figures. However, there is another contention that merits the ECI's response: retaining CCTV footage and providing parties and their nominees access to it to scrutinise complaints. The process of updating electoral rolls must be more transparent and involve political parties for scrutiny and verification. It is also incumbent upon parties to show alacrity during this process than cry foul after the results are out. Ultimately, the onus lies on the ECI to enhance transparency in the electoral process and, specifically, in providing electoral rolls and retaining CCTV footage for scrutiny.

#### **History lessons**

The top layer in men's and women's tennis now sports a settled look

he yearning for historical greatness he yearning for historical greatness is common among sports fans. Contemporary success and genius notwithstanding, there is often a tendency to hark back to the past and lament that present-day virtuosi are not a patch on the older ones. In tennis, this storyline was expected to unfold in the immediate aftermath of the 'Big Three' era as Roger Federer and Rafael Nadal exited, and Novak Djokovic started displaying his vanning powers. It is to Garba Alea-Rafael Nadal exited, and Novak Djokovic started displaying his waning powers. It is to Carlos Alca-raz and Jannik Sinner's credit that they have al-lowed none of this talk to surface. Sunday's fasci-nating five-set French Open final was the latest piece of evidence as the Spaniard outlasted the

lowed none of this talk to surface. Sunday's fascinating five-set French Open final was the latest
piece of evidence as the Spaniard outlasted the
World No. 1 over five hours and 29 minutes of intense, scintillating action. The victory brought Alcarazk his fifth Grand Slam trophy, and the World
No. 2 became only the third man after Gustavo
Kuerten and Nadal to defend titles at Roland-Garros this millennium. Alcaraz and Sinner have
now swept the last six Majors and eight of the previous II. They are firmly perhed at the top of tennis' current totem pole, and going by the 12th act
of their engossing play in Paris, there is little
doubt that it is their rivalry that will prove eradefining for the men's game.

Leading in, it was Sinner who had been more
clinical, with the highlight being the ruthless dismantling of 24-time Major winner Djokovic in the
semifinal. The 23-year-old had won 29 straight
sets at Slams this year, and when he made it 31 by
pocketing the first two against Alcaraz, a third
straight Major – fourth overall – loomed, But Alcaraz, who came in after triumphs in Monte Carlo and Rome, found a higher gear when threatened – erasing three match points in the fourth
set, breaking Sinner when the Italian was serving
for the championship and overcoming his own
disappointment of falling to serve it out in the
fifth startaz to turn the tables fully. Saturday's women's final between No. 1 Aryna Sabalenka and
No. 2 Coco Gauff was as dramatic and capricious,
but alternated between middling and glorious. In
the end, it was Gauff who proved steadier, overcoming some treacherous conditions and her erracic opponent in two hours and 38 minutes. Sa
balenka, in fact, was the fivourite, having also
ousted three-time defending champion lag Swia
teken oute. But her power-packed game crumousted three-time defending champion Iga Swia-tek en route. But her power-packed game crum-bled in the face of Gauff's restrained art as the American left her nursing consecutive defeats in Slam finals. For Gauff, 21, it was her second Ma-jor, and with a technique that is gradually improving, she is sure to rise further.

CM CM

# The Census and the remaking of a people

population is a group of inhabitants in a particular place. A people, as in "We the People,' in the preamble of the Constitution, is a political community. The counting and the labelling of the population under multiple categories, it., a census, is not merely a technical exercise. It mediates the

under multiple categories, i.e., a census, is not merely a technical exercise. It mediates the transformation of the population to a people in a significant manner. The people — a political community — have a shared view of how they govern themselves and allocate their resources. The 2027 Census will so impact the notion of people that it is going to be a centennial event, like the COVID-19 pandemic that delayed the decadal census which was to happen in 2021. A census counts the total population, and under various categories and qualities — rural and urban, Scheduled Castes (SC) and Scheduled Tribes (ST), economic activity, literacy and education, housing and household ameninies, migration, fertility and mortality. It also enumerates the latest administrative map of the country. A census, technically, speaking, only captures the reality that exists. But the very act of capturing it under definitive categories alters and creates realities. There are organic, natural demographic trends which are underway, whether you document them or not. For instance, we know that more people in Chennai or Mumbai speak Hindi today than 20 years ago. In the same time period, we know that Kerala received and sent out a large number of migrants, or Mumbal speak Hindi today than 20 years ago. In the same time period, we know that Kerala received and sent out a large number of migrants, but we do not know the exact numbers. These patterns of birth, death, migration, languages, and economic activity will have political implications; their recording itself is an influencer of that process. The study of this link, between demography and politics (political demography), is an underdeveloped field the world over.

Issue of parliamentary representati

After half a century, India's parliamentary representation will be redistributed between the States. Article 81 of the Constitution mandates that the next inter-State redistribution representation according to population will be done after "the relevant figures for the first census taken after the year 2026 have been published". The Census of 2021 was delayed due to the pandemic, but it could have been done to the pandemic, but it could have been done much earlier than now. In normal course, the first Census after 2026 would have been in 2031, with the new delimitation exercise after that. The delay in the 2021 Census has advanced delimitation by at least five years. This is going to be the first census in which all data will be captured digitally, and its processing can be much faster than previous ones which took up to

The work of past Delimitation Commissions took years, but that too will be much quicker in the next round. All things considered, it is



Varghese

possible, and even likely, that the general election in 2029 can be conducted on the basis of a new

Parliamentary map of India.
What happens if the distribution of population becomes the sole criteria for the redistribution of parliamentary seats? Some States have grown faster population-wise and slower economy-w parliamentary seats? Some States have grown faster population-wise and slower economy-wise; for some States, the inverse holds true. People are moving from where there are more of them to where there are fewer of them such as from the north and central regions of the country to the west and southern regions, and also to Delhi NCR which is in the heartland. This movement is linked to demography and the economy. People are moving in search of better opportunities, and, in many cases, to escape distress. Regions of higher economic growth attract people from elsewhere, while their native populations age. If relative population remains the only and sole criteria for an inter-State reallocation of parliamentary representation, political power will move from regions with a 'stronger' economy-low birth rate' combination to regions that have a 'weaker economy-high birth rate' combination. The Centre has said that the demand for fair delimitation from States that fear a reduction in their political representation will be discussed at the appropriate time, but there is no clarity as yet on its thoughts on this issue.

Factors of caste, revenue sharing

Factors of caste, revenue sharing There are other adjacent factors that are inherent and contingent upon Census 2027, which will be determinants in this remaking of the people. For the first time since Independence, all castes will be counted separately as against the counting of only SCs and STs now. The caste census until 1931, during British rule, triggered multiple claims and resultant politics. It will be difficult to predict the political impact of a new caste census, but it is certain that the clamour for removal of the 50% ceiling on quotas will set louder. The next ceiling on quotas will get louder. The next delimitation will allocate one third of the seats in Parliament and Assemblies for women. The Centre has made it clear that it will push for simultaneous elections to Parliament and the State Assemblies. The individual citizen is considered to

constitute the elementary unit of people, in liberal democracy. But a simple reading of the relevant provisions of the Constitution makes it relevant provisions of the Constitution makes it clear how group identities were accepted in the constitutional scheme of things – before that in the national movement, and later in governance. National unity of the modern Republic of India was designed in three dimensions – unity of religions, castes and regions as highlighted in an article in this daily. "National unity, a three-dimensional view" (Editorial page, October 6, 2023). That contract of unity is now being renegotiated to make place for the changes and the learnings of at least 50 years. Census 2027 is a

Health Survey, female land ownership is even lower, at 8.3%.

lower, at 8.3%.

Women farmers in India report that their lack of land ownership makes it difficult to obtain credit and limits their access to financial institutions. Regular access to information on agricultural planning and advisory is essential for farmers, but women have more limited access to technology, such as mobile phones. These obstacles hinder investments, technology adoption and improvements in livelihoods. While microfinance and self-help groups provide some access, such loans are often insufficient for significant investments.

milestone in this ongoing process and will unleash unpredictable forces. There is also a simultaneous development that is also relevant in this context. The Sixteenth Finance Commission (tasked with making recommendations for revenue sharing across States and between the Centre and the State for five years and commencing its work from April 1, 2026), is in deliberations with stakeholders. It is required to make its recommendations available

2026), is in deliberations with stakeholders. It is required to make its recommendations available by October 31, 2025. The mechanism devised by the previous Finance Commission for revenue sharing remains a source of grievance for many States. The Sixteenth Finance Commission's report will have the additional import of its timing, coming as it does on the cusp of a dramatic realignment of pollicial power across social groups and regions.

From a population to a people, the transition is achieved by administrative measures and politics. Census categories have been a key determinant in Indian identifies. The first Census of 1881, under the colonial administration, had rigid religious and caste categories of its Indian subjects – which have remained key determinants of politics since then. All politics in Indian has been about various attempts to slice and dice and aggregate and disaggregate these categories. Population management involves the absolute numbers of people, their spatial distribution and their quality through health care and education. None of this is apolitical; education is a particularly notable field.

Integral to political strategies
The Bharatiya Janata Party (BJP) seeks to achieve
its goal of national consolidation through a
change in thinking of how Indians see themselves as a people. It is not a disinterested actor in this emerging scenario of a demographic transition. A population-based inter-State delimitation will shift political power to its strongholds and weaken its political opponents. Gender and caste are national categories. By introducing these factors, the BJP can shift the delimitation debate beyond the conflicting demands of regions, and create new political constituencies. The Congress and the Left too are theoretically national and the Left too are theoretically national formations, which require them to balance regional aspirations and national requirements. The Congress is trying to reclaim some space in heartland politics by joining the caste debate, but it remains to be seen how its contest with the BJP will progress on this count. The BJP has a totalising vision of national identity, and a population-based delimitation is a tempting route for it to follow. Alternatively, if it wants to emerge as a truly national party which reassures interests across castes, regions and religions, then this is a good opportunity for it.

# Empowering women in agriculture for food security

he United Nations General Assembly has declared 2026 as the International Year of the Woman Farmer, garnering the support of over 100 co-sponsors. The resolution celebrates the essential role of women in global agriculture while raising awareness of their challenges, which include property rights and market access.

challenges, which include property rights and market access.
This article highlights insights from a symposia on women in agriculture organised by the Royal Norwegána Embassy and the United Nations World Food Programme (WFP) in India (with participation and guidance from the Government of India). It distils the discussions over six months, with 200 participants from diverse fields and backgrounds coming together to address the challenges women in agriculture face.

Some of the observations here also stem from a collaborative project called ENACT, or Enhancing Climate Adaptation of Vulnerable Communities through Nature-based Solutions and Gender Transformative Approaches, in Assam, implemented by the WFP in partnership with the Government of Assam, in Nagaon. The project aims to empower smallholder farmers, particularly women, to access climate-related information and make informed decisions to enhance their resilience. The project is financed by the Government of Norway under its strategy to promote self-sufficiency in food production and strengthen women's rights and their role in food production.

Ownership, control and access Nearly half the global food supply is made possible by the contributions of women, who are responsible for 60% to 80% of food production in developing countries and account for 39% of the agricultural labour in South Asia. These figures

agricultural labour in South Asia. These figures highlight the vital role of women in agriculture, who face barriers and inequalities. In India, the percentage of women who own agricultural land is significantly lower than that of men, despite women constituting a substantial men, despite women constituting a substantial part of the farm workforce. Approximately 80% of economically active women are employed in agriculture. Yet, only 14% of landowners are women. According to the latest National Family



The new Census will accelerate the

social and political

impacts of demographic

May-Elin Stener is the Ambassador of Norway to India



is the Representative and Country Director of the United Nations World Food Programme in India

International

in 2026, must ensure the promotion of

resilient agricultural development and gender

Year of the Woman Farmer,

access, such loans are often insufficient for significant investments.

The Government of India supports small women farmers to enhance skills and promote sustainable agriculture. The Mahlia Kisan Sashaktikaran Pariyojana upgrades skills and increases resource access for women, while the Sub-Mission on Agricultural Mechanisation offers 50% to 80% subsidies for machinery. Additionally, 30% of the National Food Security Mission's budget is allocated for women farmers in a number of States and Union Territories.

Empowerment for resilience Climate change disproportionately affects women farmers by increasing their domestic farmers by increasing their domestic responsibilities and elevating their exposure to agricultural risks. "Our area has been witnessing rapid weather changes. The variety introduced by the project is designed to resist flood damage, and the crops can survive underwater. We are hoping for a better harvest," says Nirmali Bora Hazarika from Roha village in Nagaon.

By engaging with women farmers, it is possible to develop replicable models of climate adaptation at the village and community levels. The women in agriculture symposia generated forward-looking ideas. The ENACT project primarily connects women farmers with experts through information technology, providing

through information technology, providing actionable agricultural and climate advisories weekly via their phones to over 300 farmers in 17

villages of Nagaon district.

Additionally, the Climate Adaptation Information Centres facilitate video conferencing and meetings, informing women farmers about

agriculture and livelihoods. This shows how scalable impact can be achieved by combining technical expertise, diversification through farm-based livelihoods, information and weather advisories, use of technologies and social behaviour change interventions. The project is leveraging partnerships with State and district administrations, which include the Department of Agriculture, the State Rural Livelihoods Mission, and the Departments of Meteorology and Environment. The technology partners include agricultural universities, institutions for sourcing climate-resilient crop varieties.

institutions for sourcing climate-resilient crop varieties.

Rural ecosystems and dependent livelihoods are vulnerable. Responses to risks should reflect community needs and capabilities. The ENACT-project emphasises the promotion of flood-resistant rice varieties, livelihood diversification, and market linkages to mitigate crop damage from flooding and promote the cultivation of nutritious local varieties. Women's farmer groups engage in a community-based smart seed production system to enhance sustainability.

Steps to take Policy design and implementation should take into account the unique needs of women farmers. Granular data with a gender lens are needed to develop solutions tailored to women's needs. These could range from rethinking farming tools to financial needs and practices around saving or

There should be a strong focus on agri-value chains that support women farmers and are managed by women. Part of this could be to enhance women's access to financing mechanisms and information while supporting

mechanisms and information while supporting their collective action and networks, such as women's self-help groups. We have a historic opportunity to mark 2026 as the International Year of the Woman Farmer, to promote resilient agricultural development and gender equality by recognising, supporting, and enhancing the role of women in ensuring food security, fostering economic prosperity, and promoting sustainability.

#### LETTERS TO THE EDITOR

Ships and Kerala coast The back-to-back shipping accidents off the Kerala coast raise serious environmental, regulatory and security concerns. The silence around the origin, inspection records and cargo manifests of these ships points to gaps in international shipping oversight. Port authority accountability and marine environmental safety enforcement are seen missing, This is a coastline that is one of India's most ecologically sensitive and densely populated. Have environmental norms been compromised in favour of corporate convenience or under-the-table arrangements? Kerala

deserves nothing less than full disclosure and strict preventive measures. K.A. Solaman, S.L. Puram, Alapi

It will be a million dollar

...

question why Jannik Sinner was unable to convert one of the three championship points in the fourth set which led to his defeat. Carlos Alcaraz was tenacious as if to prove the signage in Court Philippe

400

Chatrier: 'Victory belongs to the most tenacious'. V. Lakshmanan Tiruppur, Tamil Nadu

# The story of how asafoetida came to be successfully cultivated in India

The first flowering and seed set of heeng at Palampur was reported on May 28, 2025, by CSIR, showing that heeng can be cultivated in India; this achievement, realised approximately five years after the initial sowing in 2020 in Himachal Pradesh, confirmed the plant's successful acclimatisation

Sanjay Kumar Shekhar Mande

eeng or asafoetida (Ferula assa-foetida) is an essential assa-foetida) is an essential ingredient in many Indian cuisines. A pinch of heeng is typically added to hot oil before other constituents when cooking. Despite the great diversity of India's cuisines, most of them have recipes with heeng. There are mentions of heeng in ancient Indian texts including the Mahabharata and texts of Auryreda. The latter

and texts of Ayurveda. The latter recommends using heeng to refresh one's senses, including consciousness. The Charaka Sanhita Sutrasthana 27/299 says heeng can help relieve abdominal pain,

heeng can help relieve abdominal pain, digest undigested food, and enhance taste. The Pippalada Samhita and the works of Panini also include heeng. Today, heeng plants thrive in cold, arid environments suited to the native regions in Iran, Afghanistan, and Central Asia. The plant prefers sandy, well-drained soil with low moisture, ideally receiving annual rainfall of 200 mm or less, though it can tolerate unto 300 mm in cultivated. annual rainfall of 200 mm or less, though it can tolerate up to 300 mm in cultivated regions like the Indian Himalayas. It flourishes in temperatures of 10-20°C, tolerates highs of up to 40°C, and withstands winter lows down to -4°C. In extremely dry and cold weather, heeng plants typically become dormant to survive.

These requirements make

survive.
These requirements make
high-altitude, semi-arid regions like
Lahaul-Spiti and Uttarkashi in India suitable for its cultivation. Excessive rainfall or high soil moisture can hinder The final product obtained from the

nt, asafoetida, is derived from an oleo-gum resin extracted from the plant's oleo gum resin extracted from the plant's thick, fleshy taproot and rhizome, which makes up 40-64% of the dried gum. Heeng is a perennial plant that typically takes five years to mature and start flowering. Incisions are then made in the taproot, allowing the milky lates to exude and harden into a gum-like substance. This resin is dried and processed into powder or crystal form for culinary and medicinal use.

Cutting import dependence
Until early last decade, despite being the
world's largest consumer of heeng, India
depended on imports from Aßhanistan,
Iran, and Uzbekistan, among others. The
government subsequently launched a
national effort to promote indigenous
cultivation of heeng. This mission was led
by the CSIR-Institute of Himalayan
Bioresource Technology (HBT) in
Palampur, Himachal Pradesh.
Researchers here took up the challenge of
introducing heeng to Indian soil for the
first time, starting with a rigorous and first time, starting with a rigorous and multi-layered international search from 2018 and 2020 to procure viable seeds of

heeng.
As part of this programme, CSIR-IHBT
scientists communicated with the
relevant agencies in Iran, Afghanistan,
Uzbekistan, Tajikistan, and South Africa
and contacted more than 20 suppliers.
These efforts culminated in the
procurement of heeng seeds,
initially from Iran, and later from
Afghanistan

Afghanistan. To facilitate legal and phytosanitary compliance, the ICAR-National Bureau of Plant Genetic Resources (NBPGR) in New Delhi, the designated nodal agency for



plant germplasm import and quarantine, issued the necessary import permits and conducted all mandated quarantine inspections. Once the seeds were cleared, they were handed over to IHBT for research and field evaluation. The first import of six seed accessions

The first import of six seed accessions from Iran took place in October 2018, and IHBT researchers were faced with the significant biological challenges posed by their dormancy and low germination rate. They worked to develop germination protocols, identify altitude-specific locations suitable for cultivation, and formulate agronomic practices for Indian conditions. Controlled trials were conducted at IHBT Palampur and its Centre for IHigh Altitude Biology in Ribling Centre for High Altitude Biology in Ribling in Lahaul & Spiti.

Early adopters
The team planted the first heeng seedling
in India on October 15, 2020, in a farmer's
field at Kwaring village in Lahaul Valley,
officially marking the beginning of the
country's journey into indigenous heeng
cultivation.

cultivation.

One key milestone in expanding heeng cultivation beyond Lahaul was achieved shortly thereafter when the team planted heeng at Janjheli in Mandi district on November 8, 2020.

This was the first extension of heeng cultivation into the mid-hill regions of Himachal Pradesh, exploring the crop's potential beyond the high-altitude cold



CSIR-IHBT scientists with farmers in Kwaring village of Lahaul valley in Himachal Pradesh, October 15, 2020. SPECIAL ARRANGEMENT

The first import of six seed accessions took place in 2018, and researchers developed germination protocols, identified altitude-specific locations suitable for cultivation, and formulated agronomic practices for India

desert zone.
This was soon followed by the establishment of demonstration plots and farmer training programmes across Lahaul & Spiti, Mandi, Kinnaur, Kullu, and Chamba, in collaboration with the State Agriculture Department.

Agriculture Department.

Villages that became early adopters of this initiative were:

Lahaul & Spiti: Madgran, Salgran,

- Lanau & Spin: Naogran, Sagran, Beeling, Keylong
   Mandi: Janjehli, Majhakhal, Kataru, Ghayan, Karsog
   Kinnaur: Kafnoo, Hango, Maling, Reckong Peo, Kalpa, Moorang, Graming, Katgaon
   Kullu: Bagsaid, Dhaugi-Sainj, Kotla-Baniai,
- Kotla-Banjar
- Chamba: Pangi, Deol, Bharmour, Mahala, Tooh

Mahala, Tooh
To further institutionalise this
progress, the Heeng Germplasm Resource
Centre was established at IHBT Palampur
and was formally inaugurated on March 5,
2022. It serves as the national hub for conservation, research, training, seed production, and plant propagation vis-à-vis heeng.

May 28 milestone
CSIR-HBT researchers also developed a
dedicated tissue culture unit to facilitate
the large-scale propagation of heeng
plants. This specialised facility was
funded by the Government of Himachal
Pradesh, reinforcing the collaborative
framework between scientific institutions
and the State in advancing the

high-altitude cultivation of this important crop. Researchers used advanced methods such as ecological niche modelling to map favourable cultivation zones using GPS-tagged occurrence data and environmental parameters.

The first flowering and seed set of heeng

The first flowering and seed set of heer at Palampur was finally reported on May 28, 2025, by the Council of Scientific and Industrial Research – a significant milestone demonstrating that heeng can indeed be successfully cultivated in India. This achievement, realisted approximately five years after the initial sowing in 2020 in Himachal Pradesh, confirmed the plant's successful accilimatisation.

acclimatisation.

It also signifies its ability to complete the reproductive cycle, a critical prerequisi for seed production, long-term domestication, and sustainable commercial cultivation.

commercial cultivation.

While the heeng plant thrives in cold deserts, its successful cultivation in Palampur at just 1,300 m (above sea level) is a breakthrough: proving that plant adaptability holds untapped potential and that new agro-ecological frontiers still await discovery.

Ultimately, the milestone paves the way for India to reduce its import dependence.

for India to reduce its import dependence, and for farmers to enhance their incomes and for farmers to ennance their incomes and build a self-reliant supply chain for this culturally important spice. In all, the success of heeng cultivation in India owes itself to the efforts of CSIR-IHBT, ICAR-RBPGR, the Himachal Pradesh government, the State Agriculture Department, and the region's progressive farmers.

(Sanjay Kumar is former Director, CSIR-HHBT, Palampur. Shekhar C. Mande is Distinguished Professor at the Savitribai Phule Pune University and the former Director General, CSIR. sanjayplpt@gmail.com, shekhar.mande@gmail.com)



## How does the first shoot rise safely through soil, towards daylight?

Vasudevan Mukunth

Researchers from the Indian Institute of

Researchers from the Indian Institute of Science Education and Research (IISER), Bhopal, have found that a single protein helps plants time their first step from darkness into light. When a seed sprouts in darkness under the soil, its stem curves into a small hook shape that protects the delicate shoot tip as it pushes upward. The hook needs to stay 'closed' until the seedling breaks through the soil and meets light. In the study, the team wanted to know how two through the soil and meets light. In the study, the team wanted to know how two common signals – ethylene, a plant hormone that builds up underground, and light – work together to decide exactly when the hook opens.

The team focused on what a gene called BBX32 really does in the model plant Arabidopsis thaliana. By comparing seedlings modified to lack BBX32, to the control of t

churn out extra copies, to carry extra mutations, or to glow blue or green when the gene was activated or its protein ed around, the scientists could

moved around, the scientists could pinpoint how the protein made by the gene helps keep the hook closed. The team also grew seedlings in darkness, red, blue, far-red light, and normal light, in plates with or without a compound that raises ethylene levels, and in thin layers of sand to imitate soil pressure.

They photographed three-day-old seedlings and used software to measure the hook angle as it opened over time.

They also used genetic tools to track the performance of the BBX32 gene and counted how many seedlings breached a sand layer and turned green. The findings were published in *New Phytologist* on May 28. The team

When a seed sprouts in darkness its stem curves into a small hook shape that protects the delicate shoot tip as it pushes upward. The hook needs to stay closed until the seedling breaks through the soil and meets light

comprised Nevedha Ravindran, Kavuri Venkateswara Rao, and Sourav Datta of the Department of Biological Sciences at IISER Bhopal. They found that ethylene turns BBX32 on and that light protects BBX32 from being destroyed. The role of BBX32 itself is to keep the hook closed for longer. Without extra chylene BRX22 mutants Without extra ethylene, BBX32 mutants behave like normal plants whereas with high ethylene or a sand cover, the hook

opens too soon.

BBX32 was found to work by raising the

BB3/32 was found to work by raising the activity of the PIF3 protein, which switched on HLSI, which kept the hook closed. If PIF3 was missing, BB3/32 couldn't prevent the hook from opening. In the sand test, only about a quarter of seedlings ever reached the surface compared to 40% of normal seedlings and 80% of over-expressors. Keeping the hook closed just a bit longer clearly helped a sprout survive its climb.

The researchers also worked out why

sprout survive its climb.

The researchers also worked out why BBX32 accumulates only when it's most useful. In total darkness, an enzyme called COPI latches onto BBX32 and sends it to be degraded, keeping the hook flexible. Ethylene partially shields BBX32, but once the emerging seedling first senses daylight, COPI activity drops, allowing the protein to build up on the concave side of the hook and hold it shut a little longer.

This finely tuned handshake offers a

This finely tuned handshake offers a way to breed crops whose seedlings can breach denser soils – a trait that may be valuable as climate change brings heavier

For feedback and suggestions 'Science', please write to ence@thehindu.co.in with the science@thehinou subject 'Daily page'



## A wilderness where land meets the sea

#### Manaswini Vijayakumar

## QUESTION 1.

ems have different zone Marine ecosystems have different zones, such as the oceanic, benthic, and intertidal zones. Near-shore zones that include mangroves, sea-grass meadows, and lagoons are called Fill in the blance. Question 2.

Where rivers meet the ocean, there is a noticeable change in salinity. The water becomes brackish — a mix of freshwater and seawater. What is the name for partially enclosed bodies of such

Seawater has a high salt content whereas freshwater bodies have lower salinity. Keeping in mind that salinity varies from one place to another, the average salinity of seawater is considered to be X per thousand parts

CM (CM)

## of water. What's the value of X?

Question 4. Salt marshes are also a transition zone een land and sea. The soil in these petween land and sea. The soil in these areas is made of mud and a layer of organic material called \_\_\_\_. This waterlogged material, full of decomposi plant matter, causes low oxygen levels and emits a sulphurous smell. Filt in the black.

Floating barnacles, marine snails, and golden seaweed are some of the organisms that live freely on the surface of the ocean. What is the scientific term for this community of organisms? It comes from the ancient Greek for "swimming on". (Manaswini Vijayakumar is interning with

# The Hindu.) Answers to June 3 quiz: 1. Effect of gene in Flavr Save that reduced shipping costs – Ans: Slower rotting 2. Term for process of removing pollutants from an ecosystem – Ans:

Fourth virus type used in viral gene therapy – Ans: Retroviral
 Technique that uses electric fields to destabilise cell membranes – Ans:

Please send in your answers to

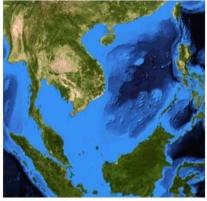
science@thehindu.co.in

destabilise cen memorial Electroporation 5. First GM animal to be commercialised –

# 5. First GM animat to be community of the Ans: Glo Fish Visual: Cartagena Protocol First contact: K.N. Viswanathan | Tamal Biswas | Anmol Agrawal | Deepak Goglya Answers to June 6 quiz:

Q1: True; Q2: Epinephrine; Q3: Immunoglobulin E; Q4: Antihistamines; Q5: immunogoduin e; Qa: Antinistamines; Qs: Pollen, dust mites, etc.; Qe: Runny nose; Q7: Anaphylaxis; Q8: Allergies can't be cured but they can be managed; Q9: Hypoallergenic products are designed to minimise risk of causing allergic reactions; Q10: Skin prick tests, intradermal tests, and patch tests.

patch tests.
Visual: Clemens von Pirquet
First contact: K.N. Viswanathan | Drishti
Dwivedi | Anmol Agrawal



Visual: There are about 68 large marine ecosystems that have for environmental conservation. The water body shows one of them; it has also been a site of geopolitical dispute. Identify it. PUBLIC DOMAIN

# THE ASIAN AGE

# Restore trust in Manipur; address all issues fairly

The page are it's time for the chicken to come home to roost in Manipur. The long-delayed and ad hoc measures the Union government has taken have pushed the trouble-torn state into complete lawlessness, as is reflected in the widespread violence it has witnessed when the police took into custody the leader of a majority Meiter brebel group and his followers for alleged crimes including the abduction of senior police officer. The government was forced to clamp currew in some districts along with internet shutdown. That the rebels have called for a 10-day shut down in retailation reflects the perilous law and order situation in the state.

The propertrators of crimes the state has witnessed in the last two years and more must be brought to book, and that must be the first periority of the what forced the government to go after a militant organisation which was allegedly actively involved in the communal clashes in the state. Sansan Singh, the man in question, is a police constable when they arrested the rebel leader and not clues about the potential trouble when they arrested the rebel leader and his followers.

The governor and the administration, however, have to answer a question whether they had no clues about the state.

has been the experience of the past, it will only aggravate the precarious position in the state.

The governor and the administration, however, have to answer a question whether they had no clues about the potential trouble when they arrested the rebel leader and his followers. Governments and law-enforcement agencies normally take precautions when they go out and take such drastic steps. The state has a failed intelligence machinery as was evidenced by the breaking out of clashes on May 3, 2023: It could neither anticipate the trouble nor help the state stop its spread. An excuse can be that it was working under a chief minister who was acting in a partisan manner. Now that he is gone, and a governor with a mandate to nurse the state back to its health in a democratic way is at the helm, the administration must endeavour to strengthen its network at the grass roots level. The thouses, and through them to the rest of the country and the Union government, about the sense of allenation the people of Manipur have been made to feel. A member recently reminded the government that the Prime Minister of India does not require a visa to visit the state, obliquely referring to the refusal of Narendra Modi to visit the state, the last two years. It defies logic and democratic propriety. The Union government must pontry of the control of the precase of the prime Minister, if it wants the state to be back to normal. It is time that a comprehensive agonds that can address the woes of all sections of the people of the state is prepared and acted upon.

## Alcaraz's great escape in epic final

It was only the first major final between Carlos Alcaraz and Jannik Sinner and yet it set the tennis world alight with stunning brilliance in record duration to provide a result in a grand finale at the Roland Garros in favour of the younger Alcaraz, who won his fifth grand slam title at the age of 22, the same as compatriot and tennis legend Madel Nacial. The strength of the same as compatriot and tennis legend Madel Nacial. The same are going to be all the rage in men's tennis that has been lamenting the departure of two of three legends in Roger Federer and Rafael Nadal and the diminishing returns for the third, Novak Djokovic.

The final between the two generational talents, both born in the new millennium, was an opic for the ages that defied known laws of tennis in terms of court coverage, recovery shots, physical endurance and sheer intensity of exchanges at an incredible pace in a match in which fortunes swung haltway as Alcaraz staved off three championship points en route to winning the final set tie-breaker in style.

The 5-hr 25-minute final was much more than a match of endurance as the pair jousted, stroke for stroke in dramatic style with Alcaraz cominating the long railies while a cool Simer seemed happier if he could kill the ralles quickly enough on the red shale. And yet Simer also came back to get to the brink of victory again before Alcaraz sanatched his win from the very It is almost a cliche to say now that this is the dawn of a new era of men's tennis as the two devades of the title.

to the brink of victory again before Alcaraz snatched his win from the very jaws of defeat.

It is almost a clich to say now that this is the dawn of a new era of men's tennis as the two decades of the 'Big Three' are over with an ageing Djokovic unable to further his hunt for another grand slam title to add to his 24. And between them, Alcaraz and Simber have won seven of the last five 4 to the control of the sate of the control of the sate of t

#### THE ASIAN AGE



# Modi's G-7 test: Handling Trump, reset with Canada



K.C. Singh

ing me cossetire and Pakistanis financial rescue packages from the Heriton to be ignoring Pakistanis framanial present to be ignoring Pakistania complexity in the Pahalgam terror attack. Even worse, Pakistan got leadership positions in the UN Security Council's counter-terrorism and sanctions committees. Canadian Prime Minister Mark Carney's call on May Canadian Prime Minister Mark Carney's call on May Canadian Prime Minister Mark Carney's call on May Canadian President Colonia president Canadia President Canadia President Considering that the Canadian President Canadian Asserting President Canadian President Presi

the White House immediately after assuming power. Sitting beside Mr Trump, he politely rebutted the false claims and provocative assertions calling Canada America's 51st state and its leader a "governor". Mr Carney, after his US visit, has publicly maintained that old ties with the

key supporter of the Tru minority

At present India-Canada relations are strained, with diplomatic representation downgraded, followir the withdrawal of hig

minority government, removes one obstacle.

The South Asian disapora constitutes 7.1 per cent of the Canadian population, numbering 40 million today, interestingly, of these Sikts and Hindus are 2.3 per cent of the Canadian population, numbering 40 million today, interestingly, of these Sikts and Hindus are 2.3 per cent of the Canadian population, and Hindus are 2.3 per cent of the Canadian population populati

gramme or scalating Activities. President Donald Trump, by savagely targeting Canada despite an existing economic framework, may have created the coconic and adolespite an existing economic framework may have created the coconic and the coconic and an adolespite an existing economic framework may have created the coconic and adolespite and claunds have repeatedly missed in the past, due to collateral factors. For instance, in 2007 a CEO Round Table envisioned goods trade to cross \$10 billion, with matching services trade. Almost two decades later, the numbers are below that mark. However, Prime Minister Absendance of the control of the company of the coffice of the company of the company of the company of the company

ginal and misquided, pro-Khalistan lobbies in the Anglophone western nations. Their hold is greater in Canada because of the rural sccie-cosmonic profile of most Sikh immigrants.

The inability of govern-ments in both india and Canada to understand this Canada to understand this consideration of the constitution of torsi, religious and economic factors in each other's coun-try has frayed relations over the last decade. Canada, under its new Prime Minister Mark Carney, evvi-sions diversifying their com-mercial and economic engagements beyond the US. He supports joining the European Union's defence without America, India-Canada relations since 1947 have undulated between attempted closer engage-ment and disruption either over India's nuclear pro-

India's emergence as the world's fourth-largest economy and a key player in sup-ply chains, digital infrastructure and energy security has cemented its role in global policymaking. At the upcoming G-7 summit hosted by Canada set to be held on June 15–17, Prime Minister Narendra Modi's invitation, despite the political push-back, reflects strong international recognition of India's strategic importance. With growing influence in forums like the G-20 and Brics and leadership on Global South priorities such as food security, climate action and digital inclusion (via UPI and ONDC), India is seen as a vital force in shaping global trade, sustainability and geopolitical stability

LETTERS

Amarjeet Kumar Hazaribagh

#### SELECTIVE OUTRAGE?

SELECTIVE OUTRAGE?

RAHUL GANDHI'S continuous allegations against the Election Commission over alleged rigging in Maharushtra appears to be a desperate attempt to discredit the democratic process when his party and its alleis fall to secure a mandate. His selective criticism highlights a clear double standard, celebrating clear double standard, celebrating its integrity in defeat. Such inconsistent narratives risk undermining public faith in key institutions. With Bihar set to go to the polls soon, this pattern suggests a possible pre-emptive excuse for future electronal estbacks. Instead of conveying the image of a constructive Opposition, these tactics reflect political insecurity and a reluctance to accopt the people's verdictig graefully. accept the people's verdict gracefully.

N. Sadhasiya Reddy

#### **HOSPITAL HORROR**

breach of the law but a staggering blow to cithos, trust and the social fabric. The time this, trust and the social fabric. The time has come not only to express outrage or sorrow but to awaken institutions, society and the justice system. Every individual deserves to live in a selo and respectful environment. Silence in the face of such brutility is nothing short of compileity. We must become the voice that demands jus-tice.



Doomsday Clock is ticking... Is the world facing most dangerous times?

The Doomsday Clock is a visual tool designed to warn the public about how close humans are to destroying our world with dangerous technologies. The time on the clock is set by experts to reflect how far away from annihilation (midnight) we are, and if it is accurate we are currently the closest we have ever been to the end. The clock was created in 1847, the year of India's Check was created in 1847, the year of India's course that of nuclear weapons. The bents had opened fover Hiroshima and Nagassaki only two years before that, and the Soviet Union was developing its own nuclear weapons. They achieved this in 1949, then Britain went nuclear in 1950, France in 1960 and the Popel's Republic of China in 1964. India weaponised its programme in 1974, and then the 1996 Palstatan also demonstrated its capability, Israel and North Korea are understood to have the weapons and it is likely only a matter of time before Iran acquires them.

In the 1996s, when I was a student in the United States, the most important related element was something called the Stratesje Defence Initiative.

ates, the most important related element was mething called the Strategic Defence Initiative, cknamed "Star Wars". Under it, the Ronald agan administration was developing a system at would allow the US to shoot down incoming missiles while retaining its own offensive capabil ty. This likely sent the Doomsday Clock forward. After the Soviet Union perished, the Doomsda

on nuclear weapons bettere and under the clock, according to its day. Currently, the setters of the clock, according to its website, are 18 individuals, including three of South Asian origin (one is a professor at 117 Delhi). Two decades ago, the Domaday Clock had begun to include other threats, including climate change, and now it has to accommodate further new conditions and now that it is a cacternating the invention of all serts of new ways to destroy itself. At the beginning of this year, on January 28, they posted the following justification for concluding that in 2025 we were closer to annihilation than 1947.

weapons, climate cnange, and use peersons instruction of biological science and a variety of emerging technologies.

Since that day in January, much has happened. A drone attack on Russian air bases, taking out a chank of its most valuable air assets, escalated the chank of its most valuable air assets, escalated the chank of its most valuable air assets, assained the limited area. We its government is starying the Palestinians, with open conflicts against nations as close as Lebanon and as far away as Yemen. The USA gainst China on matters ranging from trade to Tuiwan, has escalated. And of course, only a few weeks aga, India fought in a conflict with Pakistan that the US President has repeatedly claimed faced the danger of going nuclear.

And to all of the above, we must add threats from the impact of climate change and artificial intelligence. In the second of these areas, thus gain proceeding at such a rapid pace that there is no real understanding of how near the threat is no evaluated the colosiest to the technology are both the most fearful (in this case academics) and the most dismissive (if they happen to be corporations profiting from the

development of Al), and so it is not easy for us on the outside to judge.

In any case, given that this is now a race in the corporate sectors of the US and China as opposed to the state-managed nuclear arms race, it is likely impossible to control. We will know whether the end result is disaster or windfall if and when it arrives. The role of Al in disinformation on social media and military applications such as drones already gives us hints that the bad is likely to outweigh the good. Notice that we have not even discussed the possibility of another pandemic. Or the chaos and turbulence that well come soon in a world containing a handful of trillionairies and billions of those who are poor.

The Doomeday Clock seeks to raise awareness and encourage action to reduce existential risks. But in what the containing is not of the containing a thin to reduce existential risks. But in what we have the contained in the containing a thin to reduce existential risks. But in what the containing is not of the containing a thin the containing in the reason of the containing a thin the parameters. To some these events might be trivial in comparison with the far graver things that we are stiding the planet into thowever, we must concede that they are important enough for most of mankind to be kept entertained while the clock is ticking.

INDIAN EXPRESS IS NOT AN INDUSTRY, IT IS A MISSION

- Ramnath Goenka

#### SINCARAZ: GEN Z RIVALRY DECLARES ITS INTENT FROM ROLAND-GARROS

ORG-MCENROE. Sampras-Agassi. Federer-Nadal A dyadic rivalry between the best two racqueteers is the most satisfying modern translation of the medieval duel: a protracted war (minus the shooting) between two supremely talented and driven personages. On Sunday, the Law of Eternal Recurrence brought ages. On Sunday, the Law of Eternal Recurrence brought us the latest edition: Carlos Alcaraz and Jannik Sinner, whose rivalry is already branded as 'Sincaraz'. Many had wondered if tennis would lose its charm after the high-profile departures of the likes of Rafa Nadal, Roger Federer and Serena Williams. Like with all end-of-era doomsaying, they need not have bothered. The sport's next era is upon us. While Novak Djokovic ground his way to wet another Slam semifinal 'Sincaraz' have porway to yet another Slam semifinal, 'Sincaraz' have por-tended much more than the fate of a single tournament. From early 2024, the Italian and the Spaniard have split the six Majors. On Paris's iconic red dirt, they etched out the standors. On Faris's there reduct, the longest French
Open final in history; a duel that blazed in white heat, like
a littoral sun at high noon, with the clock on pause. One
could see why Alcaraz, who only turned 22 last week, has
been compared to the likes of Nadal. At one point in the final, the Spaniard was down three match points. But he summoned his will and ran himself through a brick wall

summoned his will and ran himself through a brick wall to beat the Italian in five sets. Alcaraz already owns five Majors. You could say History is among them.

The Italian, 23, is harder to bracket, but he too has an array of weapons at his disposal. His shot-making from beyond the baseline is dazzling, while his serve is a valuable weapon. It is to Alcaraz's credit that he has dominated this rivalry, at least in recent times. The HzH is 8-4 for the latter, five of the eight wins in the last 18 months. When Wimbledon starts in less than three weeks, Alcaraz expects to add a sixth Major, as he hasn't lost at SW19 since a fourth-round exit in 2022. Conversely, Wimbledon is the only Grand Slam where the Italian has yet to make the final. For tennis fans, though, the sport is in safe the final. For tennis fans, though, the sport is in safe hands—this most primal of racquet games thrives on personalities, historic matchups, and the drama of indi-vidual contests. Expect more from Sincaraz.

#### RIGHTS OF ALL CONSENTING ADULTS NOT UP FOR DEBATE

HEN does an adult become an adult, free to make their own decisions and choose their own love, life, and future? India allows its youth to decide its political future from the age of 18, and yet W its political future from the age of 18, and yet family, society and the state too often infantilise and deny the same adults their rights and their agency. A recent case in point is a Madras High Court ruling on a habeas corpus petition. The female petitioner was the partner of a young woman in her 20s who was allegedly illegally confined by her parents. Complaints to the police about her fate had gone in vain. Finally, at court, the woman's mother told the judges that the petitioner had led her daughter astray. The court, noting that every parent cannot be like the late Justice Leila Seth, who openly accepted and advocated for her gay son (celebrated writer Vikram Seth), allowed the woman to go with the petitioner just as she had preferred. In handling the case, the court relied on Supreme Court guidelines from only last year in dealing with habeas petitions and pleas for police year in dealing with habeas petitions and pleas for police protection. Those guidelines also came from a similar

protection. Those guidelines also came from a similar case; only there, the Kerala High Court, instead of going by the preference of the woman detained by her parents, sent her for counselling.

It is not only in cases of LGBTQIA+ couples that matters have devolved into parental confinement and adults have had to turn to the courts for respite. The famous Hadiya case is one example of how the agency and rights of young neonle especially women, are denied at the alter.

riadity a case is one example or now the agency and rights of young people, especially women, are denied at the altar of parental preferences and societal compulsions. The Madras High Court rightly pointed out that couples, cisgender heterosexual or otherwise, have the right to form their own families even outside the scope of traditional marriages. Yet, in India, gender, sexuality, caste and religion are grounds on which families and societies deep consenting adults apart, often yolomity and fatally. keep consenting adults apart, often violently and fatally. Worse, however, is the willingness of police and even the judiciary to back these antiquated notions and support errant parents rather than upholding the rights of con-senting adults as guaranteed by the Constitution. Until that changes, judgments can set free individuals to live and love fully, only one at a time.

#### QUICK TAKE

#### THE SKEETER SCOURGE

OSQUITOES have killed more people than any other cause. Billions worldwide are at risk from the bacteria and viruses they transmit. Scientists are developing gene-editing tools to make the species extinct. It involves using gene mutation to make females of the malaria-causing genus Anopheles be born without ovaries. The idea is the genus Anophetes be born without ovaries. The idea is the gene spreads through mating until no fertile females are left, and they all perish. However, ethics is involved here: can humans tinker with life or explore alternative methods? For instance, Indian scientists are experimenting with genetic engineering on mosquitoes to stop the growth of malaria-causing parasites in their guts. Should they disappear or buzz around without the bite?

es, the Line of Control (LoC) in Jammu and Kashmir has served as the visible bound-ary between war and peace, infil-tration and prevention, terror and counter-terror. It has also been the default focal point of

been the detault local point or Indian military strategy and Pakistan's proxy hybrid war, primarily kinetic. How-ever, in 2025, the paradigm is shifting quite drastically. The LoC, while still active, and the kinetic domain in general, may no long-er be the main front in the battle for Kasher or the main front in the battle for Kash-mir's stability. Instead, the new war fronts are dispersed, amorphous, and dangerously embedded within the digital, psychological, and ideological landscape. This is the clas-sic grey zone strategy that has been long expected to manifest.

expected to manuest.

At the heart of this shift lies a question
with major implications for India's internal
security calculus: Does Pakistan still hold

remote control over Kashmir's terrorism? Recent indicators suggest that Pakistan's ability to infiltrate terrorists across the LoC ability to infiltrate terrorists across the LoC physically has been severely degraded. Bet-ter fencing, aggressive patrolling, a robust counter-infiltration posture, and enhanced surveillance capabilities—both aerial and electronic—have reduced large-scale infil-tration to a trickle. The classical model of launching fidayeen squads, guiding them across the Pir Panjal, and sustaining them across the Pir Panjal, and sustaining them the local overground workers is not easily feasible in most sectors. Vet, this does not mean that the threat has receded. Instead, the theatre has simply moved.

feasible in most sectors. Yet, this does not mean that the threat has receded. Instead, the theatre has simply moved.

The Pakistani deep state, ever adaptive, has invested in non-kinetic warfare to offset its reduced kinetic options, fully aware that shifting to a counter-no-kinetic mode is never easy for India. Drone drops of weapons and narrootics in Punipa hand Jammu have now become regular events. Encrypted digital communication for recruiting and guid-nig local youth without the need for physical handlers is on the rise, intercepting this is proving a major challenge in the current cycle of technology infusion. Deepfake videos and Af-generated propaganda blend radical religious messaging with distinformation about the Indian state and its security forces through social media. This shift signifies a new logic: if territory is difficult to breach, minds become the next terrain of war. One of the most notable post-2019 developments was the emergence of hybrid terrorists—local youth with no prior record, recruited via encrypted apps and trained online to act as lone-wolf attackers. They don't cross the LoC. They don't train in Pakistani camps. They arrely operate in groups. Yet their actions serve the same end as those of their predecessors; psychological destabilisation and turbulence.

as those of their predecessors: psychologi-cal destabilisation and turbulence.

The Pakistani deep state has invested in non-kinetic warfare. This shift signifies a new logic: if territory is difficult to breach, minds become the next terrain of war

## NEW FRONTLINES OF TERRORISM AND THE PAKISTAN EQUATION





In many cases, the "handler" is virtual itting in a safe house in Pakistan-occupiec Kashmir (PoK), Rawalpindi, or sometime even third countries like the UAE or the even third countries like the UAE or the UK. Intelligence intercepts suggest that while physical guidance has reduced, ideo-logical remote control remains very much in Pakistan's hands. However, that control is not absolute. Several factors have diluted Islamabad's influence. First, Pakistan's economic crisis and in-ternal fragmentation have weakened the focus and capacity of its security establish-ment. The Tehrik-Talliban Pakistan (TTP) threat, rising sectarian violence, and civil-military friction have forced the Pakistan Army to look inward. The events following

Army to look inward. The events following Operation Sindoor—India's massive retali-ation after the Pahalgam attack—acted as a sobering moment, exposing the limits of Pakistan's escalation.

Second, international pressure has ounted. The FATF grey-listing (fraction parties of the property of the propert which Pakistan only recently emerged), cou pled with increased global scrutiny of ter pled with increased global scrutiny of ter-ror financing and radical clerics, has made the old methods harder to sustain. Third, there is growing resentment within parts of the Kashmiri population—not widespread, but perceptible—about being used as pawns in a conflict that increasingly lacks moral, political, or even theological legitimacy. The local support base for militarcy has eroded, particularly as development projects and normalisation measures following the re-peal of Article 370 gain traction. Yet, despite all this, Pakistan retains two dangerous levers; ideological resonance and

ngerous levers: ideological resonance and technological asymmetry, both in the irreg-ular warfare mode. While Pakistan may no longer guide every terrorist operation, it is heavily invested in shaping the narratives.

Its Inter-Services Public Relations (ISPR) Its Inter-Services Public Relations (ISPR) division is no longer just a military mouth-piece—it is an information warfare machine. Videos, social media influencers, digital clerics, and misinformation campaigns often seek to exploit communal fissures within India, frame state action as majoritarian aggression, and portray Kashmir as a Muslim suffering under Hudu rule. Moreover, deepfakes—Al-generated content mimicking Indian Army officials, Kashmir leaders, or even fake 'testimonies' of human rights violations—are now being used to spread doubt, fear, and anger.

nies' of human rights violations—are now being used to spread doubt, fear, and anger. These are hard to trace, harder to rebut in real-time, and their impact lingers far long-er than a bullet's damage. Add to this the spread of dark web-based radical content, and you have an ecosystem of psychologi-cal warfare that requires a different kind of response; not just security operations but narrative building, civic engagement, and dieital literact. digital lit

gital literacy. In 2025, Pakistan's hold over Kashmiri

În 2025, Pakistan's hold over Kashmiri militancy is neither total not rirelevant. It is fragmented, adaptive, and strategie. It is no longer about controlling every action; it is about influencing the cosystem that breeds radicalisation. This has implications for how India se-cures Kashmir Hard power must continue along the LoC, but it eannot be the primary response to an ideologically distributed threat. Counter-radicalisation requires sharper investment—through local clergy, civil society, and cyber-surveillance units. India must continue to expose Pakistan's civil society, and cyber-surveillance units. India must continue to expose Pakistan's duplicity at international forums but also invest in regional partnerships—particularly with moderate Muslim powers like the UAE, Indonesia, and Saudi Arabia—to counter Pakistan's Islamic narrative projection. Technology must be weaponised not just for surveillance but to shape counternarratives. This remains an underdeveloped domain despite the growing urgency. As we mark a new phase in Jammu and Kashmir, it is clear that while the LoC still matters, the real battleground is now in the

Kashmir, it is clear that while the LoC still matters, the real battleground is now in the minds of the youth, the devices in their hands, and the echo chambers of cyberspace. Pakistan's role may look diminished, but it is actually enhanced and simpler. Its strategy has progressively evolved—from infiltration to influence and from fedayeen to cognitive feeds.

We must maintain optimum operational force levels to hold the periphery, but the centre of gravity now lies elsewhere, which needs a hybrid approach more than everbefore. A comprehensive review of the non-

before, A comprehensive review of the non-kinetic dimension of counterterrorism and the role of security forces is called for:

(Views are personal (atahasnain@gmail.com)

## BUSINESS CAN BRING INDIA, CHINA CLOSER

NDIA and China have had close people-to-people relations for cen-turies. Chanakya and Sun Tzu turies. Chanakya and Sun Tzu
were approximate contemporaries, a hundred years apart. India
has historically excelled in relationship-building with other nations through travel, trade, and thought. The
three Ts were strong glues. The Tea Horse
Road carried a flourishing trade. The spread
of Buddhism had a mercantile streak, as
highlighted by Devdutt Patlanaik in his recent column for The New Indian Express.
Another volevant articles on a secondoicy.

cent column for The New Indian Express.
Another relevant article on a syncretic vision to heal our divided world was published
by this newspaper earlier this month
When a truncated India encountered a
unified China in the 1950s, the frontier politics of British India opened differences. Differences have been around for eight deades, even as soft power has influenced both
sides for centuries. In future, there is potential for benefit if Chanakya and Sun Tzu
can collaborate through business. For two
large neighbours, that is worthwhile.
My experience of China is only through

large neighbours, that is worthwhile. My experience of China is only through business. Trade, travel, and thoughts bring people together. A young Jamsedi Tata, the founder of Tata, went for training in Shanghai around 1890. On my first visit in 2009, I learned that Avan Villa at 488, Wulumugi North Road in Shanghai, was owned by Bejan Dadabboy. Tata, a distant uncle of JRD Tata. As a Tata Director. I visited a subsidiary called NTACO in the Jingning Industrial Economic Zone, near Vianjing, which manufactures plastic injection-moulded automotive components. I also attended the inaugur tive components. I also attended the inaugu-ration of NTACO's second unit near ration of NTACO's second unit near Changshu in 2015. Later, a third company came up to trade in automotive components. Tata in China has annual revenues of \$8 bil-lion and employs thousands through Tata Consultancy, Jaguar Land Rover, TACO, Tata Technologies, and Tata International. A joint venture, Chery-JIR Automotive, man-ufactures cars in Changshu. China claims that Tibet has been part of

thin claims that There has been part of it since the fall of the Qing dynasty around 1911. Therefore, in 1930, China took over Ti-bet. The role of India in extricating the Dalai bet. The role of India in extricating the Dalai Lama from Theta caused tension with China. In 1982, China and India fought a Himalayan war. Since then, there have been skirmishes and periodic tensions leading up to the classhes in 2021 in the Galwan Valley For six decades now, India and China have viewed each other with suspicion. In 2007, Professor Tarun Khanna of Harward Business School felt that the opening of the Nathu La pass in Tibet reactivated the world's highest cus-toms point for trade between India and Chi-



na. Both nations now appear to desire long-er-term ties, although the terms have yet to be developed. Their foreign ministers met in Kazan, Russia, in 2024. The meeting was re-

Kazan, Russia, in 2024. The meeting was re-ported as "a tactical thwa rather than a stra-tegic shift away from Sino-Indian rivaly" by Tanvi Madan of the Brookings Institution. Over the past thirty years, despite border tensions, trade between India and China has grown from \$0.25 billion in the 1906 to over \$12b billion in 2024, albeit in an unbalanced manner. Between 1920 and 1940, China published twenty-seven books based on and Gandhism. When the Govern ed on G



At a time when both India and China are marching towards regaining their past strength, there is immense potential for mutual enefit if both can collaborate through business

Zanzibar and East Africa enacted the Asian Ordinance in 1906, 1,100 Chinese stood be side 8,000 Indians to protest it. At the cente nary celebrations at Visva Bharati Univer-

nary celebrations at Visva Bharati Univer-sity Tagore's 1924 statement from his China visit was recalled by Ma Jia, chargé d'affaires of the Chinese embossy. Todia has been one of China's closest relatives, and China and India have enjoyed a time-honoured and af-fectionate brotherhood," Tagore had said. Apart from people-to-people contact, there are geographical and geopolitical factors. It is a circle around the South China Sea, en-compassing China, India and some South-east Asian nations. Ken Myers of Texas first drew this circle two decades ago, and his nom de plume, Valeriepieris, became associnom de plume, Valeriepieris, became associ-ated with the idea. Professor Danny Quah,

Dean of the Lee Kuan Yew School of Public ternational Business School refined it

ternational Business School refined it.

As per the UN World Population Prospects, an estimated 4.2 billion people live within the circle, compared to 3.8 billion outside. However, the land are accounts for only 15 percent of the planet's total area. Imagine the density. Tightly packed people of China and India must either adjust to live peacefully or flight to extinction. The choice is obvious. Both nations are culturally strong and are aware of their cultural heritage. Both are economically marching towards regaining their past strength, albeit at different stages and with varying outcomes. Chi

regaining their past strength, albeit at differ-ent stages and with varying outcomes. Chi-na has been quiet but strong in discipline and pragmatism. India has been both noisy and strong in creativity and ideas. Like China, India must also invest heavily in R&D to bring this opportunity to life. Con-sider that since 2000, China's investment in research has increased by 18 times, reaching over \$759 billion. No wonder China has beover \$750 billion. No wonder Crima has be-come highly competent in new technologies and research. Chinese technology joint ven-tures in India, spanning electronics, autoand research. Chinese technology joint ventures in India, spanning electronics, automobiles, pharmacouticals, financial services, and artificial intelligence, any promising. This can work only if China too wants it, and policies must change in this regard. China developed rapidly by combining Western technology with Chinese manufacturing, India could combine Chinese technology with Indian manufacturing, intitially producing for India but later for export. There is a role for business leaders and government through promoting travel, thoughts, and trade. Studies by university students, tourism initiatives, joint ventures, and other endeavours, rather than just short-term trades, all contribute to this effort. They are proven instruments in geopolitics. Circumstances make allies of nations. Will it happen in the short term? Probably not. Some leaders must shift from a competitive to a collaborative mentality. The good news is there are signs that leaders are thinking along these lines. It would be desirable if India and China brought Chanakya and Sun Tzu together. (Vieus are personal)

## MAILBAG

WRITE TO: letters@newindianexpress.com

#### Counter action

Ref: India ignores Pak calls on IWT (June net: nata geners Pak cats on INV (one 9). The commend of India will be a blow to Government of India will be a blow to Pakistan. This move will help the power and agriculture sector in India. Not answering Pakistan's requests establishes silence as the best killer. Adinarayan Prabhukhot, e-mail

#### Take stock

Ref: Retain to train (June 9). Premier academic institutions like IIT along with the concerned authorities must put any the concerned autorities must put any brain drain from India in theck, At-home talents like IIT students are assets to the nation and must be further trained and utilised for indigenous developments matching global standards. Jiji Panicker K, Alappuzha

#### Next leap

Ref: Axiom-4 space missions will boost Ref: Axiom-4 space missions will boost ISRO's future crewed trips (June 9). Group Captain Shubhanshu Shukla's expression of honor is not only a personal milestone but also exhibits India's rising prominence in global space exploration. His participation in something "far greater" highlights humanity's drive to explore beyond itself. As'ad Kabir Nagari, e-mail

#### Historic battle

Ref: Don Carlos: Back from brink (June 9). The finals defied logic, physics, and every ounce of expectation. The battle will live forever in Roland-Garros' folklore. The seismic nature of the titans' successive encounters confirm the rising presence of a captivating new era in men's tennis. R Sivakumar, Chennai

## Shields up

Set: Renewed infiltration efforts by 151 in ABK (June 9). Ill reports reveal Pakistan's use of drones for real-time surveillance to aid border infiltrations. Drones expose patrol gaps and terrain advantages. The Pahalgam massare proves Operation Sindow is far from over. India must remain vigilant and advant nosw that drone. adapt to such tactics. RS Narula, Patiala

#### Spiritual read

Ret: Rediscovering Valmiki Ramayana (June 9). The Valmiki Ramayana must be studied with deep love and respect for Rama, Sita, Hanuman, and other reverend figures. Their qualities and its impact on society is paramount. It is one of the classical literatures that have been truly embraced

by our hearts and thoughts. R Pichumani, Kumbakona

Chairman of the Board: Manoi Kumar Solitable Education Santwana Bhattacharya
Published by R K Jhunjhunwala on behalf of Express Publications (Madura) Private Limited, at No. 1, Queen's Road, Bengalaur - 560 001 and printed by himself table. As Ankal Tabla. Bengalaur - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 225666993. Cappilled: Express Published Himself Anglish Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22566993. Cappilled: Express Published Himself Anglish Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22566993. Cappilled: Express Published Himself Anglish Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22566993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22566993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Himself Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Regulation - 560 099. Bengalauru. Vol. 61, No. 137 RH Reg. No. 3457/1969. Private Body 22666993. Cappilled: Express Published Regulation - 560 099. Regulation - 560 099. Regulation

# TN remains an enigma for the saffron lobby

As NDA 3.0 completes its first anniversary today, the perennially in election mode apparatus of the alliance must already be working overtime for the slate for the later part of the year. Bihar, one of the states readying for the Assembly elections, is slowly but surely seeing changes, ostensibly in favour of an overwhelming saffron win at present. Whatever that may be, the 2026 elections must be making the war rooms of various political parties working with a different game plan as it is where the INDIA bloc sees its chances. Tamil Nadu, by this time, next year would have had a new government in place. The

run the state which is now seeing aggressive posturing by NDA and counter attacks by the DMK government. Once a formal alliance was sealed by the Centre with the principal Opposition party and old ally, the All India Anna Dravida Munnetra Kazhagam (AIADMK), the BJP must have felt relieved that it has made the first more, well

party is facing an identity and ex-istential crisis in its 53rd year of existence, the cobbling together of the alliance with smaller par-

to ride piggyback on the Dravid-ian big brother this time around. Amit Shah's latest statement that the new alliance will sweep the the new alliance will sweep the 2026 polls has not entirely been rejected by the political pundits and as expected, pooh poohed by the DMK leaders. Its top-rung icons say that if the Dravidian ide-logy resonates with the people, it is nigh impossible for the BJP to set its foot in Tamil Nadu. While a few still consider the earlier elections and the 2024 Lok Sabha polis as a 'lost opportunity' for the BJP to have made inroads into the BJP to have made inroads into the Tamil pusche the hields. Impossipolls as a 'lost opportunity' for the BJP to have made inroads into the Tamil psyche, the highly unpopu-lar way the administration has gone about its business has made

the average public take a critical look at the goings-on in the State. Dynastic politics — that of Udayanidhi being groomed to take over from the present CM, M K Stalin – is still being helplessly accepted by the party machinery and followers as a 'natural' proaccepted by the party machinery and followers as a 'natural' progression of the first family in retaining power. What is not left unnoticed is the increased presence of Karunanidhis' daughter and the CMs step-sister Kanimozhi in the central scheme of things. Stalin's blow hot blow cold with Modi government and the stench of corruption in the governance of the State which has been allowed to grow (the TASMAC case, for one), for a surgical strike later by the central machinery, closer to the poll dates. It is surely a work in progress for the non-DMK formation, but it is a known fact that the DMK has till date never managed a second successive stint in office. Will they break the jinx this time or will a currently docide anti-DMK alliance spring a surprise? If it is the final chance for the AIADMK to retain its political relevance, it is also the best-ever opportunity for the BJP in nearly five decades to make its presence felt in the state's corridors of power. Whether they can make or mar will be in the hands of the Tamil electorate.

Edit \

# From socialism to market economy-Power over private property



DR MADABHUSHI HAR ACHARYULU

RECENTLY, former Chief Justice D.Y. Chandra-chud led the majority (8:1) and wrote: "India's economic trajectory has shifted from socialism to liberalization and market reforms." and market reforms. The Con stitution does not endorse any single economic ideology. He added that calling all private property "material resources" forces a rigid socialist theory, which no longer reflects India's

democratic economic reality.

Are there any limits on power of the government over private property? Can the government seize any private property ye calling it a "material resource of the community" under Acti of the community" under Arti-cle 39(b) of the Indian Consti-

judge Constitution Bench of the Supreme Court of India de-livered a historic verdict in the Property Owners Association v. State of Maharashtra case. The ruling settled a long-standing constitutional question: It an-swered with a clear no, thereby reaffirming individual prop-erty rights and limiting govern ment power. This judgment has brought clarity to the conflict between Directive Principles of State Policy (DPSPs) and Fundamental Rights, and overruled earlier judgments that adopted a broad socialist interpretation of Article 39(b).

Ignoring the Directive Principles

direct its policy towards secur-ing that the ownership and con-trol of the material resources of the community are so dis-tributed as best to subserve the common good." It encourages laws for equitable distribution of wealth and resources, but DPSPs are not legally enforceable—they are only guiding principles.

#### Do we have any Property Rights? Before 1978, right to property

was a Fundamental Right un-der Article 19(1)(f) and Article der Article 19(1)(f) and Article 31. However, due to frequent Jan Horever, due to frequent Lation, and other socialist wel-fare measures, the Parliament passed the 25th Constitutional Amendment (1971): Intro-duced Article 31C to protect laws made under Article 39(b) and (c) from being challenged for violating Fundamental Rights like Articles 14, 19, and 31, 42nd Constitutional Amendment (1976): Further Amendment (1976): Further expanded Article 31C to cover all Directive Principles, not all Directive Principles, not just 39(b) and (c). But in Min-erva Mills (1980), the Supremo Court struck down this wider protection, ruling that only Ar-ticle 39(b) and (c) could remain

#### Where Article 31C was

upheld:
In the famous Kesavananda
Bharati case (1973), the Supreme Court upheld Article
31C, but with a caveat — laws
passed under it must still pass passed under it must still pass judicial review. This was to pre vent misuse of DPSPs to under mine basic structure principles like judicial independence or fundamental rights. Thus, the Court permitted limited curtailment of property rights, but only in pursuit of the common

A 32-year fight for justice: Though justice is upheld in some cases, delay is the biggest some cases, delay is the biggest problem. The current verdict comes from a petition filed by the Property Owners Association (POA) in Mumbai, challenging Chapter VIIIA of the Maharashtra Housing and Area Development Act (MHADA), 1976, which permitted the government to acquire "cessed government to acquire "cessed properties" (old private buildproperties' (old private build-ings) for restoration. The POA argued this violated their right to property, and that Article 39(b) had been wrongly used to justify taking over all private property. The case spanned decades and multiple bench references, eventually resulting in this nine-judge bench being

private property per se:
The Court ruled that not every private property can be called a "material resource of the com-munity". Article 39(b) does not give the government a blanket power to seize all private assets for the "common good".

Limited, not universal: The court clarified that "mate rial resources" must meet spe-cific criteria such as: Belonging in public trust; Having co munity impact; being scarce or capable of causing harm by mocapatie of causing harm by mo-nopoly and possessing intrin-sic public value like water and minerals, among others. Thus, private homes or businesses do not automatically qualify.

#### Balanced approach to 'distri-

The term "distribution" under Article 39(b) includes: Government acquisition and redistri bution to private parties - only when it benefits the common good. So, laws under 39(b) must meet both public interest



The judgment allows for some private resources to be used for the public good under Article 39(b) while preserving individuals' property rights, supporting India's economic growth within a democratic framework. The court emphasized that DPSPs are not enforceable laws. The government must balance social welfare goals with citizens' rights.

Survival of Article 31C:
The Court confirmed Article 31C still protects lavs made under Article 39(b) and (c) from Fundamental Rights challenges, but not from judicial review. This limits the misuse of Article 31C as a shield.

The court propenjized the

This immiss the missue of Article 31C as a shield.

The court recognized the dramatic shifts like private property, from traditional assets to data and space exploration.

The judgment emphasizes the need to respect evolving market-oriented economic model? It is interpreted that this judgment offers protection for marginalized communities against the unjust acquisition of their small farms and forest lands while promoting responsible management of essential public resources.

public resources.

The judgment allows for some private resources to be used for the public good under Article 39(b) while preserving individuals' property rights, supporting India's economic growth within a democratic growth within a democrats: framework. The court empha-sized that DPSPs are not en-forceable laws. The government must balance social welfare with citizens' rights.

Justice Iyer's opinion was relied on by subsequent Con-stitution Benches in Sanjeev

Coke Manufacturing and Ma-fatlal Industries judgments in 1982 and 1997, respectively, hence, necessitating a reference to the nine-judge Bench. The CJI quoted a "harsh" observa-tion made by the Chief Justice about Justice VR. Krishna Iyer in a "pronosed judgmene" Insin a "proposed judgment". Jus-tice Iyer was a former top court

judge whose humanism and reforms in criminal justice are considered legendary. His coin-age "bail is the rule, jail is the exception" is still assiduously quoted in Supreme Court judg-ments. Justice Krishna lyer's dissenting view in Ranganath Reddy (1977) that all private wealth could be treated as pubweath could be treated as pub-lic resources. The judgment noted that while Justice Iyer's ideas were rooted in the social-ist vision of the 1970s, India's woters have since chosen liberal

conomic policies. Rejecting the view of Justice lyer as one presenting a "par-ticular ideology", the majority opinion penned by Chief Jus-tice Chandrachud said India has moved on from socialism to liberalisation to marketbased reforms. Justice Iyer was a former top court judge, whose humanism and reforms in criminal justice are considered legendary. His coinage "bail is the rule, jail is the exception" is still assiduously quoted in

Nagarathna and Sudhanshu Dhulia, he had observed that 'the Krishna lyer doctrine does a disservice to the broad and flexible spirit of the Constitu-

Nagarathna:

"Judgas must not decry the contributions of their predecessors.

The institution is greater than individuals." Justice Dhulia praised Justice Iyer's humanist vision, saying." The Krishma lyer Doctrine was built on fairness and empalyi. In dark times, it illuminated our path."

Though he dissented on interpretational grounds, he recogpretational grounds, he recogpretational grounds, he recog-nized the spirit of the Consti-tution as a living document, balancing rights and welfare. Finally, the November 5,

Finally, the November 5, 2024 Supreme Court ruling is a turning point in the constitu-tional understanding of prop-erty rights in India, saying: Individual property rights are protected. The government

are protected. The government cannot seize private property arbitarally. Article 39(b) remains relevant but must be applied with caution and clear public purpose. Article 31C survives, but judicial review cannot be ousted.

The Directive Principles must align with fundamental rights, not override them. Courts remain vigilant in preserving constitutional balance between economic justice and

economic justice and

individual liberty.

This landmark judgment reaffirms the Supreme Court's role as a constitutional guardian, ensuring that the state acts for public welfare without vio-lating basic rights. It also rec-ognizes the evolving nature of economic policies in a vibrant democracy, where people, not

dogmas, shape the nations path.
(The writer is Professor
of the Constitution of India
and founder-Dean, School of
Law, Mahindra University,
Hyderabad)

# LETTERS

#### US stares at crisis of conscience

CENES of personnel from the National Guard patrolling Othe streets of Los Angeles over immigration protests come across as a chilling image. Is this law enforcement or intimida-tion? These protests aren't random—they are desperate cries for dignity and reform. Clamping down may silence voices but not soboth the crisic, loch Ampeirs, who land of improgrests turning. across as criming image, is una san elementary and elementary to the control of t

#### Depositors bearing the repo cut brunt

Depositors bearing the repo cut brunt T(RB) has forced banks to cut the deposit rates, including savings bank rates, by 0.50 per cent would render more harm to the depositors, especially the senior citizens who depend more on the interest earned on their deposits for their monthly expenses. This is a very harsh step on the part of banks. Depositors are denied more benefits and additional liability to pay taxes on the income earned. This should be removed. It will be in the fitness of things if senior citizens are provided a 10 or 11 per cent unchanged rate that is not linked to the apex banks rate cuts. The lesser margin on interest earned on advances and interest paid to depositors is not the only reason for reduction of interest earned on advances. There are serious other factors-NPAs, which do not earn interest income, and loss of heavy interest income in the case of compromise proposals. Take the recent case of Bhusham Sted company wherein the lender lost a huge income loss because of a recent Supreme Court judgement. Another factor is write-offs, which on average runs into lakes of crores of rupees every year, which, at the end of the day is loss of income. It is a tad unfortunate that intead of setting right the lacunae, banks are reducing the already low interest rates on deposits. One hopes that there would be a stable rate of interest to senior citizens and help them live happity.

\*\*TSN Rao, Manager (Retd) Indian Bank, AS Rao nagar branch, Hyderabad Rate cut and growth

#### Rate cut and growth

THE generous rate cut by the RBI may cheer the stock mar-kets for some time but on the ground the growth prospects of the manufacturing sector may not pick up momentum due to the inadequate credit resources. We need to spur domestic demand first by focusing on employment generation in labour intensive sectors to counter job loss. Employment has taken a beating due to mechanization both in manufacturing and agri-culture, which necessitates that we discourage monopolies. We also must promote proactive non-farm-based rural employment in village clusters.

#### Law for loudspeaker use should be equal for all

If loudspeakers must be discontinued for Azaan in India, the same should apply for festivals like Ganesh Chaturthi and Navvarti. During these two festivals, loud music is played during the wee hours, which disturbs the sleep of patients and old people. I hope the court and the police department take note of this. Judel D'Oraz, Mumbal

#### India's rare earth supply crisis

India's rare earth supply crisis

CHINA'S rare earth export restrictions, imposed in April have disrupted India's supply chains, particularly affecting neodymium-iron-boron (NdFeB) magnets, which are vital for electric vehicle (EV) motors, defence systems, and aerospace applications. India, despite holding 6.9 million tonnes of rare earth reserves, remains 100 per cent import-dependent for most critical minerals, making the transition to self-reliance a long-term challenge. The auto industry, warned by the Society of Indian Automobile Manufacturers (SIAM), faces potential production halts by late June while the electronics sector including smartwatches and wireless earbuds, is bracing for shortages and price hikes. The defence sector, reliant on rare earths for missile guidance systems and radar technologies, is also vulnerable. With China controlling 90 per cent of global rare earth processing, India's strategic response includes securing alternative supplies from Vetnam, the US, and Australia, alongside domestic in initiatives to boost rare earth magnet production. To counter these disruptions, India is societaring and entities. Australia, alongside domestic initiatives to boost rare earth magnet production. To counter these disruptions, India is accelerating domestic rare earth processing and drafting a fiscal incentive scheme to bridge the cost gap between local and Chinese-made magnets. Apart from Midwest Advanced Materials Private Ltds commencement of commercial production within six months, the National Critical Mineral Mission, launched in April, underscores Indias commitment to achieving self-reliance in strategic minerals. However, sustained investment and policy support will be crucial for success. While these initiatives mark significant progress, India's transition away from Chinese dependence will take time, requiring a combination of government intervention, private sector investment, and government intervention, private sector investment, and international collaborations to secure a stable supply chain.

Amarjeet Kumar, Hazaribagh

thehansreader@gmail.com

# V&A Storehouse Museum reignites 5000-year-old creative spark

A museum is like an iceberg.

Most of it is out of sight.

Most big collections have only
a fraction of their items on display, with the rest locked away
in storage.

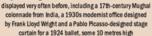
storage. But not at the new V&A East Storehouse, where London's Victoria and Albert Museum has thrown open its storerooms for visitors to view — and in many cases touch — the items many cases touch — the items within. The 16,000-square-metre building, bigger than 30 basketball courts, holds more than 250,000 objects, 350,000 books and 1,000 archives. Wandering its huge, three-story collections hall feels like a trip to IKEA, but with treasures at every time.

very turn. he V&A is Britain's na tional museum of design, performance and applied arts, and the storehouse holds aisle after aisle of open shelves lined with everything from ancient Egyptian shoes to Roman pot-tery, ancient Indian sculptures, Japanese armour, Modernist furniture, a Piaggio scooter and a brightly painted garbage can "It's 5,000 years of creativity, said Kate Parsons, the muse um's director of collection care and access. It took more than a year, and 379 truckloads, to ove the objects from the mu seum's former storage facility in west London to the new site. Get up close to objects:

In the museum's biggest in-novation, anyone can book a one-on-one appointment with any object, from a Vivienne Westwood mohair sweater to a tiny Japanese netsuke figurine. Most of the items can even be handled, with exceptions for hazardous materials, such as Victorian wallpaper that con-

The Order an Object service very personal, close interac-tion" with the collection, Parsons said as she showed off one of the most requested items so far: a 1954 pink silk taf-feta Balenciaga evening gown. Nearby in one of the stud rooms were a Bob Mackie-de signed military tunic worn by

and Renfro, the firm behind New York's High Line Park, the building has space to show off objects too big to have been



Elton John on his 1981 world out ready for a visit. Parsons said there has been

"a phenomenal response" from the public since the building opened at the end of May. Visi-tors have ranged from people seeking inspiration for their weddings to art students and "someone last week who was using equipment to measure the thread count of an 1850

She says strangers who have come to view different objects often strike up conversations. 'It's just wonderful," Parsons said. "You never quite know. ... We have this entirely new

concept and of course we hope, and we believe, and we do audience research, and we think that people are going to come. But until they did, and came through the doors, we didn't know."

The V&A's flagship museum in London's affluent South Kensington district, founded in the 1850s, is one of Britain's biggest tourist attractions. The Storehouse is across town in the Olympic Park, a post-in-dustrial swath of east London that hosted the 2012 summe games. As part of post-Olym-pic regeneration, the area is now home to a new cultural quarter that includes arts and fashion colleges, a dance thea-tre and another V&A branch, due to open next year. The Storehouse has hired

Supreme Court judgments. In

The Morehouse has hired dozens of young people from the surrounding area, which includes some of London's most deprived districts. Designed by Diller, Scofidio and Renfro, the firm behind New York's High Line Park, the building has space to show off objects too big to have been displayed very often before, in-cluding a 17th-century Mughal colonnade from India, a 1930s modernist office designed by Frank Lloyd Wright and a Pa blo Picasso-designed stage cur-tain for a 1924 ballet, some 10 tain for a 1924 ballet, some 10 metres high. Also on a monu-mental scale are large chunks of vanished buildings, includ-ing a gilded 15th-century ceil-ing from the Torrijos Palace in Spain and a slab of the concrete açade of Robin Hood Gardens, a demolished London housing estate. Not a hushed temple of art, this is a working facility. Conversation is encouraged and forklifts beep in the back-ground. Workers are finishng the David Bowie Centre, a nome for the late London-born musician's archive of costumes musical instruments, letters, lyrics and photos that is due

to open at the Storehouse in September. Museums seek transparency One aim of the Storehouse is to expose the mu-seum's inner workings, through displays delving into all aspects of the conservators' job – from the sternal battle spiring inthe eternal battle against in sects to the numbering system sects to the numbering system for museum contents — and a viewing gallery to watch staff at work. The increased openness comes as museums in the U.K. are under increasing scrutiny over the origins of their collections. They face pressure to return objects acquired in sometimes contested circumstances during the days of the British Empire Senior cutartor Goor- cuta Empire Senior curator Geor-gia Haseldine said the V&A is adopting a policy of transpar-ency, "so that we can talk very openly about where things have come from, how they ended up in the V&A's collection, and also make sure that research-ers, as well as local people and people visiting from all around the world, have free and equitable access to these objects. average, museums have one to five percent of their collections on show," she said. "What we're doing here is saying. No, this whole collection belongs to all of us. This is a national collection and you should have access to it.' That is our funda-

# BENGALURU ONLINE

#### Tumakuru may be included under Greater Bengaluru Authority: HM

BENGALURU: Home Minister G Parameshwara on Monday said that a proposal will soon be submitted to the government to include Tumakuru under the Greater Bengaluru Authority. He also said that the Tumakuru which is located around 70 km from Bengaluru is growing rapidly. "We have developed an industrial hub (at Tumakuru) in an area of 20,000 acre. Many are demanding that Tumakuru should be expanded. A study is being conducted on this. If Tumakuru is included in Greater Bengaluru, it will benefit us in terms of development. We will submit a proposal regarding the same," he told reporters here. He said that the Karnataka government will also take a call on extending metros revices to Tumakuru. Parameshwara, who is also in-charge minister for the Tumakuru district, said, "We are proposing to build an arch on the National Highway in Tumkuru and have requested Union Minister Somannna to get a permission from National Highway Authority. BENGALURU: Home Minister G Parameshwara on Mon-

Read more at https://epaper.thehansindia.com





#### ROAD MAP

Union minister of road transport and highways Nitin Gadkari

The projects in the pipeline are progressing rapidly. In another two years, you will be able to see that Indian road infrastructure will be similar to

## The challenge begins now

In its first year, Modi 3.0 has done well, but navigating an uncertain world needs a strategic economic direction

NTHE FIRST anniversary of its third term, the Narendra Modi-led go ernment has reasons to look back with some satisfaction — both politically as well as economically. The numerical setback in the Lok Sabha ically as well as economically. The numerical setback in the Lok Sabha elections did force the Bharatiya Janata Party (BJP) to go back to the drawing board to recraft its political and governance outreach, but it didn't take much time for the party to regain momentum by notching up surprisingly big wins in a string of Assembly polls. If the BJP turned the tide in Haryana and Maharashtra, two states where it suffered reverses in the Lok Sabha polls, it also finallywrested Delhi after 26 years. True, the government's califition partners have extracted sundry promises and largesse but even they know they are in no position to do anything but toe the BJP's line.

In any case, they were small favours considering the political returns. Consider how the coalition partners supported the Waqf (Amendment) Bill in Parliament, despite initial concern among them over its provisions. The government has also gone alsed with the push to its' 'One Nation One Election' Bill, despite lacking the two-thirds majority required for the approval of the constitutional amendment measure. There have been some smart political moves as well, witnessed in the decision to include caste enumeration data

moves as well, witnessed in the decision to include caste enumeration data

moves as well, witnessed in the decision to include caste enumeration data along with the decadal census, though one may argue this is a classic example of political opportunism as the decision is a sharp reversal of the BIP's stance in the 2024 election campaign.

On the economic front, one of the significant achievements has been the sharp fall in India's poverty ratio. Though it comes with a lag, the ratio has fallensharplyfrom 9,5% in 2022-23 to 4,9% in 2023-24. Betterstill, experts like former. Reserve Bank of India Governor C Rangarajan has said GDP growth seems to have been a major contributor to the fall. Admittedly, economic growth may not sustain at the pace (6,5%) seen in the second half of the last fiscal but there are enough and more tailwinds which should support nomic grown may not sustain at me pace (6.3%) seem in the second nair of the last fiscal, but there are enough and more tailwinds which should support growth momentum in FY26 closer to last year's pace. This, of course, isn't enough but needs to be seen in the context of an uncertain global environment. There is every reason to believe that consumption, particularly rural, will be robust but the key question is whether the other demand-side drivers

will be route out the key question is whether the other demands -sacietives investment, exports, and government spending — will have an impact.

The challenges, no doubt, are too many. While our economy is primarily driven by domestic factors, growing ties with developed nations through trade and capital flows means it cannot be fully insulated from adverse global events. The domestic headwinds are all too familiars stubbornly indifferent private capex, weak urban consumption, patchy rural recovery, some indi-cations of household balance sheet stress, and a negative credit impulse. The International Monetary Fund recently projected that India will edge past Japan to become the world's fourth largest economy in 2025. While this japan to become the world's rourn largest economy in 2022. While this marks a notable milestone, in per capita terms, India is still near the bottom of the global league tables: 136 in nominal GDP and 119 in purchasing power parity terms. Besides, slow manufacturing growth has now emerged as a seri-ous structural constraint. Therefore, reforms that address structural bottle-necks remain crucial to raise India's attractiveness as an investment destination and unlock its growth potential. In the remaining years of his third term, the Modi government would do well to cra lytically-grounded strategic economic direction. ment would do well to craft an evidence-based, ana

#### SHIFTING POLICY

RBI'S UNANTICIPATED SURPRISE CAME WITH CLEAR, TRANSPARENT FORWARD GUIDANCE OF A CHANGE IN STANCE

# Reimagining Robert Lucas

Until the early 1990s, a strong influence was Robert Lucas' argument that

monetary policy affected real variables only if the policy changes were unanticipated

HE RESERVE BANK of India's (RBI) monetary policy announcement did take the market by storm. A jumbo rate cut of 50 basis points (bps) (anticipated by SI fresearch) along with a staggered cash reserve ratio (CRR) cut of 100 bps but with a stance change left the market flummoxed and on its toes to guess the RBI's next move. However, a closer look at the RBI's policy statements post-Covid-19 reveals a clear sense of purpose.

In effect, central bank communications across the world have been the

tions across the world have been the subject of much intellectual discourse, tions across the world have been the subject of much intellectual discourse, particularly after the pandemic. This practice was initiated by Sweriges Riksbank. Many large central banks, such as the European Central Bank, were initially averse to such an idea, favouring a more implicit rather than explicit guidance. In contrast, the Fed Reserve was in favour of explicit forward guidance after the global financial crisis as it was thought to be more useful to assuage market sentiments when uncertainty was high.

Over the decades, central banks have moved towards clearer communication and greater transparency. This has been driven by several motivations. First, central banks have moved towards clearer communication and greater transparent communication enhances effectiveness of policy. This shift reflects a shift in the theory of monetary policy itself. Until the early 1990s, a strong influ-

in the theory of monetary policy itself. Until the early 1990s, a strong influ-Until the early 1990s, a strong influence was Robert Luca's argument that monetary policy affected real variables only if the policy changes were unanticipated. This encouraged obscurity over openness and clarity, in essence, monetary policy was effective only through an unanticipated surprise, but that was to be achieved through non-transparent communication. Lost in the message was the fact that mon**SOUMYA KANTI GHOSH** 

etary policy always affected nominal variables like inflation, even if fully

cipated, low fast-forward to present. While PRI threw up an unanticipated sur-Now fast-forward to present, while the RBI threw up an unanticipated sur-prise, it came with a clear and transpar-ent forward guidance of a change in stance. This was actually reimagining Robert Lucas in the current-day mone-tary nolicy nazadism.

Robert Lucas in the current tary policy paradigm. Why the change in policy stance from accommodative to neutral? If one has been following the RBI's monetary policy actions diligently, we must remember that post-pandemic, it has introduced "state-based" of water time-based forward guidance—the change in stance in the june policy merely reflects the changing priorities. The "time-based" forward guidance was explicit.

The "time-based" for-ward guidance was explic-itly used in the April policy, signalling a commitment to keep the accommoda-tive stance in force and indicating rate cuts or pause as the only option. The June policy has effectively inlifted from "time-based" guidance to "state-based" guidance. There is nothing unusual about it, as in the past also (2021), the RBI had shifted the guidance. While the Monetary Folicy Com-mittee (MPC) occasionally used "state-based" forward guidance in the pre-

Covid period, after the pandemic it started to offer "time-based" forward guidance. To quote from the RBI min-utes in its February 2021 policy: "The commitment to keep accommodative stance is reflective of a time-based

commitment to keep accommodative stance is reflective of a time-based guidance; whereas on the other hand, the expression for revive growth on a durable basis' characterises a state-based guidance; i.e., guidance contingent on the state of the conomy.

Time-based guidance; whereas on the other hand, and the state of the conomy.

Time-based guidance; is not quantifiable but merely an implicit, while state-based is more explicit, while state-based is more thanked and the state of the conomy.

Interestingly, the RBI has also given a guidance of a guarantee fliquidity in the secondary market.

Such assured liquidity in the secondary market.

support is a clear resemblance to developed market central banks (the CRR cut announced in advance). We thus find it completely in consonance with the RBI's desired objective of supporting growth; hence, the change in stance.

But what is the reason for the stage-great cut in CRP2T-tree is no supported.

gered cut in CRR? There is possibly a justification to this, apart from it enhancing liquidity in the busyseason. There is no denying of the fact that

reserve money growth has slowed down since the pandemic. From 18.8% in the pandemic year of FY2.1, it decelerated to 4.39% in FY25 (currently at 6.1%), of which ~70% is because of the decline in currency

rently at 6.1%, of which ~70% is because of the decline in currency in circulation apart from the cut in CRR.

The cut in CRR, along with the increasing digitisation, augments the money multiplier. In fact, the money multiplier tends to increase when the reserve ratio is cut and lower currency leakage, indicating higher multiplie expansion in broad money on account of bank deposits. With deposit rates being cut, such an increase in money multiplier cut as a buffer. We estimate the money multiplier can actually increase by 20-30 bps exclusively because of the CRR cut.

Thus, a lower expansion in reserve money can coexist with a stable M3 growth with a jump in the money multiplier making the relation of base money and money supply agnostic. This is important in an inflation targeting regime where money supply growth is endogenous.

Thus, clearly, the change in stance and the cut in CRR have been well thought off and the markets must understand the logic before jumping to frothy conclusions.

Before we conclude, here are two things to remember. First, central bank communication is important for all of us to learn, listen, and understand. Sec-

things to remember. First, central bank communication is important for all of us to learn, listen, and understand. Second, continuous interaction with market (social media included) and all stakeholders is the best strategy policy effectiveness and helps deflect threats to central bank credibility. The RBI must be commended for patiently listening to almost all market participants before every policy in the most rigorous manner.

Views are personal

## Canada's last-minute G-7 invite to PM signals thaw

AS LAST-MINUTE INVITATIONS go, this one went down to the wire. After an initial snub, India's Prime Minister Narendra Modi confirmed Canada has invited him to the upcoming Group of Seven summit. President Donald Trump's trade war is bringing the two nations, whose relations have been strained in recent years, closer together. India isn't a member of the G-7 — a grouping of the world's richest countries comprising the US, UK, Germany, France, Italy, Canada, and Japan. But it has been a regular attendee. This will be the nation's 12 th time participating and Modi's sixth one chartaised questions about India's credibility in the international arena. But newly elected Canadian leader Mark Carneyshas likely made an important calculation: Getting India onside is crucial as he tries to show that democracies can still function collaboratively, even in a fragmented world order. This comes despite Freedom House classifying the South Asian giant as only partly free, noting that the government led by Modi and the Hindu nationalist Bharatiya lanata Party has presided over discriminatory policies and a rise in persecution affecting Muslims.

Ties between Oftawa and New Delhi deteriorated sharply in recent years, hitting fresh lows after former Prime Minister justin Trudeou accused India's government of chestrating the 2023 killing of Hardeep Singh Nijar, a prominent Sikh leader, outside a temple in British Columbia. Many Sikha in the Canadian disspora want a separate homeland within India for followers of the Faith — an ambition that worries security authorities, who have outlawed the movement and view it as a terrorist threat. New Delhi detended twas involved in Nijar's death, alleging that Ottwas has hardward to the surface of t



length until the investigation into Nijjar's death is complete. When asked why he decided to invite Mod, Carney said it "made sense" to have india, the fifth largest largest economy, at the gathering.

Heneeds all the friends he can get as her tires to avelgate a complex economic land-scape, while Trump rewrites the rules of multilateralism. Canadian media has indicated leaders of Australia, Ukraine, and Mexico have also been invited. The inclusion of the outer ring of G-7-plus partners has become commonplace as a way to get buy-in for major initiatives, particularly among emerging economies.

For Mod, who has long positioned himself as the natural leader of the Global South, the late inclusion will be embarrassing, but one he will survive. Domestically he has received both praise and criticism over the handling of recent hostilities with Pakistan. Diplomats have been on a global charm offensive to build international support for a hardline millitary approach to Islamabad. Images of him mingling into the natrative that the srespected globally.

For Carney, this is an opportunity to stabilise relations with an increasingly influential New Delhi. He may be signalling a desire to prioritise trade, tech, and climate cooperation over continued isolation. But it's also a chance to balance Trump's disruption to the world order, preventing him from dominating the economic naturative. Regardless of the underlying motivations, Canada's decision to include India in this gathering is eminently sensible. In an era marked by fractures in the global order, we start the substanting engagement should be a priority. Mod can seize this opportunity to strengthen bilateral ties, while remembering that influence extends beyond economic size. It hinges on relationables, credibility, and trust — in short supply in today's volatile political arena. Setting aside differences to collaborate is not just a positive step, it's essential.

# Who's in charge of agentic AI?



**ANIL NAIR** 

FOR MANY CLUED-IN on technology FOR MANY CLUED-IN on technology directions, Gartner's top strategic technology trends are a signapost. Not surprisingly, the every first trend they surprisingly, the every first trend they talk about for 2025 is agentic artificial intelligence (A.I). In their words, "agentic A I has the potential to perform as a highly competent teammate by providing insights from derivative events that are often not visible to human teammates."

To elaborate with the siliculations.

To elaborate, with the ubiquitous use of generative AI, the first level was use of generative Al, the first level was singular querying, wherein natural language processing (NLP) is used for replies. Now, we are seeing the shift to the next level — of solving more com-plex problems autonomously. And this, aka agentic Al, involves deep, iter-ative reasoning and multiple steps. For instance, a major indian bank has announced its intent to use agen-tic Al for customation.

has announced its intent to use agen-ic Alfor customer service automation. The system, going beyond straightfor-ward question answering, could potentially check the outstanding bal-ance and recommend which account to pay off, and then complete transac-tions based on the client's response. Or it could be relating to autonomous fraud detection, triggered by an unusual login or non-typical behav-lours, resulting in an instant customer alert, or quick remediation like freeziours, resulting in an instant customer alert, or quick remediation like freez-ing the account. This could involve behavioural biometrics and predictive forecasts leveraging financial crime databases.

abases. Agentic AI in logistics could involve

tracking inventory, predicting stock levels and automating replenishments, preduding over or understocking. Full-blown, it could include optimised routing, identifying potential disruptions, proactive solutions, smart warehousing, and instant customer updates. In healthcare, agentic Al could be about matching patient needs and preferences with the availability of medical experts, smart scheduling to minimise wait times, retrieval and analysis of reports, smart scheduling to

medical experts, smart scheduling to minimise with times, retrieval and analysis of reports, monitoring vitals like heart rate or sugar levels, alerting healthcare providers to prevent catastrophes, and claim processing. Doctors can use agentic Al to analyse vast amounts of data, both medical and patient-related, cull critical information, capture clinical notes, and create custom treatment plans, greatly enhancing efficiency.

The underlying process involved processing the support of the internet, or databases. Then, leveragistic and the programming interface, and acting within predefined guardrails, while learning continuing continuing the processing of the control of th

ously through a feedback loop.
The foundational elements of agentic Al are agents that carry data from past tickets, agents that aggregate data from varied sources, workflow agents that execute across applications with the right APIs in the right sequence to ensure flawless fulfilment, and agents that assist. The strength of the system is the orchestration of these diverse virtual agents, incorporating external ones seamlessly as necessary, enabling innovation and strength of the system of the country of the system of the sys

vastly superior outcomes. Not long ago, hyperatomation was trending. Involves processes like topotic process automation and workflow automation, which are excellent for repetitive, compliance driven, rule-topotic process automation, which are excellent for repetitive, compliance driven, rule-topotic where agentic Al comes into play, a transformative layer on top of hyperautomation, bringing adaptive decisioning into play.

The demand for suck solutions is accompanied by the need for profes-Evidently, as Al becomes smarter and more autonomous humans must remain stewards

The demand for such solutions is accompanied by the need for professionals. Leading consulting firms say there are currently fewer than 100,000 agentic Al professionals, whereas the need is double that number by 2026. This includes agentic Al developers, Al framework architects, solution engineers, and system perfor-

While AI autonomy creates immense opportunity

for efficiency and the best outcomes, risks around

control and accountability can't be ignored

mance testers, not to speak of new titles for emerging needs. While AI autonomy creates immense opportunity for efficiency and the best outcomes, risks around control and accountability can't be ignored.

When you look at AI accountability can't be specially of the agentic kind, the user's role obviously ends with prompts. AI developers must embed safeguards and ethical principles, and provide for audit oversight. Deploying organisations who may well be considered ultimately responsible must, however, set clear boundary conditions, monitor skillfully, and intervene intelligently and speedily.

Laws and regulations often can't keep pace with technology development and the subtle changes it brings into play. India has a number of laws like the Information Technology Act, 2000, and the Digital Personal Data Protection Act, 2023, which will even—which must directly address bias, discrimination, privacy, misinformation, accountability, and llability concerns. Only then will it drive growth and progress, and prevent weaponisation of a potent technology in a borderies world. Evidently, as AI becomes smarter and more autonomous, humans must remain stewards of their power.

worst. Evidently, as AI becomes smarter and more autonomous, humans must remain stewards of their power. It promises to get even more inter-esting if and when AI gets recognised as a legal entity with its own rights and responsibilities.

#### LETTERS TO THE EDITOR

## Fulfil job guarantee

Apropos of "The meaning of guaran-tee" (FE, June 9), the Mahatma Gandh National Rural Employment Guarante Scheme is acknowledged as one of the best for the poor. It allows rural households at least a minimum nouseholds at eleast a minimum livelihood access in the non-farming days. But the ruling dispensation's aversion to this scheme is reflected in the lack of budgetary increases. The outlay in in the last five years was reduced from ₹1.1 lakh crore to around ₹8500 crore. Suggestions to increase the work days from 100 to 150 and the daily wage from ₹241 to ₹400 also haven't been heeded, while states have grievances about the quantum and timely payment of flouring by the Centre. Poor wage, delayed payment, and denial of work under some pretext or the other are reasons for the rural poor migrating to cities. Allocation of substantially more funds, besides extending the scheme to

cities, will go a long way in infusing vibrancy to the rural economy. —AG Rajmohan, Anantapur

#### Rate cut and growth

The generous rate cut by the Reserve Bank of India may cheer the stock markets for some time, but manu-facturing growth may not pick up soon due to inadequate credit. We must spur domestic demand first by focusing on employment generation in labour-intensive sectors to counter

job loss and underemployment due to mechanisation, both in manufacturing and agriculture, and discourage monopolies. We also have to proactively promote non-farm-based rural employment in clusters of villages. Good economics for India also requires consistent relationships with other nations in order to explore rewarding export opportunities. —Brij B Goyal, Ludhiana

Regd. No: DL-21048/03-05. R.N.I. No.26750/74. Printed and Published by Ramesh Chander Malhotra on behalf of The Indian Express (P) Ltd and printed at The Indian Express (P) Ltd Press, A-8, Sector-7, Noida - 2013:01 and published at The Indian Express (P) Ltd, Mezzanine Floor, Express Building, 9 & 10, Bahadur Shah Zafar Marg, New Delh -130002; Prince 1203-6651500. (Cover price: Patnet 212, Raipur \*123, Sinagar \*13). Chairman of the Board: Vivec & Goerka, Editor: Shyamal Majumdar, Editor (Delh) Shobhara Subramarian' (Responsible for selection of News under the PRP Act.)

Compression of the Company of the Indian Express (P) Ltd, Mezzanine Floor, Express Wilding, 9 & 10, Bahadur Shah Zafar Marg, New Delh -130002; Prince 1203-6651500. (Cover price: Patnet 212, Raipur \*123, Raipu

epaper.financialexpress.com

# **GROWING INDIA** | 04

**Main Editoral** 

# Pakistan's Escalating Economic Struggles

Pakistan's economic situation continues to deteriorate, with new foreign loans being taken one after the other. Recently, the International Monetary Fund (IMF) released a report revealing that Pakistan's growth rate is a meager 2.6%. A combination of political instability, rising inflation, and a deteriorating foreign debt situation is continuously undermining the country's economy. In this context, Prime Minister Narendra Modi addressed a rally, stating that India has now become the world's fourth-largest economy, while Pakistan is in a dire state. Modi warned Pakistan, saying that if it continues to export terrorism to India, it will face economic destruction.

his rhetoric comes at a time when Pakistan is reeling from the aftereffects of Operation Sindoor. India, using a strategy of water diplomacy, economic pressure, and economic sanctions, is stan towards further economic collapse. pushing Pakistan towards further economic sanctions, is on the support of the point in this strategy has been India's decision to suspend the Indus Water Treaty, following the terror attack in Pahalgam on April 23. India has also strategically halted the flow of water through the Chenab River via the Baglihar Dam and plans to implement similar measures on the Bhelum River via the Kishenganga Dam. This action has created significant unrest in Pakistan, with politicians and military officials alike expressing concern. Pakistani parliamentarian Syed Ali Zafar stated in the national assembly that if Pakistan does not resolve the water issue, it could face famine, as 90% of the country's agriculture depends on the Indus River. The looming water crisis is akin to a "water to bomb" ticking mway in Pakistan. The 21st century, unlike the oil wars of the 20th century, may see water becoming the central pushing Pakis

geopolitical resource. Pakistan, already one of the countries facing severe water shortages, is in a pre-carious position. In response to these developments, Pakistan's Prime Minister Shebbaz Sharif, during a press conference in Tehran on May 27, expressed Pakistan's willingness to engage in talks with India on the Indus Water Treaty. However, Prime Minister Modi's recent remarks echoed a firm stance: water and blood cannot flow together. Modi emphasized that India will no longer compromise on its rightful share of water from the Indus River, making it clear that India's water policies will be shaped according to its own needs. The World Bank's role in mediating the Indus Water Treaty has also come under scrutiny. Ajay Banga, the President of the World Bank, stated that the institution's role is limited to mediation and will not intervene if India chooses to suspend the treaty. This lack of support from international bodies adds further strain on Pakistan, which has been scrambling to negotiate with India and the World Bank to ease the situation. Since the suspension of the treaty, Pakistan has written four letters to India,

requesting reconsideration of the decision, but India has made it clear that it will not resume the treaty until Pakistan curtails cross-border terrorism. Beyond water disputes, economic pressure on Pakistan continues to mount. India is taking steps to place Pakistan back on the Financial Action Task Force (FAIT) gray list. Recently, India submitted detailed dossiers to FAIT, including evidence of Pakistan's involvement in money laundering and financing terrorism. This move, if successful, would add significant international economic pressure on Pakistan, especially as the country grapples with rising inflation and debt. The economic effects of India's strategic decisions are already visible. On May 3, India completely halted all forms of trade with Pakistan, including the import of goods from Pakistan and the export of Indian goods to Pakistan. This decision has disrupted trade, particularly affecting Pakistan's economy, which heavily relies on exports. Furthermore, the closure of the Atari Land-Transil Post, a key trade route, has made it even more difficult for Pakistan to engage in cross-border trade with India. As trade between the

two nations dwindles, Pakistan's economy, already struggling with a high debt load, has seen inflation spiral out of control. Essential items like wheat, pulses, sugar, and oil have become increasingly expensive, with the prices of fruits and vegetables soaring. In contrast, India has not been significantly impacted by the trade restrictions and has witnessed a decline in inflation in recent months. India's continued pressure on Pakistan, through economic sanctions, water diplomacy, and FATF actions, shows no sign of abating. Following Operation Sindoor, India's strategic approach appears to be working, as Pakistan finds itself more isolated and economically weakened. In conclusion, Pakistan's economy is facing multiple crises, both internal and external. India's firm stance on water rights, combined with economic pressure and international diplomatic strategies, seems to be pushing Pakistan into a corner. The coming months will be crucial in determining whether Pakistan can overcome these challenges or whether it will continue its descent into economic turmoil.

#### The Monster of Addiction: **Causes and Solutions**

Often, we hear news reports about how bad company leads to drug addiction, to the point where some children in families end up selling household items to feed their habit.

rug addiction among the youth has become an increasingly severe problem in Himachal Pradesh, reflecting a troubling national trend. Reports frequently highlight how bad company can lead young people to develop a drug addiction, sometimes to the extent of selling household items to sustain their habit. This growing problem is particularly concerning since 32.25% of Himachal Pradesh's population is young, which is higher than the national average of 34.80%. The youth are the future of any society, and their addiction threatens not only their individual futures but also the broader prosperity of the region. Drug addiction often stems from a combination of factors such as an inactive lifestyle, lack of parental attention, family conflict, depression, peer pressure, and easy access to drugs. In the past, the state had an active rural lifestyle where people engaged in daily activities like farming and carring for animals, which kept them physically occupied and away from harmful habits. Today's youth, however, lacks such engagement, with many becoming drawn to social media and a sedentary lifestyle, which leaves them vulnerable to the temptations of drugs. Moreover, the rise of social media contributes to addiction by releasing doparime, a chemical that creates feelings of pleasure, similarly to how drugs affect the brain. Parents often fail to recognize the signs of addiction in their children, attributing behavior changes to supernatural forces or divine anger, thus neglecting the true psychological causers. This neglect allows children to fall deeper into addiction without the proper intervention. The easy availability of drugs through online platforms also plays a significant role, with lilegal drug markets flourishing on the dark web. The influence of bad company, peer pressure, and a lack of real-world struggles contribute further to the problem, as some parents overindulge their children without teaching them the value of hard work, leading them to seek solace in drugs. Additionally, the modern pressures of ac



Artical

## **Liberation of Citizens from Military Cantonments: A New Dawn for Civic Freedoms**

For decades, citizens residing within India's military cantonment areas have been caught military cantonment areas have been caught in a paradoxical existence—living in civilian spaces yet under stringent military oversight. These cantonments, established primarily during the British colonial period, continue to operate under a governance model that prioritizes military discipline and control over the civil liberties and administrative freedoms of their inhabitants. Despite India's independence over seven decades ago, these areas have largely remained islands of archaic regulations, where civic rights are limited, development is stifled, and democratic participation remains a distant dream.Historically, cantonment zones were designed to serve strategic military needs, with boundaries often demarcated by high walls, checkpoints, and various restrictions on movement and commerce. These physical and bureaucratic barriers translated into social and economic constraints for the local population. The governance structure, dominated by defense authorities, often sidelined civilian needs, limiting access to quality infrastructure, healthcare, education, and basic urban services. Over time, these restrictions became a serious impediment, turning cantonment residents into second-class citizens struggling to reconcile their identity within a military-dominated environment. Now, a significant and transformative shift is unfolding and and transformative shift is unfolding and and and a comment and transformative shift is unfolding and and areas formative shift is unfolding the shift of the second-case cluzies strugging or teoricile their identity within a military-dominated environment. Now, a significant and transformative shift is unfolding across the country. Over the next few months, the government has announced that 36 cantonment areas will be gradually released from this rigid military framework. This transition signals a new chapter—one that promises greater autonomy for residents through integration with local self-governance bodies such as municipal corporations, town councils, or panchayats. The state of Himachal Pradesh is already at the forefront of this change. The Yolwa cantonment has set a precedent by bidding farewell to its military-centric adminis-

trative model. Soon, six other canton-ments—Subathu, Dagshai, Kasauli Dalhousie, Bakloh, and Jatog—will folments—Subathu, Dagshai, Kasauli, Dalbousie, Bakloh, and Jatog—will follow suit, embracing a governance model that seeks to empower civilian populations with greater freedom and civic responsibility. This change is not merely administrative—it reflects the deeper democratic aspirations of the citizens. People living in these cantonment areas are eager to exercise full rights as residents, actively participate in local governance, and demand better civic amenities. Unlike the military-run cantonment boards, which have suffered from limited budgets, lack of technical expertise, and isolation from state-level development schemes, local municipal bodies promise a more inclusive and accountable form of governance. Residents expect improvements in essential services such as water supply, sanitation, and urban planning, which are fundamental to their quality of life-However, this transition is complex and presents a unique set of challenges. The military's strict discipline and structured maintenance systems, which once ensured cleanliness and order, risk being tured maintenance systems, which once ensured cleanliness and order, risk being compromised when civilian bodies take

over. The example of Yolwa cantonment is instructive; after the military withdrew tructive: after the minuary many of its administrative functions, the experienced increased garbage ny of its admir many of its administrative functions, the area experienced increased garbage accumulation and poor sanitation in adjoining zones. Such issues underscore the critical need for a carefully managed and well-coordinated handover process to prevent service disruption and environmental degradation. Experts argue that to safeguard sustainable development and maintain high standards of living, these former cantonment areas must be incorporated under the jurisdiction of established urban local bodies. This inclusion will ensure that they benefit from the technical, financial, and administrative capacities of municipal corporations or councils. For instance, residents of Jateg and Yolwa could be integrated with the Shimila and Dharamshala municipal corporations, respectively, while smaller cantonments might be better managed under municipal councils or town committees. This alignment would also facilitate better planning and coordination with neighboring urban areas, promotting regional development and resource sharing. Beyond administrative concerns, this process represents a pivarea

otal moment in India's democratic evolution. The re from colonial-era restrictions symbolizes the country's commitment to equality, empowerment, and decentralized goverempowerment, and decentralized gover-nance. It is an opportunity to dismantle entrenched colonial legacies and strengthen democratic institutions at the grassroots level. Yet, success will depend heavily on the state's ability to ensure adequate funding, provide technical sup-port, and engage the community actively in governance processes. Moreover, pub-lic awareness campaigns and participato-ry governance models must be priori-tized to educate residents about their new roles and responsibilities within municitized to educate residents about their new roles and responsibilities within munici-pal frameworks. This will empower citi-zens to hold local officials accountable and contribute meaningfully to decision-making, thus fostering a culture of trans-parency and responsiveness. Finally, this transition invites a reimagining of urban planning and development in these areas. Authorities must balance the need for modernization with environmental for modernization with environmental sustainability, ensuring that growth respects green spaces, minimizes pollu-tion, and promotes inclusive economic

# The Courtroom Monkey: A Satire on Disorder, Power, and Justice

o one can say what inspired the monkey to settle in the court premises, but once he did, he made himself at home like a king reigning over a kingdom without law or order. He entered through open windows, roamed freely, and caused havoe in a place meant to uphold justice and fairness. The irony is almost bitter: in the very courthouse where rules and authority should prevail, this monkey enjoyed absolute freedom, unchecked and unruly. This "courtroom monkey" was no ordinary animal. He terrorized those who came to seek justice, ripping apart affidavits and legal documents for his amusement. His presence instilled fear among litigants, who dread the possibility of encountering him during their hearings. The monkey had, surprisingly, gained power and influence far beyond his own kind. Even among the city's monkey, his word was law; many monkeys began to innitate him, elevating themselves to a status beyond mere street creatures. The story of this monkey is both humorous and grim, serving as a powerful allegory for the dysfunction in our justice system and the broader social order. The monkey

The courtroom monkey's reign exposes the unchecked disorder within institutions meant to uphold law. His mischievous acts reflect the fear and helplessness of litigants facing more than just legal battles. The monkey's influence extends beyond the court, symbolizing how power can corrupt even the simplest social order.

symbolizes the unchecked mischief and abuse of power that often plague public institutions. The fact that he could tear up affidavits with impunity mirrors the disregard for truth and due process sometimes witnessed in courts.One day, a follower of this courtroom monkey brazenly stole an apple from a vegetable vendor. The vendor didn't protest. Who could he complain to? After all, the city was rife with petty corruption—police officers stationed at intersections regularly pocketed goods under the pretense of enforcing rules for "someone above." This apathy and helplessenses of the common man reveal the everyday struggles faced by citizens under corrupt and inefficient governance. The stolen apple did not sit well with the stray dogs of the neighborhood. They gave chase, barking furiously, but

the monkey held on tight to his prize. Following his mentor's advice, the monkey cunningly threw a small piece of the apple to one dog. Instantly, the dogs turned on the one that received the treat, fighting among themselves while the monkey laughed from a nearby tree. This episode, where the monked illustrates how cunning and manipulation often triumph over brute force in society. This courtroom monkey had grown so influential that every Sunday, all the city monkeys would gather for his counsel. In one such meeting, a presing question arose: "Your Honor, how long must we continue to steal from poor vendors and scavengers, or dig through dustbins for food?" Even the bananas from the Hamuman temple are no longer available. Should we

move to the Chief Minister's residence? The Secretariat? Or hide in the Assembly hall?" The monkey promised to consider this dilemma but asked for more time. Meetings went on with no resolution. Meanwhile, the monkey began to observe the workings of the court more closely. He realized a harsh truth: if the arguments were clever and the lawyers skilful, anyone could win a case, regardless of the facts. Within a few months, even the Hanuman temple monkeys had joined the court premises. They began to "max" the visitors, and slowly, those attending court proceedings started bringing offerings to appease the monkeys. The image of monkeys hopping on rooftops of every courtroom became a regular sight—these creatures had become unwilling witnesses to the justice process. The satirical apex of this tale is the case of

the sweet-maker accused of selling adulterated sweets. The food inspector's lawyer tried to prove that the sweets contained fake ghee, sugar, and khoya. The case dragged on, with allegations leading to summons of the sugarcane farmer and ultimately the cow that produced the milk, along with her owner. In a bizarre twist, the cow had the support of all the monkeys and, before being questioned, left dung and urine across the court premises. The case now transcended mere legal proceedings—it had become a matter involving the sacred "Gomata" (holy cow). The court faced a dilemma: If it proceeded against the cow or its owner, it risked offending religious sentiments. But ignoring the meas would be a disregard for law and order. The monkeys, wiser in their way, understood that animals often outsmart humans in such convoluted situations. Eventually, the court ordered the municipal authorities to clean the premises and to provide fodder for the cow, preventing her from roaming as a stray. The sweet-maker was acquitted, but as soon as he stepped out, the monkeys surrounded him, seizing bananas from his bag and even the lawyer's fee.

# THE IDEAS PAGE

# "The biggest challenge posed by Mr Trump federalising the National Guard is this: What's the limiting principle?... And ultimately, who and what is the US military in service to — the American public or the President's political agenda?" — THE NEW YORK TIMES

WHAT THE OTHERS SAY

# The illiberal liberal arts

The debate on making universities expansive and tolerant should cast a wider net beyond the founders and administrators of one private institution



BY YOGENDRA YADAV

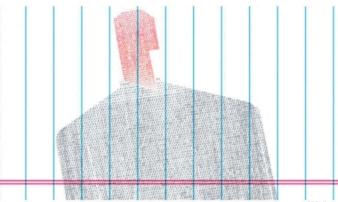
every question, can we not get At to help us ask the right question? That was the first thought that crossed my mind as I read Sanjeev Bikhchandani's now-public letter to the Ashoka University community. I read him with sympathy.

Singley Blikh-chandani's nove-public letter to the Ashoka University community. I read him with sympathy, not with-standing sharp differences with his public utterances. Ashoka founders who gave time, energy and money to build a first-rate lib-eral arts university that is truly not-for-profit deserve respect, especially from parents like me whose children have benefited from it. Building and sustaining an institution is a painful and thankless task in the best of times. The challenge is even more difficult under the current dispensation. I was sad, therefore, that Bikhchandinose to ask a poor, strawman question: "Are all liberal arts universities activist in nature?" The only possible answer can question: "Are all liberal arts universities activist in nature?"

all liberal arts universities activist in nature?" The only possible answer can be no. How can all the universities be alike? Why should the way other universities are be the norm for Ashola? At any rate, what does it mean for the university to be activist in nature? Would it not be ridiculous to expect the university as an institution to turn activist? I was also em-barrassed that Bilchchandani chose to ask this question of a chatbot and not the hundreds of teachers—among the best in the country—at the university of which he is a trustee. The questions Bilchchandani should have ons Bikhchandani should have

asked are: Does liberal arts education by its very nature foster some form of activism? If so, how should a university that imparts liberal arts education deal with it? Should an active engagement with issues of our time be em-phasised in the sylable and pedagogs of the uni-versity? Should this be encouraged in the cam-pus culture? And should such an engagement by the faculty, students and staff —on-campus and off campus — be allowed, if not respected? Many of these are general questions for any institution, certainly for any educational institution. Any good education — arts, science or whatever — must inculcate among the stu-dents a spirit of inquiry. It must develop criti-cal thinking by training the students to inter-rogate received wisdom and question authority. As Paulo Freire reminded us, edu-cation is inherently subversive. Liberal arts takes it a step further. It invites the students to apply this critical thinking to their own society and their lives. This leads them to question their prejudices and privi-leges. Even more so for teachers and students of Political Science (such as Professor Ali Khan Mahmudabad), who must interrogate the claims of political authority all the time. As Kartikewa Bhatotia, an alumnus of Ashoka. asked are: Does liberal arts education by its very nature foster some form of activism? If so,

Mahmudabad), who must interrogate the claims of political authority all the time. As Kartikeya Bhatotia, an alumnus of Ashoka, puts it in a sharp indictment (published in TheFrint) of the university's role in the recent episode: "Liberal arts education — by its very structure — cultivates critical thinking, dissent, and moral inquiry. So yes, activism may not be mandatory, but it is certainly not alien to the tradition." In a sense, the question for a liberal arts university boils down to this: How should it deal with the preconditions and consequences of what it teaches? Quality liberal ed-



ucation requires that those who impart this education should be able to think critically and that the institution should foster a culture and that the institution should foster aculture of free exchange of ideas. The outcome of a good "humanities" education should be that it produces humans capable of independent judgement, who would wish to act on their convictions in real life. So, can any university, least of all a libral airs university, fulfil itsed-ucational mission without permitting, respecting and fostering active engagement with real-life questions of its time? Such active engagement essenties and solviorism, then liberal arts education and activism are connected by an umblical control. This is not to say that a university should

This is not to say that a university should get into the business of promoting one kind of partisanship or another. It must ensure that all competing visions and ideologies get a fair space. The political convictions of a teacher like Mahmudabad do not impede education, as long as they are known and up for discussion. The real danger of indoctrination comes from partisanship that remains unacknowledged or passed off as common sense. And yes, there is a need for rules for any such engagement. The university may need to draw some boundaries on what types and modes of action may not be encouraged or permitted within the institutional spaces. But a fait that seeks to decouple critical thinking and that seeks to decouple critical thinking and civic action would frustrate the very point of liberal arts education. This foundational debate must not distract

from the rather narrow question in Mahmudahad's case, a question Bilkichandani does not address. No one asked the university to own up to every social media post, or academic article for that matter, written by the faculty or students and defend it in a court of law. The real question was simply this: Should an institution, university or otherwise, stand has a member of its community in the face of by a member of its community in the face of a politically motivated witch-hunt? Or aban-

a politically motivated witch-hunt? Or abandon and virtually disown him at the first hint of a controversy? Even if the institution could not offer legal support, could it not offer moral support? Or at the very least, have leep quiet? Sadly, on this score, Ashoka University's response lefa lot to be desired. The very first response, even before Mahmudahad's arrest, gave in to the insimuation that his post was against the armed forces. Post his arrest, like the media and the government, the univer-

CK Sustumar

Sity, too, presumed that he was in the dock,
And now Bikhchandam's letter leaves nothings to the imagination. Mahmudahad stands
accused of "institutional capture and selfishness" and hijacking Ashoka's platform for his
political agenda, something the university
should guard against by framing a policy
against a "Politically Exposed Person".

This is not the first time Ashoka has faced
issues of how liberal it is in dealing with dissenting faculty. With every instance (including that of freedom to publish academic research as in the case of Sabyaschi Das), the
university seems to be learning in the illiberal
direction. If Blikchandam's letter is to be read
as a message from the founders, there is a finnality about the signals: The message is loud
and chilling.

We do not know the constraints out. and chilling. We do not know the constraints under

We do not know the constraints under which the unkersity administrators function. Running a liberal university under an illiberal regime may be a contradiction in terms. The founders might just feel that they cannot take it any more, that they cannot defend their dream without endangering the very existence of the institution, or their business interests. That would be understandable. But then it need not be couched in high moral terms. The victimyou cannot defend need not be put in the dock.

One final thought. Should this debate not

be put in the dock.
One final thought. Should this debate not
move beyond Ashoka's administrators and
its founders, to the Ashoka community, including the faculty, students, parents and
alumni? After all, the defence of liberal eduadmini Pater all, the defence of more acqua-cation in that institution must involve them all. And should this debate not cast its net wider than the best-known and elite insti-tutions like Ashoka? After all, the real tragedy of liberal education in the country is not what has happened at Ashoka, but the manner in has happened at Ashoka, but the manner in which all the major public universities known for liberal education — Jawaharlal Nehru University, Central University of Hyderabad, University of Delhi and Tata Institute of Social Science, to name a few — have been dismantled. In the last instance, activism will not be defended by elite insti-tutions and their well-heeled donors. Activism must be defended by the public. We don't need a chatbot to tell us that.

The writer is member, Swaraj India, and national convenor of Bharat Jodo Abhiyaan. Views are personal

# Chasing glory, building Bharat

The last 11 years have seen a transformation in sports infrastructure, ensuring transparency and outstanding performances on the global stage



MANSUKH MANDAVIYA

AS WE EMBARK on our journey to become

AS WE EMBARK on our journey to become Viksit Bharat by 2047, one of the most powerful forces shaping this vision is the rise of Indian sports. Under the leadership of Prime Minister Narendra Modi, Indian sports is scaling new heights on the global stage. Recently, Indian athletes once again made the nation beam with pride through extraordinary performances on the global stage. At the Asian Athletics Championships 2025, the Indian contingent delivered a commanding performance, clinching 24 medals and smashing multiple national records along the way, Our women wresters scripted a golden chapter in history, returning from the Ulaanbaatar Open in Mongolla with a record-breaking 21 medals, their best-ever haul at a Kanking Series event. This success didn't come overnight, India won only 26 Olympic medals in the first 23 editions (including before Independence). But in the last three editions alone — 2016, 2020 and 2024 — India bagged 15 medals. In the Paralympics, from just eight medals between 1968 and 2012, India has now won 52 medals in the last three editions, including a record 29 medals in pras 2024.

These achievements are the result of a performance-driven ecosystem built over the last 11 years. PM Modi has brought a clear and focused vision that every athlete, regardless of background, deserves access to world-class training infrastructure, financial support, afthete-centric governance, and

regardless of background, deserves access toworld-class training, infrastrutum, finan-cial support, athlete-centric governance, and atransparent system to thrive. At the heart of these reforms is the Tanget Olympic Podium Scheme (TOPS), launched in 2014 to identify and support top athletes. What began with 75 athletes has now grown to support 213 sportspersons for the Los Angeles 2028 cycle, including 52 para-athletes and 112 athletes under the develtos Angeses 2026 Cytic, including 3-2 paraathletes and 112 athletes under the development category. New schemes have also
been introduced to support athletes in disciplines that have traditionally received less
attention. The Target Asian Games Group
(TAGG), introduced this year, supports 40
medal prospects in 10 disciplines such as
fencing, cycling, equestrian, sailing, kayaking and canoeting, judo, taelewondo, tennis,
table tennis, and wushu.

Driving this performance is a significant
financial commitment. The Ministry of
Youth Affairs and Sports budget has more
than tripled in the last decade, from Rs 1.219
crore in 2013-14 to Rs 3,794 crore in 2025256. The Khelo India Scheme, launched in
2017 to develop grassroots infrastructure
and promote year-round competition, has
seen its budget increase to Rs 1,000 crore
this year. National sports federations have

seen its budget increase to Rs 1,000 crore this year. National sports federations have also received unprecedented support. Financial assistance for hosting international tournaments and national championships has nearly doubted. Coache' support has been revised upward by 50 per cont. Athlete detary allowances have been increased to meet the demands of high-performance training.

mance training.

One of the most impactful reforms has en the emphasis on transparency. All fed-

erations must video record selection trials and publish selection criteria for major events two years in advance. This ensures fairness, builds trust among athletes, and keeps the system merit-based. Sports certificates are now issued through Digil Loker and linked to the National Sports Repository System, ensuring tamper-proof documentation. The Draft National Sports Belgi 2024, along with the Draft National Sports Governance Bill, airland to strengthen to sports ecosystem and bring athlete welfare to the centre of policy making. Age fraud is being tackled through new medical checks and stricter penalties. Federations are also required to appoint Integrity Officers to enerations must video record selection trials required to appoint Integrity Officers to en-

and stricter penalties, Federations are also required to apoption Integrity Officers to ensure compliance. Inaddition to Olympic sports, traditional Indian sports like mallakharnh, kladripayattu, yogasana, gatka and thang-ta are beingrevived and promoted through the Khelo India Games, Indigenous sports like Kabaddi and Kho-Kho are now receiving international recognition. The push for gender equity has also been significant. The ASMITA League (Achieving Sports Milestones by Inspiring Women Through Action), launched to promote women's participation in sports, has expanded rapidly. From just 840 women atoms commen sports participation in sports has expanded rapidly. From just 840 women atoms 26 sports participated in 2024–25. The ASMITA League connects these athletes to the Khelo India pathway. India's sports infrastructure has also expanded at an upprecedented scale in the last 11 years. From just 38 infrastructure projects before 2014, the number has now risen to 350. The Sports Authority of India currently runs 23 autonal centres of excellence, training elite athletes under TOPS and Khelo

ing elite athletes under TOPS and Khel ndia, Additionally, 34 state centres of excel lence have been established.

lence have been established.
The Riedo India Games have evolved into a national movement. Nineteen editions have been held so far –including Youth, University, Para, Winter, and Beach Games — with more than 56,000 athletes particular, The Khelo India Para Games, in particular, have been game-changing, with many athletes from these competitions going on to win medals at the Paralympics.
Looking ahead, India is preparing for a potential bid to host the 2030 Commonwealth Games and the 2036 Commonwealth Games and Campes Campes Campes Campes Campes Campes Campes Campes Cam

Commonwealth Games and the 2036 Olympic Cames. To support this vision, as werticals under Khelo India such as the School Games, Tribal Games, Northeast Games, Marte Games, Marte Altr Stames, and Swadeshi Games are being launched. The upcoming Rhelo India School Games will play a pivotal role in bringing fresh talent into the sporting ecosystem. PM Modi's vision is for India to be among the top 10 sporting nations when we host the Olympics in 2036 and among the top five by the time we mark 100 years of Independence in 2047. Much has been done to fulfill this vision, but a lot remains to be achieved.

India's sporting revolution today is a story of vision, resolve, and inclusive growth. With our youth at the heart of this transformation, and under the dynamic leadership of PM Modi, India is rising as a global sporting powerhouse. From medals to mindsets, the change is visible and the journey to Viksit Bharat is being powered buths shirl of sport. by the spirit of sport.

The writer is Union Minister of Youth Affairs and Sports and Labour and Employment



# The communication front

We do not know the constraints under which the university administrators

function. Running a liberal

university under an illiberal regime may be a contradiction in terms. The founders might just feel that they cannot take it any more,

that they cannot defend their dream without endangering

institution, or their business interests. That would be

legitimate. But then it need not be couched in high moral terms. The victim you

cannot defend need not be put in the dock

the very existence of the

CDS's remarks on Op Sindoor underline the need to win the 'story war'

THE INTERVIEW GIVEN by Chief of Defence Staff (CDS) General Anii Chauhan at the Shangri-La Dialogue in Singapore on May 31 to a foreign news agency about Operation to a foreign news agency about Operation Sindoor has generated considerable interest and comment, both in India and abroad. It has also raised a few concerns — all for valid rea-sons. In response to a question about India being made by Pakistan about India losing combat aircraft in the early stages of Op Sindoor, the CDS stated, "What is important is not the jet being down, but why they were being downed."

ng downed." While General Chauhan did not go into any specifics about the number of platforms lost in combat, he asserted that India had swiftly rectified its "tactical mistakes" and swithy rectified its "factical mistakes" and resumed high-precision strikes at the desig-nated targets, some deep within Pakistan. He added, "What mistakes were made — those are important. Numbers are not important. The good part is that we were able to under-stand the tactical mistake which we made, remedy it, rectify it, and then implement it again after two days and flew our jets again, targeting at long range." This has been interpreted as the first con-firmation by the military leadership at the highest level that India lost some aircraft in Op Sindoor. It may be recalled that at the mil-

Op Sindoor. It may be recalled that at the mil-itary briefing on May 11, conducted in Delhi

soon after cessation of hostilities, the Air Force representative, Air Marshal AK Bharti, had re sponded to a similar question regarding fighter aircraft losses saying, "We are in a com-

sponded to a similar question regarding fighter aircraft losses saying. "We are in a combat scenario, losses are a part of combat. The question you must sake usis. Hawe we achieved our objective of decimating the terrorist camps? And the answer is a thumping yes."

Against this backforp, the response of the CDS is pertinent and provides more tactical insights into the conduct of Op Sindoor. A reference was also made by General Chauhan to the nuclear threshold and how this was handled by Delhi. Any light shed on the role of the CDS in Op Sindoor would have been very valuable but this thread was not pursued.

Professionals will study these remarks carefully, for Op Sindoor has many strands related to the conduct of a high-intensity conflict between two nuclear-weapon-capable states, both by ways of strategic signaling and the narrative campaign that has acquired its own autonomy in the modern age. The global tenet now is that more than winning the war in the combat domain, the "story war" must also be won. Perceptions have to be shaped in a favourable manner both in the domestic and international arena. Here, India has been put on the hack four the CDS's remarks in international arena. Here, India has been put on the back foot; the CDS's remarks in Singapore have drawn attention to this vital component of national security.

During combat, no nation divulges de tailed tactical information, particularly about platform damage or loss. Indeed, while there platform damage or loss, Indeed, while there was intense speculation about how many Rafale aircraft had been lost by India during Op Sindoor, the government kept silent. However it allowed some sections of the audio-visual media to engage in shrill triumphalism and ugly majoritatian nationalism, and to this was added some embroidered assessment by foreign sources. The net result was a further erosion of the credibility of the Indian media. A professional attribute that a nation ought to acknowledge and nutrue with integrity is media credibility. The May 11 military briefing was professional and the question tegrity is media credibility. The May 11 military briefing was professional and the question about the loss of fighters had been addressed in a tangential manner. If the government wanted to confirm the fact that india had indeed lost some platforms, why was this not done in Delhi soon after the first briefing? The delay added to the speculation and was avoidable. And if the COS was identified as the senior-most military officer to do so, then why in Singapore, and why to a foreign news agency and not an Indian one such as PTI? In my view, a professional briefing at a three-star level was adequate and further details could have been provided in Parlament, as is the norm in democracies. The sharing of some factual tactical details is desirable to enhance credibility

and be better positioned in the narrative bat tle. India has not been able to rise to this chal lenge and many questions have been asked, both on social media and by the Opposition lenge and many questions have been asked, both on social media and by the Opposition parties, as to why such details were not provided in Parliament or by the Defence Minister. This leads one to infer that perhaps the CDS's remarks were not part of any script but spontaneous. If so, this is even more disappointing with respect to India's strategic communication acumen.

The Pahalgam massacre took place on April 22 and Operation Sindoor was launched on May 7. Delhi, with its much vaunted Narendra Modi-led communication capabilities both in India and abroad, was aware that the Shangri-La Dialogue would take place in Singapore at the end of May. Was there a suitable start com plan in place? The remarks of the CDS would suggest otherwise.

Operation Sindoor is in pause mode and the narrative battle continues. US President Donald Trump's assertions regarding brokering a ceasefire have queered the pitch for Delhi. Fidelity to facts and transparency as behoves a democracy are critical in dealing with national security challenges. Calwan 2020 and Op Sindoor 2025 have many embedded lessons.

The writer is director. Society for Policy Studies.

The writer is director, Society for Policy Studies

epaper.indianexpress.com

#### LETTERS TO THE EDITOR

#### SIGNIFICANT DROP

THIS REFERS TO the editorial. 'Figure of hope' (IE, June 9). The recent World Bank India Poverty and Equity Brief (April 2025) paints a remarkable picture of India's success in combating ex-treme powerty. This progress is due in large part to targeted welfare schemes, expanded rural infrastructure, and di-rect benefit transfers that have bol-stered household incomes and im-proved living conditions. However, this positive narrative coexists with sobering reality: inequality continues to widen. As noted in the World inequality Report 2022, the top 1 per cent of India's population controls around 40 per cent of the national wealth, underscoring a lopsided growth trajectory. ture of India's success in combating ex growth trajectory. Sanjay Chopra. Mohali

#### ELECTION INTEGRITY

THIS REFERS TO the article. 'Match-fis-ing Maharashtra' (IE, June 7). It rein-forces many concerns that have been rising in the minds people across the country, Rahul Gandhi has raised per-tinent questions, using statistics to buttress his arguments. The article is aimed not just at the Election

Commission of India but at the broader public, Amendments to the procedure for appointing the Election Commissioner, an incredible increase in the number of voters in the voter list voting figures at specific polling sta-tions after the voting time has ended tions after the voting time has ended, the disparity in the number of voters during the Parliament and Assembly elections, multiple EPICs of the same number, etc., are issues that will catch the interest of several politically minded Indians.

Momin Faheem, Bhiwandi

#### LACK OF STRATEGY

LACK OF STRATEGY
THIS REFERS TO the article, "When ecstasy becomes agony" (IE, June 7).
Swinging into action only after a
tragedy is a ad practice, all too common in india. The June 4 Bengalunt
sampede could have been avoided, had
there been a well-thought-out plant had
accounted for contingencies in place. It
was a consequence of carelessness and
lack of planning on the part of the local
authorities that turned an occassion of
celebration into one of mourning.
Coordination between the different
wings of the state government and
cricket administrators was missing.
SH Quadri, Bicaner
SH Quadri, Bicaner

tors was missing, SH Quadri, Bikaner

# the hindu businessline.

## Fiscal challenges

Revenue stress should not translate into capex cut

ecent data released by the Controller General of Accounts reveals that the Centre has managed to meet the revised target for fiscal deficit for FY25, retaining it at 4.8 per cent of GDP. But achieving this target was obviously not a cakewalk, given the dip in corporate profitability and weakness in several segments of the economy in FY25. This is evident in provisional tax revenue falling short by 2.3 per cent compared to the revised estimates.



While income tax collection in FY25 was 17 per cent higher than in FY24, corporate tax collection grew at just 8.3 per cent as sectors including IT, banking and auto decelerated. Customs and excise duty collections were marginally lower due to policy changes and a weaker domestic and external environment. The Centre was able to reduce the fiscal gap last year with the help of lower revenue expenditure and surplus transfer from the RBI. Revenue expenditure, which accounts for over three-fourths of the Budget expenditure, was 2.6 per cent lower than revised estimates in FY25, indicating that the Centre trimmed expenses to meet its deficit target. It is well that the Centre is mindful of

the mounting debt caused by these deficits and is now determined to control it. It had laid out a path for fiscal consolidation in the recent Budget consolidation in the recent Budget, aiming to bring the debt-to-GDP ratio down to around 50 per cent by March 2031. But staying on course may prove challenging going ahead. The ongoing tariff war is likely to disrupt global supply chains, hurting the external sector. The uncertainty is making companies postpone fresh projects, impeding capital investments. Meeting the fiscal deficit target of 4.4 per cent of GDP for FY26 may be a challenge given the assumption of nominal GDP growth at 10.1 per cent in the Union Budget. With inflation projected to fall, nominal growth could be lower than what was budgeted for. The record high RBI dividend of ₹2.68 lakh crore for 2024-25, which is higher than the ₹2.56 lakh crore budgeted as receipts from the RBI and the dividend receipts from public sector banks, could help shore up the fiscal situation this year.

The impact of the large cuts in income tax rates for individuals is yet to be known. If it translates into better compliance and greater consumption, tax collections can remain strong. If consumers fail to spend the extra money in their hands, the Centre's bet on both tax collections and GDP growth could come unstuck. Meanwhile, the Centre will have to ensure that it does not cut down its budgeted capital expenditure of  $\P11.2$  lakh crore this year, given the risks to growth. It is comforting to note that the actual capital expenditure for FY25 was 3.3 per cent higher than the revised estimate. Clearly, it does appear that the heavy-lifting will yet again have to be done by the Centre this fiscal year.



# **India** must reframe US trade talks

NARROW THE SCOPE. India should cut tariffs on 90% of US exports to India, but exclude agriculture and autos



n February 13, 2025, Prime Minister Narendra Modi and President Donald Trump launched formal talks for a Free Trade Agreement (FFA). Now, as the negotiations reach final stages, India must pause and introspect: Does this deal even qualify as an FFA? Is it a

must pause and introspect: Does this deal even qualify as an PTA' Is it a rushed deal that risks giving away too much for too little in return?

Worldwide, over 375 FTAs are currently in force. Under these agreements, all partner countries reduce their Most-Favoured-Nation (MFN) tariffs on a significant portion of their trade, as mandated by Article XXIV of the General Agreement on Tariffs and Traife (GATT) under WTO rules. MFN tariffs are testandard customs duties a country applies equally to all WTO members unless lower preferential rates are offered through an FTA. The India-US deal will not meet this criterion. While India plans to reduce its MFN tariffs to benefit thousands of US products, the US is not offering MFN tariff cuts. Instead of cutting standard MFN tariffs, the US may only reduce its special "Liberation Day" tariffs on Indian goods. These were country-specific duties it imposed on April 2 across 57 nations. For India, that tariff was set at 26 per cent.

The extra "Liberation Day" tariffs the

country-specific duties it imposed on April 2 across 57 nations. For India, that tariff was set at 26 per cent.
The extra "Liberation Day" tariffs the US added on top of its MFN tariffs go beyond the WTO-bound rates — the maximum duty levels the US promised not to exceed. This makes the "Liberation Day" tariffs a clear breach of the US's WTO commitments.
Trump paused these extra tariffs on April 9 for 90 days (until July 8) to pressure countries into making quick concessions. However, even after the US tariff cut, Indian goods will still face an additional 10 per cent tariff on top of the regular US MFN tariffs. This kind of arrangement does not qualify as an FTA under WTO rules.
But incompatibility with WTO rules is not the only issue — the "Liberation Day" tariffs also break US law. Trump invoked the International Emergency Economic Powers Act (IEEPA), a law

TABLE 1 India's trade with US

mula			FY2025 (\$ billion)		
Category	Exports	Imports	Balance	Total	
Goods	86.5	45.3	41.2	131.8	
Services	28.7	25.5	3.2	54.2	
Total trade	115.2	70.8	44.4	186	

Data source: Goods - DGCIAS Services - Estimates based on past data

meant for national security emergencies, to impose the "Liberation Day" tariffs. However, on May 28, the US Court of International Trade ruled them illegal, finding that trade deficits are just an economic issue — not an "unusual and extraordinary threat" that justifies using IEEPA. In short, Trump overstepped the powers granted to him by Congress.

Although the US Court of America Congress. meant for national security

y Congress.

Although the US Court of Appeals has aused the ruling and given the dministration until June 9 to respond, the signal is clear: the "Liberation Day' tariffs breach WTO rules and are likely tariffs breach WTO rules and are likely to collapse under US law, Yet, Washington is using the promise of lifting these likely illegal tariffs to pressure India and others into making swift, permanent trade concessions—racing to secure deals before the tariffs' legal shelf-life runs out.

The US-UK trade deal signed on May 8 provides a sobering preview. Under that agreement, the UK slashed tariffs on over 2,500 US products, removed duties on American ethanol, and increased purchases of Boeling aircraft—while the US offered tariff cuts on fewer than 100 British products, most

— while the US offered tariff cuts on fewer than 100 British products, most capped at 10 per cent. It was not a balanced FTA. Was this done hurriedly to pressure other countries to follow suit?

India must challenge the misleading Snarrative that frames the bilateral trade relationship solely through the lens of goods trade deficits. While India

US quietly earns \$80-85 billion annually from India through education exports, financial services, intellectual property royalties, digital operations, and arms sales.

US earnings from India other than trade

Total estimated US earnings from India	80-85+ annually		
US defence equipment	Confidential		
Hollywood and US streaming income (including Netflix)	1-1.5 (box office, subscriptions		
Revenues from US pharma and auto companies (Pfizer, Merck, Ford, GM)	2.3-3.2 (patents, licensing)		
Profits of Global Capability Centers (Dell, IBM, Cisco, Morgan Stanley)	15-20		
Revenues of US banks and consulting firms (Citibank, JPMorgan, McKinsey, BCG, Deloitte, PwC, KPMG)	15–20 (financial services, corporate advisory)		
Revenues of US tech giants (Google, Meta, Apple, Microsoft)	15-20 (ads, cloud, software)		
Indian student spending in US higher education	25 (tuition + living expenses)		
Source	Estimated annual amount (\$ billion		

ran a trade surplus of \$44.4 billion with the US in FY2025 (Table 1), US quietly earns \$80.8 5 billion (Table 2), annually from India through education exports, financial services, intellectual property royalties, digital operations, and arms sales. When these flows are included, the US enjoys a \$55.40 billion surplus wick, or its fide. here they are the results of the con-traction of the contraction of the contraction of the con-traction of the contraction of the contraction of the con-traction of the contraction of the contraction of the con-traction of the contraction of the contraction of the con-traction of the contraction of the contraction of the con-traction of the contraction of the contracti vís-à-wis India — hardly the picture of a disadvantaged partner.

disadvantaged partner.

RUSHING TO APPEASE
Yet, rather than assert this reality, India has rushed to appease. Since January, India has unlaterally cut import duties on bourbon whiskey, fish feed, motorcycles, satellite parts, and mobile components. It has removed a 6 per cent digital tax on US tend parts and is preparing to revise its nuclear liability law to facilitate the sale of US reactors. This pattern of concessions without reciprocal gains has emboldened Washington's negotiating stance.

Reports suggest that New Delhi is preparing to cut ariffs on sensitive sectors, such as autos and agriculture, open its government procurement market, ease intellectual property and data rules to favour US tech and pharmaceutical companies, and clear foreign access for players like Elon Musk's Starlink. These shifts would have wide-reaching effects across India's economy.

The risks of going too far are real.

The risks of going too far are real.

India's recent agreement with the UK, for example, included an unprecedente cut in car import tariffs from 100 per cent to 10 per cent, even covering

electric and hybrid vehicles where India is just starting to build capacity. Such moves when followed in FTAs with the US and EU could discourage foreign investment in local manufacturing, as global firms may export directly rather than set up factories in India. India's best bet is to reframe the negotiation. Instead of a broad FTA covering goods, services, digital trade, and regulations, India should propose a narrow, goods-only "zero-for-zero" deal: cut tariffs on 90 per cent of US exports to India but exclude sensitive sectors such as agriculture and autos. This would meet Washington's primary demand on tariffs, deliver clear wins for US exportes, and protect India's demand on tariffs, deliver clear wins for US exporters, and protect India's regulatory space. It would also mirror the approach taken by the EU, which has proposed zero-for-zero tariff deals on industrial goods with the US.

indistrial goods with the US.

If India accepts US terms, the cost will be heavy. One-sided tariff cuts, rule changes, and market openings would give US exporters long-term benefits, while the temporary "Liberation Day" tariffs would vanish on their own. These US tariffs won't last, but India's concessions would. Instead of rushing into an unequal deal, India should aim for a narrow, fair agreement focused on industrial goods to protect its core economic and strategic interests. If the US won't agree to fair, reciprocal terms, US won't agree to fair, reciprocal terms, India should walk away. No deal is better than a bad deal — and right now, what's on offer is a bad deal.

The writer is founder of GTRI

# Impeachment raises troubling questions

The proposed move against Justice Varma should be marked by fairplay and an effort to pursue the truth

here are reports that the Union government has decided to bring a resolution in Parliament shortly to impeach Justice Yashwant Varma (formerly of Delhi High Court

Varma (formerly of Delhi High Court and currently in the Allahabad High Court) who has been accused of financial impropriety in his official conduct while functioning in Delhi. The last time such a motion was brought before Parliament was in May 1993 against Justice V Ramaswami of the Punjab and Haryana High Court. That motion failed ultimately for a variety of reasons, one of which was that the issue had become highly politicised. The Varma case should cause anguish to all citizens because of the denuded confidence in most of the other organs of government and the current public dependence almost wholly on the judiciary for obtaining justice against executive arbitrariness. The Supreme

Court of India itself must have been embarrassed. There are some who complain that the highest court of the land did not display the kind of outrage and expeditiousness that the matter demanded. This is possibly unfair because the Chief Justice of India did ucikly ordered an internal enquiry close on the heels of a preliminary finding by the Delhi Police and also got the accused Judge transferred to the Allahabad High Court. The Allahabad Bar rightfy protested against this move because it believed that their court had become a sort of dumping ground for tanted judges.

As a citizen one is worried that the matter may be buried if Justice Varma, finding the heat too much to take, opts to resign. In such an eventuality he should be prosecuted in a court of law should be prosecuted in a court of law should be prosecuted in a court of law Court of India itself must have been

to resign. In such an eventuality he should be prosecuted in a court of law like an ordinary citizen. This will not smack of any vindictiveness. It will be merely the upholding of an old tenet that no one is above the law. Also such prosecution will strengthen the belief



that the judiciary will not condone misdemeanour by one its members. Above all, in fairness to Justice Varma

himself, he will get a good opportunity in court to establish his innocence. We court to establish his innocence. We should not condemn him without affording him the chance to prove he had been wronged. He has continuously claimed that he is blameless and that all the campaign against him was on mere suspicion and not based on solid evidence. If he stands trial the prosecution should select a competent and untainted lawyer who will not be swayed by any extraneous consideration. Thanks to the Varma case the SC has

consideration.

Thanks to the Varma case the SC has made clear its resolve not to allow any member of the judiciary to go scot-free if he or she is found guilty of misconduct. Will Parliament do the same? That is the big question that should agitate every honest citizen.

We do not yet know what the SC proposes to do in the future to monitor standards of integrity at all levels in the judiciary. What we should be most worried about is the level of integrity at all velse in the judiciary. What we should be most a lower formations, such as district judges and magistrates. We often hear reports that are greatly disturbing, Appointment of honest persons to the judiciary does not suffice. Marked improvement in their living and working conditions and a substantial salary raise could help.

■ LETTERS TO EDITOR Send your letters by email to bleditor@thehindu.co.in or by post to "Letters to the Editor", The Hindu Businese Line Kveturi Buildines. 899-890. Arms Sabi. Chennai 600002.

Rate cut will hurt Arropos. Banks may cut savings, deposit tes again to guard margins' (June 9). The serve Bank of India's 50 basis points cut in the reporate is set to trigger a reduction in the reporate is set to trigger a reduction in interest rate on savings accounts and fixed deposits by commercial banks. While drowe is aimed at boosting credit flow and stimulating economic growth, it adversely affects serior citizens and individuals who depend on interest income for sustenance. With alteraby low returns on traditional savings instruments, this further decline will strain the financial stability of retirees and risk-averse investors. In light of this, there is an urgent need for banks and policymakers to consider supportive measures, such as special deposit schemes or preferential

N Sadhasiva Reddy

**Sustaining FII inflows** 

Sustaining FI Inflows It is hey ears since RBI introduced Fully Accessible Route (FAR), a framework that allowed non-residents (FPIs, NBIs and DCIs) to invest in specified securities by removing capso no foreign investments. In needed the inclusion in EMBI (emerging market bond index) of JP Morgan in June 2024, and Bloomberg's Emerging Market Local Govt Index to induce El Inflows in FVS. While it is self-evident that higher interest retire of Inflows in FVS. rates of Indian bond market are an attraction, what is required to keep FPIs

oked is to check foreign exchang

Angara Venkata Girija Kumar

#### Insects in diet

powerhouse with a planet-friendly reputation' (June 9). Despite the er or research, the larger question is the acceptability of the new food culture in traditional Indian conditions. Moreover, th rampant use of chemical derivatives in farming has already caused the extinction or several useful insects which are deemed as

Rajiv Magal

## On businessline.in

#### Will the monetary bazooka lift growth trajectory?



The front-loaded action has increased risks in the system by cringing on future policy options, argues **Mridul Saggar** 

#### The dangers of an expansionary monetary policy

The aggressive rate cut may end up fanning the flames of inflation, says Gurbachan Singh



## Pharma opportunity

The sector can gain from negotiations with US

he reciprocal tariffs imposed by the Trump administration, has introduced a complex layer of challenges to the global trade landscape, with notable ramifications for India.

But pharmacutions for India.
But pharmaceuticals, a crucial component of India's export basker to the US, have largely received exemptions.
India plays a crucial role in supplying affordable medicines to both developed and developing nations.

nations.
The sector boasts a substantia The sector boasts a substantial market size, estimated at around \$50 billion in 2024, and is projected to reach \$130 billion by 2030, showcasing a remarkable growth trajectory.

India is the third-largest producer of pharmaceuticals by volume globally and accounts for approximately 20 per cent of

volume globally and accounts for approximately 20 per cent of global generic drug exports. This prominence is underpinned by a strong network of over 3,000 drug companies and more than 10,500 manufacturing units. The industry's contribution to the Indian economy is significant, providing employment to millions and driving innovation in drug development and drug development and manufacturing processes.

PHARMA EXCEPTION
While several sectors, including steel, auto components, and textiles, have been directly impacted by these tariffs, the shownent includes the second section. impacted by these tariffs, the pharmaceutical sector, particularly for India, has largely been spared. This exemption is a significant development, underscoring the critical role that Indian pharmaceutical manufacturers play in the US healthcare system.

The US is a major export destination for Indian pharmaceuticals, accounting for

destination for Indian pharmaceuticals, accounting for approximately 30 per cent of India's total drug exports, valued at over \$9 billion in 2024. This robust trade relationship is built on India's ability to supply high-quality, affordable generic drugs, which are essential for managing healthcare costs in the US.

US.
Generic drugs constitute a significant portion of pharma exports, accounting for nearly 40 per cent of the generic drugs consumed in the US. Indian consumed in the US. Indian companies have a strong presence in the US generic market, with several firms holding a significant market share for various essential



The trade in pharmaceuticals between India and the US is substantial and mutually

substantial and mutually beneficial.

The fact that pharmaceuticals have been excluded from the reciprocal trafffs suggests a recognition by the US of this interdependence and the potential disruption that tariffs on Indian drugs could cause to its domestic healthcare market, not entitled to the protection of the pro potentially leading to increased drug prices and supply chain vulnerabilities.

Way FORWARD

To capitalise on the current situation and navigate the evolving global trade landscape, the Indian pharmaceutical sector and regulators need to adopt a proactive and strategic approach. Continued engagement with the US on trade policies is crucial to ensure the sustained exemption of pharmaceuticals from any future tariff actions.

of pharmaceuticals from any future tariff actions. The government needs to focus on strengthening the regulatory framework to maintain high quality standards and build greater confidence in Indian-made drugs globally. Investing in research and development, particularly in innovative areas like biosimilars and novel drug delivery systems, will enhance the sector's long-term competitiveness.

and novel drug derivery systems, will enhance the sector's long-term competitiveness. Furthermore, fostering collaborations between domestic pharmaceutical companies and international research institutions can accelerate innovation and the development of new therapies. By focusing on quality, innovation, and marking innovation, and marking the with the foliation of the deversification, the Indian pharmaceutical sector can not only weather the current global trade uncertainties but also further solidify its position as a global leader in the supply of affordable and high-quality medicines.

Saravanan is Professor of Finance and Accounting at IIM Tiruchirappall; Willia

#### thehindubusinessline.

#### TWENTY YEARS AGO TODAY.

Govt plans merger of small steel PSUs with SAIL

The Government is considering a plan to merge the small state-owned steel
companies with Steel Authority of India Ltd (SAIL), according to the Steel
Minister, Mr Ram Wilas Paswan. Speaking at a news conference, he said: "After a
complete study of all operational aspects, the proposal to merge the
companies, if found fessible, will be implemented in a time-bound manner."

#### TRAI asks mobile operators to restrict services within circle

The Telecom Regulatory Authority of India (TRAI) has asked mobile operator or estrict their operations within the boundaries of the licensed areas. The move comes after it was brought to the notice of the telecom regulator that once operators were offering services in cities adjoining their licensed area.

#### Banks told to simplify claims on death of depositors

The Reserve Bank of India has directed banks to simplify the procedure to facilitate speedy and easy settlement of claims following the death of depositors. The central bank has also told the Indian Banks' Association (IBA) to formulate a model operational procedure for the settlement of such claims

# FDI reversal and the message

Outward FDI and the LRS scheme, which take out domestic savings, can have adverse consequences

MACROSCAN



AR, JAYATI GHOSE

n a surprise turn, India (which n a surprise turn, India (which had been receiving consistent FDI inflows even in years when foreign portfolio inflows were volatile) experienced a lose to 100 per cent decline in net FDI investment in the country to \$354 million in 2024-25 (Chart 1). It is still true that gross FDI inflows have risen from \$71.3 billion in 2023-24 (and more class the same level in 2023-233 to \$83 or less the same level in 2022-23) to \$81 billion in 2024-25.

billion in 2024-25.
But FDI outflows, resulting either from retrenchment of assets by incumbent foreign direct investors (Chart 2), or investment abroad by resident firms (Chart 3), also rose to \$29.2 billion in 2024-25 from \$16.7 billion in 2023-24. This is by not a raddon and oscible transpire shift.

billion in 2023-24. This is by not a sudden and possibly transient shift. As compared with \$4.0 billion in 2015-16, outward investment, while displaying considerable year-to-year variation, rose to \$14.0 billion in 2022-23, and spiked to \$29.2 billion in 2024-25.

#### THREE FACTORS

THREE PACTORS
There appear to be three factors
underlying the collapse of net PDI.
Pirst, despite the rise in 2024-25,
gross PDI inflow peaked in 2021-22 at
\$84.8 billion, fell sharply in the next
year, and despite the 2024-25 rise
remained below the previous peak level.
Second, there has been a rise in

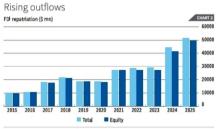
remained below the previous peak level. Second, there has been a rise in repatriation of investments made by incumbent foreign direct investors, which rose from \$29.3 billion in 2022-23 sold \$45.5 billion in 2024-25. Nots of that repatriation (\$27.1 billion in 2022-23 and \$49.5 billion in 2024-25. Occurred through the divestment of equity. Third, as noted there has been a sharp increase in oversease FDI by resident investors. That was the result of both new equity outflows and investment of retained earnings, with unusual increases in particular years such as 2021-22 and 2024-25. The dampening of gross flows of FDI may be partly explained by sluggishness in domestic demand and uncertainty regarding profits. But to fully understand the behaviour of foreign investors, both in terms of delivering

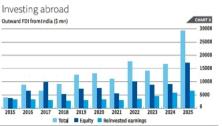
understand the benaviour of foreign investors, both in terms of delivering new gross FDI and repatriating past investment through reduction in equity holding, it may be useful to turn to the definition of foreign direct investment that has become pervasive since the 1980s when countries adopted the IMF definition.

That definition treats any inflow from a single investor that leads to the acquisition of more than 10 per cent of the equity of the target firm or entity as

direct investment.
This marks a departure from the "conceptual" distinction between foreign direct and foreign portfolio investment, with the former seen as

Net decline CHART 1 Foreign direct inves 80000 70000 50000 40000 30000 20000 2022 — FDI grass - FDI net





undertaken by investors with a long-term interest and commitment seeking to earn profits from production, whereas the latter are seen as investors looking to make investments for the short term with returns expected mainly from appreciation of capital values.

The 10 per cent figure is in principle meant to provide an arbitrarily chosen empirical boundary to statistically separate out the two kinds of investment.

The dampening of gross flows of FDI may be partly explained by sluggishness in domestic demand and uncertainty regarding profits In practice, however, as the volume of purely financial capital moving into less developed countries with limited quantities of traded financial actively increased, it led to inflation in stock prices in the recipient country and a degree of stability (or even appreciation) of the exchange rate of that country.

that country. As a result, speculative portfolio investors were willing to buy into chunks of equity in individual firms in excess of 10 per cent. This, like portfolio investment, was footloose capital, which tends to exit in a context of uncertainty or falling returns.

## VOLATILE FLOWS

en considerable Recent years have seen considerable volatility with negative net flows of

investments from foreign institutional investors to the tune of \$1.4.1 billion in 202-22.3, and positive inflows of \$4.4.6 billion in 202-22.3, and positive inflows of \$4.4.6 billion in 202-23-24 and \$2.4 billion in 2024-25. This volatility is possibly what partly explains outflows from those portfolio investors, whose investment gets recorded as direct investment because of the arbitrary empirical distinction between the two.

arbitrary empirical distinction between the two.

The instability in net FDI inflow trends, in a context in which there has been a substantial accumulation of footloose portfolio foreign capital Indian markets, increases the danger of capital flight if developments abroad or domestically affect the so-call affect the developments abroad or domestically affect the so-call flight if developments abroad or domestically affect the so-call flight economy and society to external financial fragility by liberalising capital controls. That fragility has considerably increased because in a world dominated by finance, even foreign direct investment flows are not free of volatility. volatility.

investment flows are not free or volatility.

The presumption that this poses no danger because of India's large foreign exchange reserves is completely misplaced. Those reserves are built by taking on liabilities and are not free stocks generated through current account surpluses. They cannot be expended for other purposes without increasing vulnerability.

But riding on those reserves, the government has liberalised access to foreign currency, opening up other routes of enhanced outflow of foreign exchange. One such route contributes to the fall in net FDI inflows, through an increase in outward foreign direct

increase in outward foreign direct investment from India.

increase in outward to reign direct investment from India.

The concentration of capital and profits has increased hugely in recent years and left a few leading Indian business groups cash rich. With easy access to foreign exchange given the large portfolio capital inflows in recent years, as well as easy access to credit, Indian firms have decided to move out of relatively saturated domestic markets to acquire assets and invest abroad. According to one semi-official source, between April 2024 and February 2025, overseas direct investments from India amounted to \$2.0.6 billion, which is a substantial share of the \$2.9.2 billion

substantial share of the \$29.2 billio recorded in official statistics for financial year 2024-25.

nnancial year 2024-25.

There are also reasons to believe that flows of 'direct investment' to destinations such as Mauritius and even Singapore may be reflective of a round tripping exercise which too appears to be on the rise.

be on the rise.

Just as rich Indians are exploiting the liberalised remittance scheme, that allows transfer of sums of \$250,000 a year per person for a wide range of permissible transactions, to take their excess savings abroad, corporates are taking their domestic currency surpluses to foreign destinations. That reduces the quantity of net FDI. And both oursear FDI and the LBS scheme are a drain of foreign excha

# China's May exports slow, deflation deepens

hina's export growth slowed to a three-month low in May as US tariffs slammed shipments, while factory-gate deflation deepened to its worst level in two years, heaping pressure on the world's second-largest economy on both the domestic and external fronts.

external fronts.

US President Donald Trump's global
trade war and the swings in Sino-US
trade ties have in the past two months
sent Chinese exporters, along with

their business partners across the Pacific, on a roller coaster ride and hobbled world growth. Underscoring the US tariff impact on shipments, customs data showed that China's exports to the US plunged 43.5 per cent year-on-year in May in value terms, the sharpest drop since February 2020, when the outbreak of the Covid-19 pandemic upended global trade.

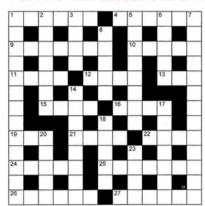
Total exports from the Asian economic giant expanded 4.8 per cent year-on-year in value terms last month slowing from the 8.1 per cent jump in April and missing the 5.0 per cent growth expected in a Reuters poll, customs data showed on Monday, despite a lowering of US tariffs on Chinese goods which had taken effect in early April. "It's likely that the May data continued to be weighed down by the peak tariff period," said Lynn Song chief economist for Greater China at 1812. ING

ING.
Song said there was still
front-loading of shipments due to the
tariff risks, while acceleration of sales

to regions other than the United States

to regions other than the United States helped to underpin China's exports, Imports dropped 3.4 per cent year-on-year, deepening from the 0.2 per cent decline in April and worse than the 0.9 per cent decline in April and worse than the 0.9 per cent downtum expected in Exports had surged 12.4 per cent year-on-year and 8.1 per cent in March and April, respectively, as factories rushed shipments to the US and other overseas manufacturers to avoid Trump's hefty levies on China and the Trump's hefty levies on China and the rest of the world.

#### BL TWO-WAY CROSSWORD 2714



#### FASY

#### ACROSS 04. Shining, full of light (6)

09. Yellow gum-resin (7) 10. Bad mark (5)

11. Captured (4)

 12. Grape-juice unfermented; new wine (4)
 06. Structure such as

 13. Owed, that ought to be paid (3)
 thyroid (5)

 15. Half-run (4)
 07. In a way giving rise

16 Eluent and plausible (4) 19. Adhesive (3) 21. A corner, recess (4)

22. Welfare payment (4) 24. (Spanish) lariat (5)

25. Hungarian dance (7) 26. Act, move very slawly (6) 27. Cordial (6)

#### DOWN

02. Easy living (7)

03. Line doubling back (4) 05. Look like (8)

07. In a way giving rise to

biased opinion (13) 0B. Small-minded (5) 14. Failure, humiliation (B) 17. A drinking spree (7) structure (5) 20. Cat's cry (5) 23. Vapour, mist (4)

# **NOT SO EASY**

01. It gave Belloc a lead to the scene of the event (6)

04. Is shining with intelligence (6)

09. Around a morass the hunted animals are yellow (7) 10. It's an awkward way to dye (5)

11. One accepted that graft was successful (4)

12. New wine must be shaken (4)
13. Is expected not to finish the four-handed version (3)
15. Bustle about with a Communist of a sort (4)

16. Smooth-spoken Latin one finds in the British Isles (4)

19. Something chewed by what chewers are set in (3)
21. Hasn't got the go-ahead for such a secluded retreat (4)

...

22. Welfare cheque will disappear if Inland Revenue's involved (4)
24. What Spanish cowboy would use a sort of tiara? (5)
25. Crass ad put out about a dance in Hungary (7)

26. Will not be in a hurry to wed lad like this (6) 27. They may have a right to be robust (6)

01. Not being heavy-handed is one's attitude to theft (5,8)

02. Give solace, from being upset in bed (7) 03. Kitty taken up on sort of line that returns (4) 05. Might look like rebels – me included (8)

06. Secreting structure in a sort of nut (5) 07. Controversially yield to Sun ten versions of it (13)

08. Time to type it out for the contemptible (5)

14. Collapse of lad flown out for it (8)17. He doesn't want one to see such a

drinking-spree (7)

18. Kangaroo needs it to hop around University College (5)

20. Aim to turn up nothing worse, at first, than a catcall (5)

23. Mistiness he found going around Arizona (4)

#### **SOLUTION: BL TWO-WAY CROSSWORD 2713**

ACROSS 1. Supplant 7. Diode 8. Respond 9. Digress 10. Pile 12. Drifter 14. Preface 17. Spot 18. Rake-off 21. Elation 22. Annoy 23. Strength DOWN 1. Scrape 2. Postlude 3. Loot 4. Nodded 5. Bone 6. Censer 7. Dignity 11. Amatory 13. Tippling 14. Parish 15. Effect 16. Stench 19. Kind 20. Kale

# THE EDITORIAL PAGE

WORDLY WISE

HISTORY IN ITS BROADEST ASPECT IS A RECORD OF MAN'S MIGRATIONS FROM ONE ENVIRONMENT TO ANOTHER.

- ELLSWORTH HUNTINGTON

# The Indian **EXPRESS**

RAMNATH GOENKA

BECAUSE THE TRUTH INVOLVES US ALL

As West-led institutions falter, a Global South-first bloc led by India could reset compass in war on terror

A new T20 for the win

NIRUPAMA RAO

## CALIBRATING AFRESH

Updating economic indicators with new data sources is a much-needed exercise. Methodology should be transparent

HE GOVERNMENT PERIODICALLY revises the base year for key economic in necootenient removalent resource. Let revese use asse year in or specionistic, and dicators such as the consumer price index (CPI), the index of industrial pro-duction (IIIP) and gross domestic product (GDP). These revisions are meant to reflect the changing profile of consumption and production in the country and incorporate newer data sources. For instance, in 2015, the Ministry of Statistics and Programme Implementation released the new series of national accounts, revising the base year from 2004-05 to 2011-12. Also in 2015, the base year for CPI was revised to 2012 from 2010. And in May 2017, the base year for the IIP was revised from 2004-05 to 2011-12. Continuing with this practice, the next year is likely to witness the release of new data series for several indicators.

series for several indicators.

In an interview to this paper, MoSPI secretary Saurabh Garg has said that the new CDP series, with 2022-23 as the base year, is scheduled to be released on February 27, 2026.

The new IIP series, with 2022-23 as the likely base, is expected to be released from 2026-72 orwards, and the CPI series, with the base year of 2024, is likely to be released from the first quarter of 2026. This exercise is likely to involve the use of several new datasets. For instance, in the computation of the CDP estimates, the use of CST and UPI transaction data is being explored. Neither dataset was available the last time around. Similarly, for the new CPI series, MoSPI is exploring new data sources such as online platforms for air and rail fare and rice data forms. the new CPI series, MoSPI is exploring new data sources such as online platforms for air and rail fare and price data from e-commerce websites. For CPI, the government has now decided to draw on the latest round of the Household Consumption Expenditure Survey of 2023–24 to figure out the items and the weights. Such regular updation of economic indicators using newer sources of information not only helps to improve their accuracy but also aids policymaking. For instance, the current base year for CPI, which forms the basis of the RBI's inflation-targeting framework, is 2012. But the household consumption basket has changed dramatically over the years. For example, cereals accounted for 10.69 per cent of the consumption basket in rural areas in 2011-12. This had declined to 457 per cent by 2023-24. For urban areas, the comparable estimates are 6.61 per cent

432) per cent by 2023-24, For urban areas, the comparable estimates are do.1 per cand and 3.74 per cent. Reweighting the items of consumption based on the latest data could thus impact headline inflation and possibly have policy implications.

These base year revisions are, however, not without controversy. For instance, the release of the CDP 2011-12 series was followed by questions over-whether it captured the state of the economy accurately. Questions were raised over the quality of some of the data as well as the deflators used. To avoid a repeat, the government should ensure that all the data sou-rces, along with a detailed account of the methodologies used in the process, are publicly disclosed. This could help users understand the estimation process and address concerns.

## A FIRM HAND

In Manipur, government must send a clear message - it will not tolerate intimidation by militias such as Arambai Tenggol

ANIPUR HAS A long and complex history of insurgency rooted in issues of ethnic identity. Historical grievances have led to the formation of militant groups within both the Meitei and the Kuki communities, like the United National Liberation Front, the People's Liberation Army, the Kuki National Army and the Zomi Revolutionary Army. The National Socialist Council of Negaland has a significant presence in northern Manipur. When ethnic violence erupted in May 2023, these networks of militancy were reactivated. The failure of the Centre and the state government to bring the situation under control has, in many areas, entrenched the hold government or oring use situation unioner control nas, in many areas, entrenced the note of these groups. This was evident in the eccent protests in Imphal over the arrest of a top leader of the Arambai Tenggol (AT) by the CBI. Asem Kanan Singh, the self-styled "army chief" of the AT, was picked up by security forces along with flour other members of the out-fif for involvement in "various criminal activities related to Manipar violence in 2023", Originally framed as a "socio-religious" body — founded by BJP MP and titular king of

Originally framed as "socio-religious" body —founded by BJP MP and titular king of Manipur Leishemba Sanajaba — the AT now operates as an armed militia. Its proclivity for violence, extortion and intimidation is well documented. In what was a chilling demonstration of its power, the AT infamously "summoned" all the elected Meitei legislators in the state, including ministers, to a meeting at the Kangla Fort in January 2024. Congress leader Jairam Ramesh had alleged back then that the Manipur Pradesh Congress Committee president. Keghachardney, was assaulted in this meeting. The state government, led by N Biren Singh, was either unable or unwilling to crack down on this group. Manipur's descent into militia-fuelled politics underscores the urgent need for the state provense it authority. In must pedala mit one as the productor however, Meinier and the state providers in authority.

state to reassert its authority. It must reclaim its role as the mediator between Meiteis and Kukis — a task that demands political leadership with redibility across ethnic lines. Following Singh's resignation and the imposition of President's Rule in February, the Centre has attempted to stabilise the situation, even as some MLAs (none of them Kuki) Dush to restore a popular government. It must do more. The Centre must send an un-equivocal message: Unlawful activities by groups like the AT will face zero tolerance. The threat is not one-sided. Around the same time as Asem Kanan Singh's arrest, the NIA ar-rested three Kuki insurgents accused of attacking a police post and killing two comman-dos in Moreh in January 2024. The state must convince all communities that peace and prosperity cannot be sacrificed at the altar of ethnic rivalry.

#### Framed in empathy

In German Chancellor's gift to Donald Trump, a story of a crossgenerational ambition that the US increasingly has little room for

OST PEOPLE, PUSHED far enough to defend an absolute moral principle, end up either in hypocrisy or irony and absurdity. Take Immanuel Kant, an extremist when it came to the universality of ethical principles. His categorical imperative would, taken to its logical conclusion, leave no room for any form of the (even, for example, to protect a person hiding from a murderer) or vio-lence (self-defence). But Kant has nothing on Donald Trump, who can wear, without a qualm, contradictions and hypocrisy on his sleeve.

The White House meeting between the US President and German Chancellor Friedrich

Merz was warm, unlike those with the Ukrainian and South African presidents, Merz gifted were zwas warm, unter those written en containant and south which are the american special is not a containant and south which certificate. Trump, visibly moved, thanked him profusely. This scene played out as Trump's government imposed travel bans on several Muslim countries, and just before the National Guard was deployed.

in California to quell protests against the detention of migrants suspected of being "illegal". No country can allow completely open borders, and 1885 (when the President's grandfather migrated to the US) is not 2025. But that doesn't mean there is no room for empathy.

America, under Trump, is closing its universities and its borders even to those already in. The harsh anti-migrant rhetoric that paints those searching for a better life with the same brush as criminals, and student protesters as security threats, seems to have forgotten that almost every American, except for the marginalised Native Americans, has roots elsewhere. Trump can appreciate his grandfather's journey and has had the advantage of the fortune that Frederick built. He can be sentimental about a birth certificate because it represents a crossgenerational ambition for prosperity and success — if only that came with a measure of understanding for those who want to repeat that tale.

THE TERROR ATTACK in Pahalgam and the bsequent Indian military response, peration Sindoor, have once again brought to sharp focus a reality that many in the into sharp focus a reality that many in the Global South line with daily. Terrorism is not just an isolated security threat, it is an ongoing war by other means. While India show-ased military precision and diplomatic discipline during the crisis, the global response to its actions also exposed gaps in the current international system's ability to credibly and swiftly respond to terror. From these developments energes a compelling case for a new platform, an India-led initiative: The T20 — Twenth Asainst Termorism.

platform, an India-led initiative: The TZO — Twenty Against Terrorism.

The Pahalgam terror attack, audacious in its planning and brutal in its execution, sparked public outrage and political consen-sus within India. Operation Sindoor, a swift, targeted milliary campaign in response, reaf-firmed India's dottrine of proactive defence. Yet, while the operation achieved its tactical goals, the international diplomatic terrain proved more complex. While allies like the United States, France, and Israel tacitty or overth supocreted India. other elobal instituovertly supported India, other global institu-tions such as the United Nations and the tions such as the United Nations and the Organisation of Islamic Cooperation (OIC) de-faulted to calls for "restraint" and "dalogue" without assigning responsibility. China, pre-dictably, shielded Pakistan diplomatically. Russia, once a reliable strategic partner, chose calibrated silence. This pattern is familiar and frustrating. The international architecture for counter-terror-ierus, including the ILI IV. The inascial Action is musical serior and in the counter of the international architecture for counter-terror-ierus, including the ILI IV. The inascial Action

This pattern is familiar and frustrating. The international architecture for counter-terrorism—including the UN, the Financial Action Task Force (FATF), and the Global Counter-terrorism Forum—either lacks teeth, is entangled in geopolitical rivalities, or remains anchored in a Western security paradigm that does not fully reflect the lived realities of terrorism in South Asia, Africa, or the Middle East.

The idea of T20—Twenty Against Terrorism—stems from this chronic mismatch between global terror frameworks

The idea of T20 - Twenty Against Terrorism — stems from this chronic mismatch between global terror frameworks and the regional intensity of the threat. It proposes a dedicated alliance of 20 countries, led by India, comprising nations from the Global South who face frequent, asymmetrical, and politically complex terror threats. These include Indonesia, Nigeria, Kenya, Egypt, Mali, Fiji, the Philippines, and others — countries that, like India, often find themselves battling both state-

sponsored and ideologically driven terrorist violence without adequate global support.

and the regional intensity of the threat. It proposes a dedicated alliance of 20 countries, led by India, comprising nations from the Global South who face frequent, asymmetrical, and politically complex terror threats. These include Indonesia, Nigeria, Kenya, Egypt, Mali, Fiji, the Philippines, and others – countries that, like India, often find themselves batting both state-sponsored and ideologically driven terrorist violence without adequate global support.

The mandate of T20 would not be to duplicate existing institutions but to supplement them with agility, real-time coordination, and a Global South-first perspective. It would focus on intelligence sharing through

tion, and a Global South-first perspective. It would focus on intelligence sharing through a joint task force: capacity building and counter-radicalisation programmes; joint diplomatic statements to name and shame state sponsors of terrorism; a permanent platform to address emerging threats like cyber-terrorism, drone-based warfare, and crypto-financing of extremism.

Having dealt with decades of cross-border terror, India has both the experience and the credibility loed ad such an initiative. Unlike the West, which often views terrorism through the lens of episodic attacks or home-

the West, which often views terrorism through the lens of episodic attacks or home-land security, countries in the Global South collision and security, countries in the Global South control that a continuous, multi-generational battle. Moreover, unlike Western coalitions that are often seen as politically selective or militarily interventionist, a T20 moetel in the Global South would command moral legitimacy and operational relevance. The timing also matters, As multilateralism falters under the weight of big-power rievalries, smaller groupings are proving more nimble and effective — be it the Quad, IZU2 or ASEAN-led security platforms. T20 fits this trend and fills a glaring institutional gap; the absence of a platform focused specifically on terror from the perspective of its most frequent victims.

Importantly, the T20 would not seek to

octims, ortantly, the T20 would not seek to

replace the UN or the FATF but to operate as a conscience-keeper and action-accelerator. It would bring in countries often left on the sidelines of global security debates. It would lend weight to bilateral diplomacy by providing collective legitimacy. And it would foster collaboration beyond the militaristic models of the past, emphasising data, digital tools, community resilience, and development-linked de-radicalisation. The moral case for T20 lies in its inclusivity. Countries like Ethiopia, Kazakhstan, STI Lanka, and Vietnam may not dominate global headines, but they, too, have faced acts of terror that scarred their national psycheck plantings are supposed as a supposed acts of the past, experience in the light provide in the ladership stature without the baggage of military entanglement. It affirms its image as a responsible, proactive power and strengthens its positioning as the voice of the Global South, With its sepreince, digital capacity, and diplomatic network, india is well-placed to bost the T20 socretariat, offer replace the UN or the FATF but to operate

capacity, and diplomatic network, India is

capacity, and diplomatic network, India is well-placed to host the T20 scretariat, offer training hubs, and shape the global counter-terror narrative from New Delhit.

Operation Sindoor was India's immediate answer to a proximate threat. But the deeper lesson is that reactive strikes, however precise, are not enough. What is needed is a shift from episodic response to permanent institutional architecture. T20 answers that call. It is an idea whose time has come, and whose unexposit some complete was the proposition of th

an idea whose time has come, and whose ur-gency is underscored by every fresh act of ter-ror that rocks cities from Srinagar to Surabaya. India must now take the next step — not just to defend isself, but to offer leadership to all those who, like it, stand on the frontline of an undeclared global war.

The writer is a former foreign secretary

# POISED TO TAKE OFF

With progress of past 11 years, India's imprint on global economy is set to expand

#### HARSH PATI SINGHANIA

AT A GDP of \$4.2 trillion. India is on the AT A GDP of \$4.2 trillion, India is on the threshold of becoming the fourth-largest economy, surpassing Japan, and is expected to overtake Germany to be the third-largest in the next few years. This is underpinned by a significant transformation across various dimensions under the leadership of Prime Minister Narendra Modi in the past 11 years. Average growth since 2014 has been 64 per cent, accelerating to 7.4 per cent in the latest quarter. This demonstrates resilience and sustained momentum in the Indian economy. Indiaton management improved marked in 1918 to no management improved marked in 1918 to management improved marked in quarter. This demonstrates resilience and sus-tained momentum in the Indian economy Inflation management improved markedly — it has come down from 9.4 per cent in 2013— 14 to 4.6 per cent today, providing much-needed stability for households and busi-

needed stability for households and busi-nesses alike. India's infrastructure development has been one of the most visible symbols of the country's economic transformation. National highways expanded from 91.287 km in 2014 to 1,46,204 km in 2024, and the speed of con-struction has increased from 12 km/day to 34 km/day. The emphasis on last-mile connec-tivity has resulted in nearly four lakh km of rural roads being built, bringing 95 per cent of rural findia into the national network — this has gone a long way in supporting rural mo-

rural India into the national network — this has gone a long way in supporting rural mobility and enhancing economic inclusion. India's railway network has seen unprecedented expansion over the past decade. A total of 25,871 route kilometres (RKM) of new tracks were laid, significantly higher than the 14,985 RKM added in the previous decade. India now leads the world in locomotive manufacturing, producing 16,81 locomotives in 2024-25. This is more than the combined output of the IS. Europea and Isans Projekt output of the US, Europe, and Japan. Freight movement has also surged, with Indian Railways becoming the world's second-

development has been one of the most visible symbols of the country's economic transformation. National highways expanded from 91,287 km in 2014 to 1,46,204 km in 2024, and the speed of construction has increased from 12 km/day to 34 km/day. The emphasis on last-mile connectivity has resulted in nearly four lakh km of rural roads being built, bringing 99 per cent of rural India into the

India's infrastructure

largest cargo transporter, handling 1,617 mil-lion tonnes annually.

Notably, railway connectivity has now reached the northeastern states — a key step reached the northeastern states — a key step towards enhancing regional integration. Its wider reach now enables Indian Railways to serve over 30 million passengers daily—a ates-tament to its scale and efficiency. The ongo-ing development of dedicated freight corri-dors is another transformative step and is expected to significantly boost efficiency in cargo movement and reduce congestion on passenger routes.

cargo movement and reduce congestion on passenger routes. Similarly, air travel has seen rapid democ-ratisation. The number of operational airports has grown from 74 to 160 between 2014 and 2025, with the UDAN scheme bringing air consecutivities persone to the consecution.

2025, with the UDAN scheme bringing air connectivity to remote towns. The government's vision of expanding to 300 airports by 2047 underfines its continued focus on logistics and accessibility.

Urban transformation has continued through the Smart Cities Mission, with over 8,000 projects and investments worth Rs 164 lablk crore. Urban transport has abo advanced, with the Delhi Metro expanding into one of the largest and most efficient metros systems globally, setting benchmarks for mass rapid transit in the country, which now reaches 15 transit in the country, which now reaches 15 Indian cities. India's progress on the clean energy fr

India's progress on the clean energy front is equally commendable. Solar capacity has grown from 2.82 GW in 2014 to over 105.65 GW, with total clean energy capacity now at 228.28 GW. This positions India as the third-largest solar and fourth-largest wind energy producer globally.

One of the major success stories of the

past decade has been the exponential growth of India's digital public infrastruc-

ture (DPI). Led by platforms like UPI and Aadhaar, this public-first approach has enabled real-time payments, direct transfers, and expanded rural banking through Jan Dhan and digital access points. DPI is projected to reach about 3-4 per cent by 2030. As the World Bank has recognised, DPI has accomplished in six years what would typically take decades. India's DPI has now been adopted in over 12 countries.

All this has led to social development as well as significant poverty reduction. Official data show that 17.1 crore people have been lifted out of poverty during his decade. The poverty rate has fallen from 29.17 per cent in 2013-14to 11.28 per cent in 2022-23, and further declines are now being reported.

powerty rate has taluen from 29.17 per cent in 2013-14 to 11.28 per cent in 2022-23, and further declines are now being reported.

As India approaches the centenary of its independence, it is now setting an agenda for global development. India's progress and resilience are evident through key reforms like GST, simplification of regulations, and removal of legal redundancies. Vet, more needs to be done to improve ease of doing business, reduce compliance burdens, enhance competitiveness, and integrate more deeply into global supply chains.

Strategic investments, governance reforms, and inclusive growth have built a strong foundation. Going forward, agility in policymaking, focus on sustainability, and deeper integration into global supply chains through improved manufacturing and skilling will be key, India's development journey, noted in economic strength and digital progress, is now aiming at long-term impact.

The waiter is shaftman and manuality.

director, JK Paper Limited and director, JK Organisation

# INDIAN EXPRESS

## JUNE 10 1985, FORTY YEARS AGO

#### 18 KILLED IN GUJARAT

national network.

IN A GRUESOME orgy of violence, at least eight persons, including three women and two children, were burnt alies in their houses and six others were killed in Army firing in the cur-few-bound Dariapur-Kalupur area of Ahmedabad. The day's tell in Gujarat was IR. Violence flared up in the Dariapur-Kalupur area under Army control when a mob botted doors of some houses and set them on fire.

FREEZE ON QUOTAS

IN A MAJOR initiative to end the three-and-a-half-month-old anti-reservation agitation, the

Gujarat government decided to maintain the status quo on the two quotas of reservation for socially and educationally backwart com-munities. The state cabinet also decided to in-stitute a judicial inquiry into the disturbances related to the agitation, it has also conceded the demand for the release of two students held under the National Security Act.

#### AKALIS REIECT TALKS

AKALI DAL (L) leaders at a huge gathering i Amritsar declared that they would hold in negotiations with an "evil and dishonest" gov ernment till it assured the dignity and self-re-spect of all Sikhs, "Our aim is justice,"

Harchand Singh Longowal told newsmen soon after the convention "and to work to-wards fruition of the Anandpur Sahib Resolution". Once successful, it will assure a stronger state and consequently, a stronger nation, he said.

#### FOR TAMIL EELAM

ACOMBINED ARMY of Tamil Eelam will soon wage a full-Bedged war against the Sri Lankan army and the government, chief of People's Liberation Organisation of Tamil Eelam KUma Maheswaran has said. Efforts were on to bring together the six major organisati fighting separately for Tamil Eelam.

## Always Emerging, **Never Emerged?**

Domestic consumption must plug shortfall in EMs

Donald Trump's efforts to set right the US' trade balance with the rest of the world will impact global capital flows. Here's how it works now: the US runs up trade deficits with emerging markets (EMs), which then park their export surpluses in US equity and debt. The size of the US economy and the proclivity of its governments to overspend corner an oversized slice of global capital. Driving global growth, EMs tend to get by on less capital than they need. This might change if Trump manages to wear EMs off their export addiction. A US economy less de-pendent on imports would not allow EM trade surpluses to balloon, and would not need matching capital flows to maintain its BoP. EMs, on their part, will have to raise their domestic consumption to keep growing faster than ced economies



BRICS has acquired a reasonable economic heft in rela-tion to G7 and, tellingly, has quite a way to go in reaching the latter's conway to go in reaching the latter's con-sumption levels. An economic struc-ture that requires EMs to focus on do-mestic demand also frees up global ca-pital for that specific purpose. Faster-growing EMs should build their capa-

city to absorb capital, as Morgan Stanley's Gokul Laroia said in an interview to this paper. Otherwise, they will remain stranded in slower-moving advanced economies. This becomes a drag when EMs pull

advanced conomies. In its Decomes a drag when EMS pull in better metrics on indebtedness than their rich cousins. This economic reset will not be painless, though. EMs may have to confront difficult choices over slower export growth, without a guarantee of a faster rise in living standards. Turning economies inward also imposes productivity costs and may potentially affect momentum.
Capital-chasing EM growth could be rerouted. These are tough calls for EM governments, but they have no choice but adapt to the new limits being set for globalisation. Trump's reciprocal tariffs should shake EMs out of their complacency over rising trade surpluses. His trade rebalancing effort is, however, likely to be drawn out, providing EMs some space to adjust policy.

## Not Just Spaced-Out, Make Science Go Pop

If all things go space-shipshape, Shubhanshu Shukla will script history later this week as the second Indian to go to spa-ce. 41 years after Rakesh Sharma's 1984 mission as part of the Soviet Interkosmos programme, Shukla's Axiom Mission-4 jo-urney to International Space Station (ISS) has reignited public urney to International Space Station (ISS) has reignited public interest in science and space. This is an ideal moment to channel that curiosity and excitement, and turn it into a full-blown trend. Making science exciting — more 'geeky,' less 'syllabus-y'— is key to building generational 'STEM cells'. The newly revamped Hall of Nuclear Power at Delhi's National Science Centre, for instance, uses motion sensors, Al exhibits, 3D walkthroughs and interactive games to make complex ideas cool. India has only 85 science museums, a scandalous number for a country of itssicanding the cool of the control of the country of the control of the control of the country of the control of the country of



ze. It's not just numbers. Sci-zones must be

scandanous number for a country or its size. It's not just numbers. Sci-zones must be more interactive, immersive, seductive. Some progress is visible, Gol-funded National Council of Science Museums (NCSM) is building science cities, digital planetariums and innovation hubs. But pace and focus need to quicken. States, too, must step up, expanding and modernising science consa and fests. Models such as the EuroScience Open Forum's 'Science in the City' offer valuable lessons in decentralising and democratising science communication. Not to mention well-produced, well-narrated science shows on streaming and cable TV that focus more on science than on Indian science per se.

Pop science must thrive in dynamic public spaces, segueing into incubation centires and knowledge zones. Both brick-and-mortar and online modes should mudge youngsters towards the sheer thrill of 'knowing doing' science. That way, we can have more Shubhanshu Shuklas sent off 'up there' from our own backyard.



# When Momo is Less

If there's one myth about India that refuses to go away, it's the one about us being a nation of leaf-eaters. The truth is far juicier. Multiple surveys show that over 70% of Indians enjoy their succulent mutton tikkas and artery-logging fish orlys. Add to that the quiet carnivores: those who eat non-veg on the sly but would never squeal. Yet, the Illusion lives on, fuelling food fights both literal and legal. Two residents of Dadar recently hauled a popular momo chain to the Mumbai Suburban District Consumer Disputes Redressal Commission — a mouthful, if there ever was one—claiming they were served chicken momos instead of veg ones. Their religious sentiments, they said, were deeply hurt — as was an 'upcoming' puja that, conveniently, had no fixed date, no deity or pandit to back it up. For their troubles, they sought \*6 lakh in damato back it up. For their troubles, they sought ₹6 lakh in dama

to back it up. For their troubles, they sought @ lakh in dama-ges, hoping to make a serious point about respecting beliefs. The commission wasn't chewing it. The invoice clearly said that they had ordered non-veg momos, and their 'evi-dence' — a few fuzzy photos and a sobstory —didn't cut the chutney. The panel did wonder why, if they were that strict, did they not stick to a 'pure-veg' joint? Even if there was a mix-up, it all sounded highly suspicious. In a land where garlic divides famillies, may be just read the bill — before chasing moksha, or compensation.

**GLOBESPOTTING** India needs a new playbook for Naya America that needs careful handling

# It Won't Be Easy, Yeh Dosti



state-sponsore therror is an and michear prolifierator.

India's nose was put out of joint by POTUS inserting himself into an India-Pak Crisis.

Trump is presiding over an andministration with postage stamp level India expertise. He was doing real estate-type 'price discovery' negotiations with India and Pakistan, and the prospect of 'stopping nuclear war 'was too inviting to resist, even though the prospect wasn't actually real.

Since then, Indiams have alter nately saliked and marted against American Perfox with officially inspired and spirely and the prospect wasn't actually real.

Since then, Indiams have alter nately saliked and marted against American Indian interests. Multiparty delegations and authoritative statements by CDS Anil Chauban have recovered a lot of ground. Nevertheless, there are certain new realities at play India has to be mindful of.

India has so continue to raise costs for Pakistan. It's the



free hand to respond to Pahalgam and did a creditable job — until US 'spread

to counsel Robert 160 Hilles Haw vin-gy-stressed Pakistan would dedicate 2,000 MW to power blockchain-based financial infra. This is clearly a way to leverage the Mara-Lago elite — of trumping India by getting into the US president's personal business space.

cryptoworld are diff for stopping the 'India Pak war'. Sergey Lavrov is pushing a Russis-India China summit before a Quad sumit later this year, bringing a gleam to Indian eyes. Chinese components are allower Russian waponry—just incase we awant to teach the West a lesson. On the other hand, Russian's spook system is increasingly wary of Chinese infiltration. But Russian's sook of the control of the control



A freak freeze that would have felt nice. ot one soul knew

Not one person, not a clue use it lasted one secu at midnight, precise.

## The AI Market

(Au) market will soar from 5 Jar Dillion in 202. erman economy) by 2033-a 25-fold increase ent UNCTAD report. By 2033, Al could quadru echnology market, rising from 7% to 29% and ant force. But there is a big global divide as Al main concentrated in a few economies...



Bell Curves = R Prasad

Begin with the miracle. so we may listen to your sermon sipping the wine!

# Engines Spooled, Now Soar



Arya Roy Bardhan

On the tarmac, India looks unstop Delhi's fourth runway and twin ele tovices are designed to raise the

dictating the terms of air operations with different nations. While ASAs are meant to facilitate travel between nations, their lack of dynamism leads to exhaustion of cape city and demand pile up. For instance, the marquee India-Dubab blaiteral stil caps each side at 65,000 weekly seats, a limit last adjusted in 39th, which is not almost sold out. It is not in still be almost a first the bilateral with Dubai.

► GDP boost IATA research finds that every 10% rise in a country's air-connec-tivity index lifts labour productivity by about 0.07%. For an economy approach-ing \$4.1 tn, even a modest 10% connecti-vity bump created by phased liberalisa-tion would add \$2.9 bn to annual output



# Sunday's Children





## A Superior Species?

#### Chat Room

#### Civilisation As a Mob

Apropos Far From Madding Crowds by Kiran Karnik (Jun the nation's high population de sity and extreme urban conge tion are a reality. Stampedes a not caused by crowds but by po-planning in the face of masse co gregations. Until tackled at po-cy and grassarvois levels, traig dies lide in Bengaluru will kee



#### Time Saved is Money Wasted

Apropos the Edit, 'Quick is Good, But Not at Such Costs' (Jun 9), in the age of instant gratification, q-comm has proved to be a boon. However, recent events highlig-ht its underlying perils. Quicker deliveries cannot undermine the

# Text&Context

#### THE MARK HINDU

#### **NEWS IN NUMBERS**

Number of drones launched by Russia on Ukraine on Sunday

Apart from drones, 20 missiles of various types were fired at different parts of Ukraine, according to the air force, which said the barrage targeted mainly central and western areas of Ukraine. Ukraine's air defences destroyed 277 drones and 19 missiles in mid-flight. Ph

#### The decrease in China's exports to the U.S. in May

In per cent. China's exports rose 4.8% last month, slowing from an 8.1% year-on-year increase in April. Imports declined 3.4% increase in April. Imports declined 3.4% year-on-year, leaving a trade surplus of \$103.2 billion. China exported \$28.8 billion worth of goods to U.S. in May, compared with \$44 billion a year earlier. #11

#### Number of Nepali nationals deported by the U.S. on Sunday

This is the largest number of Nepalis deported by the U.S. in a single day. Anjan Neupane, spokesperson for the Immigration Office at Tribhuvan Airport, said that with Sunday's deportation, 177 Nepali nationals staying illegally in the U.S. had been sent back since President Trump assumed office. Pro

#### The increase in Taiwanese shipments to the U.S. in May

In per cent. Taiwan's exports to the U.S. hit a record high in May as the self-ruled island seeks to strike a deal with Washington to avoid hefty tariffs. Taiwanese shipments to the U.S. soared 87.4% in May from a year ago to \$15.5 billion, finance ministry data showed.

#### The growth in Saudi Arabia's GDP in the first quarter

In per cent. Saudi Arabia's economy grew by more than expected in the first quarter of 2025, according to government data estimates, with lower oil prices impacting the economy less than previously forecast Oil GDP shrank by 0.5%. BELITERS

Follow us 1 facebook.com/thehindu 2 twitter.com/the\_hindu 3 instagram.com/the\_hindu

# How drones are the new face of warfare

The ubiquitous drone is rapidly becoming the weapon of choice in active combat, serving as a force multiplier to achieve strategic objectives while blurring the distinctions between military-grade and commercial technologies

#### WORLD INSIGHT

ndia's Operation Sindoor in the wake of the Pahalgam terror attack has marked a notable shift in the country's adoption of Unmanned Aerial Vehicles (UAVs) in combat. In combination with standoff weapons, India's use of UAVs in active combat represents a tactical shift in military doctrine – part of a global playbook. Ukraine's Operation Spider Web also marks a turning point in how low-cost, improvised unmanned systems can be employed with strategic impact.

#### Global precedents

The ubiquitous drone is rapidly becoming the weapon of choice serving as a force multiplier to achieve strategic objectives while blurring the distinctions between military-grade and commercial technologies. Building resilience in drone warfare requires India to build

military-grade and commercial technologies. Building resilience in drone warfare requires India to build modularity and redundancy in mass produced drones, and nurture a responsive defence production base. The Nagorno-Karabakh War in 2020 provided one of the first demonstrations of how drones can change the nature of aerial warfare with new capabilitiess. Azerbaijan's success hinged on the use of loitering munitions or Kamikaze drones, like the Israel-made Harop drones, in destroying air defences. Additionally, the war in Ukraine has emerged as a real-world laboratory for drone technology, with rapid innovation and counter innovation cycles defining modern warfare. However, Ukraine's most obvious innovation was the country's ability to produce and depley a wide variety of drones. In Myanmar also, rebel groups are deploying 3D-printed drones against a better equipped military, levelling the playing field.

As India continues to reform and modernise its military, learning and applying the right lessons from recent conflicts, including Operation Sindoor, is key. Among New Delhi's adversaries, China already has a large and diverse fleet of unmanned systems, which could provide it with an edge in a potential war along the Line of Actual Control (LAC). Pakistan too has bolstered its unmanned weapons capabilities through

Drones are vulnerable to many countermeasures such as electronic warfare, guns and air defences. The impact of drones, therefore, depends on its ability to evade or overwhelm defences

Countermeasures against drones in the form of air defences come with limitations and vulnerabilities and can be defeated through a range of technologies and tactics, making innovation and counter-innovation a critical part of drone warfare. India's counter-drone sy include multilayered sensors and weapon systems, as well as indigenously developed soft- and hard-kill counter-UAV

developed soft- and hard-kill counter-UAV systems. Both played a crucial role in thwarting Pakistan's drone and missile attacks in the recent flareup of hostillites. To evade such systems, drones can, with advanced navigation, be made to adjust flights. Similarly, Artificial Intelligence (AD and frequency hopping can be used to overcome jamming and spoofing autonomously. For instance, Ukraine has incorporated machine vision algorithms and pre-loaded terrain data to navigate complex routes in order to avoid

CM (



air defences. By operating at low altitudes, drones can exploit gaps in radar coverage and reduce the likelihood of detection.

detection.

Some drones are also designed with electronic warfare features, allowing them to jam or spoof enemy radar and communication systems. These capabilities enhance their survivability and effectiveness in contested environments. Ukrainian developers came up with a simpler solution — tethering a drone to a fibre-optic cable for guidance.

guidance.
Alternatively, employing a large number of drones and decoys to fly in mass can overwhelm and confuse air defence and surveillance systems. Russir's drone campaign, for instance, makes use of Shahed drones to saturate Ukrainian air defences. It causes dilemmas on the rate defences. It causes dilemmas on the rate of attrition of limited air defence assets,

and creates openings for precision strikes India's air defence systems tied together under the Integrated Air ommand and Control System (IACCS) performed well against numerous Pakistani drones and missile attacks Boosting procurement and domestic production of munition stocks for its air defence systems (S-400, MR-SAM, Akash, etc) will be key to building magazine depth in any protracted conflict. With regard to the offence debate, given the w survivability rate of current drones. India will need to invest in building volume in its drone and loitering munitions toolkit.

The military-commercial crossover
Ukraine's Operation Spider Web
demonstrated that low-cost UAV's
combined with accessible technologies
and innovative employment strategies can
have strategie impact deep into enemy
lines. The operation targeted four air
bases inflicting damage to Russia's
long-range bomber fleet.

The fact that almost any drone can be
used and modified to become an offensive
weapon, coupled with the widespread
use and accessibility of drones, has
blurred the distinctions between

with a drone at the Akhnoro sector near the Line of Co milliary-grade and commercial drone systems. Moreover, the indiscriminate use of the term "drones" obscures distinctions in capabilities, intended uses and public perception.

While advanced military-grade drones offer greater capabilities, they also come with higher costs and logistical challenges. Easily available commercial systems, open-source software, and modular engineering have lowered the entry barrier for the adoption of drone technologies. There is a trade-off between adding capabilities to drones and an increase in cost, size, and complexity. For example, drones such as China's Wing Loong, tran's Shahed, or Turkey's TB-2 incorporate low-cost and dual-use technologies.

Innovation in technology has not been the only novelty in drone use, for manufacturing has also changed. 3D

the only novelty in drone use, for manufacturing has also changed. 3D manufacturing has also changed. 3D printing is rapidly becoming a key multiplier. For instance, in conflict zones such as Ukraine (Titan Falcon) and Myanmar (The Liberator MKI and MK2) 3D printers provide alternate sources to mitigate manufacturing shortages. The adaptive employment of off-the-shelf drone technologies by non-state actors is providing states with valuable lessons in asymmetric and low cost aerial capabilities. For example, the U.S. and the U.K. are exploring commercial 3D printing ventures to mass produce drones

printing ventures to mass produce drone at scale in order to manufacture bespoke components of weapons systems, thereb bypassing complex, expensive and often slow moving logistic supply chains. India needs to prepare for the inevitability of easily weaponised commercial drones being used by terrorist organisations and non-state actors against its strategic and civil infrastructure. Counter-drone systems and tactics cannot be the purview of the military alone and should also be prioritised by internal security agencies.

The widespread adoption of drones in warfare signifies a shift in military strategy and operations. By deploying standoff

weapons along with drones during Operation Sindoor, India has introduced a layer of strategic ambiguity — one that expands its toolkit visa-avis Pakistan in the space between conventional and nuclear. Meanwhile, China's export of drones, among other platforms, to Pakistan adds a layer of complexity to India's security challenge.

a layer of complexity to India's security challenge. China's own drone capabilities are rapidly advancing as significant investments have been made in building up a diverse fleet of drones, including long-range systems like the Soaring Dragon, BZK-005, TB-001, and Wing Loong II alongside affordable kamilkaze drones, like the CH-901, designed to overwhelm enemy defences through swarm tactics. This poses a significant and evolving military threat to India along the LAC.

the LAC.
For India, drones complement other weapons and can partially offset capability gaps as part of an asymmetric defence strategy vis-à-vis China. However, India needs to view the wars in Ukraine, Nagorno-Karabakh, and Myanmar as cautionary tales for the need to mass produce an affordable mix of drones.

Of the many lessons from the ongoing war in Ukraine, one stands out - the importance of a defence industrial base that can keep pace with the high-intensity of modern conflict. To fully realise India's drone potential, the Ministry of Defence (MoD) needs to support the defence industrial base to be able to scale ability to reconstitute and quickly replace drones, loitering munitions after losses, and surface-to-air missiles will make India

and surface to an initial and in more resilient.
India's anaemic procurement of systems has generally discouraged industry from ramping up its production

industry from removed.

Addressing underlying structural issues
that lead to uncertain demand is key in
order to incentivise industry to ramp up
production capacity and innovation in

...

ushan Das is a strategic affairs analys: writes on defence and foreign policy.

THE GIST

The war in Ukraine has emerged as a real-world laboratory for drone technology, with rapid innovation and counte innovation and counter innovation cycles defining

For India, drones complement other weapons and can partially offset capability gaps as part of an asymmetric defence strategy vis-à-vis

Of the many lessons from the ongoing war in Ukraine, one stands out — the importance of a defence industrial base that can keep pace with the high-intensity of modern

# When triumph turned into tragedy

n June 3, Royal
Challengers Bengaluru
(RCB) claimed its
maiden Indian Premier
League (PL) title at the Narendra
Modi Stadiumi in Ahmedabad.
When Virat Kohli announced that
night that celebrations would
extend to Bengaluru the next day,
the atmosphere turned electric.
Fans in Bengaluru celebrated with
gusto the entire night, with
firecrackers and full-throated
chants and slogans. The wait for
the title for 18 long years led to a
burst of emotions and joy. What burst of emotions and joy. Wh added to this excitement and the hurry to celebrate immediately was the imminent departure of Kohli the next day to London

#### Unheeded advice

What was missing in this tremendous build-up to the victory parade was a calm and rational response from the administrative arm of the government. Amid the frenzy government. Amid the frenzy, according to reports, the Police Commissioner, B. Dayananda, rightly advised restraint and suggested that the celebrations be held a few days later. But the government allegedly did not listen to his advice. There there is no clarity yet on why this was the case. It is well known that any State government would like to cash in on such an event for political gains. This government was clearly no different.

A Police Commissioner can

A Police Commissioner can directly talk to top hierarchy of the government. He should have got a clear 'yes' or 'no' from the Chief Minister. If the Chief Minister wanted to go ahead with the function, the police would have function, the police would have had no choice but to make the arrangements. What actually seems to have happened is that no one took a clear decision. Thus the celebrations in the crowded metropolis were ill-conceived and the messaging unclear, which became a recipe for disaster. It was clear that the State government made the event look like a State function. Deputy Chief Minister D.K. Shivakumar went to



#### Yashovardhan

IPS officer (retd.), is former Central is former Central Information Commissioner; former Special Director, Intelligence Bureau; and former Secretary, Security, Government of India the airport to receive the champions. The government invited the team to Vidhana Soudha, the seat of State Legislature and Secretariat. There, Chief Minister Siddaramaiah and and Governor Thawarchand Gehlot congratulated the team. Another function was held for fans at the Chinnaswamy Stadium and Mr. Shivakumar was present at that event. The function at Vidhana Soudha gave the public Vidhana Soudha gave the public adequate time to throng the stadium. More than 2 lakh people reportedly congregated at the gates, leading to the stampede that claimed 11 lives.

The police were clearly overwhelmed by the sheer numbers and the lack of medical and other facilities. According to reports, the passes or tickets that were to be given to fans to go inside the stadium were to be given near the gates. Communication completely collapsed. It was claimed th collapsed. It was claimed that news of the stampede did not reach the venue of the function. The celebrations inside the stadium happened even after tragedy unfolded outside.

Where were the officials? It was surprising that Mr. Dayananda was finally suspended. After all, he was the one who had apparently warned the government against holding the function at such short notice. After being our on the stream the entire. being out on the streets the entire night of June 3-4, the police force was hardly in a position to make arrangements for a massive victory parade of the RCB team. It is also surprising that the Chief Minister did not have the correct picture of the potential consequences of holding such massive celebrations the next day The Intelligence chief is mandated to give such information and assessment beforehand. In this assessment beforehand. In this case, a massive crowd at the stadium was expected. What were the Home Secretary and Chief Secretary doing? They too must have been aware of the impending law-and-order situation surely? And what about the head of the force – the Director General of Police? Should he not have taken a stand? So, is the Police Commissioner the fall guy? Support has been pouring in for him on social media for advising the government correctly. Not one finister has been able to give a justifiable, logical argument as to why this happened or how it was allowed to happen.

We also need to ask why the government chose to be associated

We also need to ask why the government chose to be associated with this programme. This is not the Karnataka Ranji Team. It is a cricket league run by a private franchise. During the IPL, a couple of cricket teams owned by rich people select players through an auction. Money pours in from advertisers and sponsors because the public loves to see sixes flying er the stadium. Yet the cricket mania seems to h gripped politicians too. By holding a State function and having

a State function and having politicians meet the players elevated this championship victory to a much higher status. The RCB management and the Karnataka State Cricket Association clearly took advantage of the government's indecision and went ahead with their plans to giorify themselves and market their achievements. The police have said that they did not grant permission for a victory parade, permission for a victory parade, but the RCB management took to social media on the morning of June 4 and announced a victory parade nevertheless. The State government ignored the advice of the key official and joined in the premature celebrations. Worse, instead of owning up to it and asking one of its own to resign, it

asking one of its own to resign, it suspended the Police Commissioner, holding him solely responsible for the tragedy.

As usual, the government has constituted a one-man judicial commission to probe the tragedy. As the commission goes about its work, the real issues – the unforgivable lapses in administration – will remain obfuscated and slowly get buried in the sands of time.

## Foreign aid and financial woes

The stand-off between the Kerala government and the Centre continues

Tiki Rajwi

tra had been allowed to receive foreign contributions under the Foreign Contribu tion (Regulation) Act (FCRA), the CPI(M)-led Left government in Kerala was quick to depict this as yet another act of discrimination against the southern State by the Centre. It recalled that the Centre had declined the Kerala government's plea for accepting fo reign aid in the days following

ment's piea for accepting to-reign aid in the days following the 2018 floods – a catas-trophe that left large-scale destruction in its wake.

Kerala Finance Minister
K.N. Balagopal said that while his State welcomed the appro-val for Maharashtra, it be-lieved that it was unbecoming of the Central government to indulge in "political bias" in moments of great crisis. He stressed that it is important that the Centre treats every State equally. He added that it was unfortunate that politics, and not the scale of disasters, had become the yardstick in such matters. This was an ap-parent reference to the fact

such matters. This was an apparent reference to the fact that the BJP-led Malayuti coalition governs Maharashtra. In the aftermath of the floods, the Centre had sparked a controversy by declining permission for Kerala to accept foreign aid, including a reported ₹700 crore offer from the UAE. Kerala's discomitture with the foreign aid nod to Maha-

Kerala's discomiture with the foreign aid nod to Maha-rashtra is the latest episode in a protracted stand-off bet-ween the State and Centre. Kerala believes that it is being discriminated against, and de-



nied its fair share of financial resources by the Centre. It has repeatedly complained about drastic cuts in financial allocations to it, and the "unfair li-mits" placed on its fiscal space. The Kerala government had taken the battle over restrictions on its borrowing capacity to the Supreme Court.

On the political front, the
CPI(M)-led Left Democratic

CPI(M)-led Left Democratic Front (LDF) has consistently accused the Centre of attempting to "financially choke" Kersewed policies for the State's financial woes. The State sewed policies for the State's financial woes. The State government believes that recent Union Budgets have also caused disappointment to the State, as they have ignored pressing demands on the financial front. For instance, Kerala's plea for a 724,000 crore economic package to prop up its finances were not mentioned in the 2024-25 and 2025-26 Union Budgets. More 2025-26 Union Budgets. More recently, the government slammed the Union Finance Ministry for cutting a little ov-er ₹3,300 crore from its bor-

er ₹3,300 crore from its borforming limit for the 2025-26
fiscal under the pretext of the
Guarantee Redemption Fund.
The foreign aid nod to Maharashtra also presented the
LDF government an opportunity to reiterate its dismay
over the Centre's approach to
the deadly July 30, 2024, landsildes in Wayanad district. In
the aftermath of the tragedy,
the Kerala government had
announced plans for a structured rehabilitation pro-

gramme, which included the building of townships with amenities for survivors. Mr. Balagopal said that the people of Kerala had, on two instanc-es, expected Prime Minister Narendra Modi to announce special aid to Wayanad: first, when he visited that district August last year; and second, when he visited Thiruvanan-thapuram to inaugurate the thapuram to inaugurate the seaport at Vizhinjam. On both occasions, their hopes were dashed, he said.

dashed, he said.

Time and again, Kerala has accused the BJP government of paying scant regard to cooperative federalism – the driving spirit of Centre-State relations. It is evident that the trust deficit between the two entities on financial matters entities on financial matters persists, notwithstanding the much-discussed breakfast meeting that Chief Minister Pinarayi Vijayan hosted for Union Finance Minister Nirmala Sitharaman at New Delhi in March. It remains to be seen how Kerala's financial grievances concerning Union government policies will be addressed, as the southern State inches closer to a frenetic election season. The by-election in the Nilambur Assembly constituency in Malappuram district is scheduled to take place on June 19; elections to the ruon June 19; elections to the ru-ral and urban local bodies are scheduled to take place to-wards the end of 2025; and the Legislative Assembly polls are set to take place in the first half of 2026.

In matters of State finances, Kerala will be keenly watching the recommendations made the recommendations made by the 16th Finance Commis-sion led by Arvind Panagariya later this year. The State has sought a higher share of re-sources, arguing that its share of the divisible pool was brought down to 1.92% under the 15th Commission from 3.88% under the 10th.

## Delimiting by electors rather than population offers a fairer approach

The principle of 'one person, one vote, one value' is more closely aligned with the number of electors than population

## DATA POINT

#### Anish Gupta

everal recent articles in the mainstream media suggest that a delimitation exercise that a delimitation exercise
- if carried out with population as
the primary criterion for allocating
parliamentary constituencies
(PCs) - would disproportionately
disadvantage the southern States.
Proponents of this view argue that
the southern States, having adhered more rigorously to family
planning norms than their northern counterparts, would either receive comparatively fewer PC seats
or could even be left with less seats
than what they have currently.
But the broader question that

But the broader question that has not been adequately discussed is: what is the most rational criterion for allocation of PCs: popula-tion or the number of electors?

rion for allocation of PCs: popula-tion or the number of electors?

Electors in a constituency are not always a subset of the popula-tion. Many electors may live out-side their registered PCs, or may have failed to register. Census re-cords are sensitive to migration, as they are based merely on a stay of six months or more (or even an in-tention to stay), without even re-quiring any proof of residence or registration in the voter list. Mi-grants also generally avoid/delay transferring their voter registra-tion for various reasons. Purther-more, variations in the age struc-ture—such as a higher proportion of under-18s — may also lead to large differences in elector num-bers between PCs with similar populations. Importantly, the populations. Importantly, the principle of 'one person, one vote, one value' aligns more closely with electors than the population. Us-ing elector data avoids the wait for a Census and offers a more accurate measure of representation.

Elector disparity The value of a vote can be considered inversely proportional to the number of electors in a PC. Data shows that vote value has varied

CM CM

ignificantly across regions and over time. Union Territories (UTs), hilly States, and north-eastern States have consistently had a dis-proportionately high vote value from 1951 to 2024, due to geo-

The celebrations

in Bengaluru were ill-conceived

and the unclear, which became a recipe

proportionately high vote value from 1951 to 2024, due to geographical considerations and the minimum representation requirement from each State.

When comparing the southern States with other States, we find that they started with a higher vote value in 1951. However, this trend reversed, and they recorded a lower vote value in 1961, 1971, 1980, 1991, and 1999. The trend reversed once again, with the southern States registering a higher vote value in 2009, 2019, and 2024. It shows a mixed pattern, with the percentage difference in the average number of electors between the southern States and other States ranging from 10.5% to 5%. Importantly, the southern

Importantly, the southern States began with a higher vote value per parliamentary constituen-cy when the first Parliament was formed in 1951. This initial advan-

formed in 1951. This initial advan-tage may have potential long-term implications for government poli-cies and initiatives, development outcomes, and more.

Moreover, among the five lar-gest and five smallest PCs (exclud-ing hilly/UTS/north-east) in terms of electors, four in each group are from the southern States. The va-lue of a vote in Idukki is 4.5 times higher than in Malkajgiri and 2.6 times higher than in Bangalore North. This indicates that rational-isation of PCs is more needed in the southern States.

Rajya Sabha representation According to the elector data for 2024, the southern States account for just 22.45% of India's electors, yet they hold 23.8% of Lok Sabha seats. Their representation in the Rajya Sabha is even more skewed, raya saona is even more skewed, at 24.4%, exceeding both their share of electors and their Lok Sabha seat share. The pattern is re-versed for the other States. Alth-ough they comprise 71.2% of In-dia's electors, they hold only 67.4% of Lok Sabha seats and just 64.4% of Rajya Sabha seats. In particular, Tamil Nadu has 39 Lok Sabha seats

of Rajya Sabha seats. In particular, Tamil Nadu has 39 Lok Sabha seats which is lower than Bihar's 40 or West Bengals 42; but it has 18 Rajya Sabha seats, which is more than the 16 seats allotted to both Bihar and West Bengal.

The fairer approach is to allocate seats based on electors. In the table, column 4 shows the proposed PC seats if the total number of seats is raised to 800. To avoid penalising smaller States and UTs, their current seat count is preserved, which results in a total of 810. The table shows that among the large States, Rajasthan (76%), Karnatkak (60,7%), and Telangana (S.8.8%) would see the highest percentage gains in seats.

The current narratives — that

The current narratives – that PCs are allocated solely on the ba-sis of population, and that the potential reduction in seats in south-ern States is primarily due to their tential reduction in seats in south-ern States is primarily due to their strict adherence to family plan-ning policies – are not entirely ac-curate. First, constituency alloca-tion has never been based purely on population. Other considera-tions, i.e., geographical challenges and minimum representation, have always played a role. Second, linking political representation to population control sets a danger-ous precedent. By that logic, simi-lar claims could be made for repre-sentation based on religion or caste. For instance, Jains, among all religious groups, and upper caste, among all social groups, have the highest adherence to population control, while Muslims and Scheduled Tribes have com-paratively higher fertility rates. Third, when the criterion of using population for the formation of population for the formation of PCs was originally adopted, the consequences of the population enumeration method and the impact of large-scale migration were not anticipated. Therefore, the principle of 'one person, one vote, one value' in a true sense is more closely aligned with the number of electors rather than the population across PCs

#### An alternative choice

The data is based on the author's calculations using the 2024 electoral list Table: The proposed number of Parliamentary Constituencies (PCs) based on the number of electors

Andhra	25	4,14,01,887	33.9	34	36
Karnataka	28	5,47,72,332	44.8	45	60.7
Kerala	20	2,78,07,008	22.7	23	15
Tamil Nadu	39	6,24,04,947	51	51	30.8
Telangana	17	3,32,32,318	27.2	27	58.8
Bihar	40	7,72,59,579	63.2	63	57.5
Chhattisgarh	11	2,06,78,667	16.9	17	54.5
Gujarat	26	4,80,09,945	39.3	39	50
Haryana	10	2,01,87,911	16.5	17	70
Jharkhand	14	2,58,77,892	21.2	21	50
Madhya Pradesh	29	5,66,68,852	46.4	46	58.6
Maharashtra	48	9,306,1,760	76.1	76	58.3
Delhi	7	1,52,14,638	12.4	13	85.7
Odisha	21	3,37,16,965	27.6	28	33.3
Punjab	13	2,15,67,196	17.6	18	38.5
Rajasthan	25	5,35,08,010	43.8	44	76
Uttar Pradesh	80	15,44,03,112	126.3	126	57.5
West Bengal	42	7,61,24,780	62.3	62	47.6
A&N Islands	1	3,15,745	0.3	1	0
Arunachal	2	8,98,442	0.7	2	0
Assam	14	2,45,72,114	20.1	20	42.9
Chandigarh	1	6,60,552	0.5	1	0
DNH & DDA	2	4,17,236	0.3	2	. 0
Goa	2	11,79,644	1	2	0
Himachal	4	57,11,969	4.7	5	25
Jammu & Kashmir	5	88,02,348	7.2	7	40
Ladakh	1	1,90,576	0.2	1	0
Lakshadweep	1	57,953	0	1	0
Manipur	2	20,51,357	1.7	2	0
Meghalaya	2	2230451	1.8	2	0
Mizoram	1	8,61,327	0.7	1	0
Nagaland	1	13,25,383	1.1	1	0
Puducherry	1	10,24,024	0.8	1	0
Sikkim	1	4,66,643	0.4	1	0
Tripura	2	28,70,896	2.3	3	50
Uttarakhand	5	84,31,101	6.9	7	40
AllIndia	543	97,79,65,560	800	810	49.2

"\*Rounded off and without any decrease in the existing number of seats for the sr States/UTs | \*Dadra and Nagar Haveli and Daman and Diu nics at Delhi School of Econo

## FROM THE ARCHIVES

## The MAR Trindu.

FIFTY YEARS AGO JUNE 10, 1975

#### Govt. considering action on U.K. restrictions on Indian doctors

New Delhi, June 9: The Health Ministry is

New Delhi, June 9: The Health Ministry is expected to come out soon with the steps proposed to be taken in the wake of the decision of the General Medical Council of Britain to place curbs on registration of Indian doctors. The Director-General of Health Services, Dr. J.P. Shrivatsava, to-day had a meeting with the Secretary of the Medical Council of India, Dr. Krishnan, and representatives of the Indian Medical Association and discussed the various issues arising from the British decision. Dr. Shrivatsava, who had met the Indian High Commissioner and Indian doctors in London on his way back home from Geneva after attending the WHO session last week, is reported to have apprised the meeting to-day of his talks in London.

Although the British Medical Council has attributed its decision to its inability to monitor the standard of medical education in India, the feeling in official circles here is that the decision is motivated by a desire to reduce the number of overseas doctors, particularly from non-European countries.

A HUNDRED YEARS AGO JUNE 10, 1925

#### Mahatmaji in Bengal

Siliguri, June 9: Long before the arrival of Mahatma Gandhi the hill people mustered strong at all principal stations of the cart road running from Siliguri to Darjeeling. It was II in the morning. The weather was not clear and a thick mist kept hanging on the hills. A good number of hillmen had assembled at the Kurseone Railway Station to welcome the number of nilmen had assembled at the Kurseong Railway Station to welcome the Mahatma. The Mahatma, who arrived in a motor car, was greeted with thundering roars of "Mahatma Gandhi ki jai" from all sides. The hill-men were so moved that not a few eyes were welled up with tears. Any one who had the opportunity of touching the feet of the Mahatma

thought that he was absolved of all sins.

Mahatmaji's car made its way slowly through
the ever increasing crowd of human beings and it took almost an hour to cover a distance of half a mile. Men clung to the car like ship-wrecked

#### ARSTRACT



# How extracting and producing nickel can be made more sustainable

Nickel is an important metal used in several clean energy technologies, especially electric vehicles. The demand for it is expected to surpass six million tonnes a year by 2040. However, producing just one tonne of nickel can result in more than 20 tonnes of carbon dioxide emissions

#### Hirra Az

Manzoor, U., Mujica Roncery, L., Raabe, D. et al, 'Sustainable nickel enabled by hydrogen-based reduction', *Nature* 641, 365-373 (2025). doi.org/10.1038/s41586-025-08901-7

ickel powers everything, from gadgets to green technologies. But getting it currently involves But getting it currently involves a far from green, in fact, a dirty process. However, a new study has revealed what its authors have said is a game-changing and sustainable method to extract nickel from low-grade ores using hydrogen plasma instead of carbon. It's a one-step process free of carbon dioxide that reportedly saves both energy and time.

and time.

Nickel is an important metal used in several clean energy technologies, especially Electric Vehicles (EVs), and the demand for it is expected to surpass six million tonnes a year by 2040. While EVs are seen as a cleaner alternative to traditional fossil fuel-powered vehicles, there are hidden environmental costs associated with their production, especially in the manufacturing of lithium-ion batteries.

A major component in these batteries

A major component in these batteries is nickel and its extraction is highly carbon-intensive. Producing just one tonne of nickel can result in more than 20 tonnes of carbon dioxide emissions. So while EVs reduce emissions during operation, the process of sourcing materials like nickel simply shifts the pollution burden from the transportation sector to the mining and processing sector, among others.

#### The methodology

The study, published in *Nature* on April 30, was conducted by researchers at the Max Planck Institute for Sustainable

Materials in Düsseldorf, Germany. In the study, the researchers bypassed the traditional multistep process to extract nickel – which includes calcination, smelting, reduction, and refining – and developed a single metallurgical step conducted in one furnace. "The proposed method has the potential to be up to about 18% more energy efficient while cutting direct carbon dioxide emissions by up to 84% compared with the current

practice," the paper wrote. Ubaid Manzoor, a researcher at the Ubaid Manzoor, a researcher at the Max Planck Institute and lead author of the study, said, "Traditional nickel extraction is multi-step, energy-intensive and relies on carbon. Nickel oxide is heated with carbon, which removes the heated with carbon, which removes the oxygen, producing pure nickel, along with carbon dioxide emissions." The researchers have proposed replacing carbon with hydrogen as the reducing agent and using electricity as the energy source, specifically through an electric arc furnace.

source, specifically through an electric au-furnace.

"In our method, we use hydrogen plasma. Hydrogen gas, when subjected to high-energy electrons in an electric arc, splits into high-energy ions, entering a plasma state – the extremely hot and reactive fourth state of matter. It is distinct from solids, liquids, and gases. This hydrogen plasma rapidly reduces the metal oxides. From a thermodynamic perspective, the process is not only perspective, the process is not only cleaner but significantly faster," Mr. Manzoor said. He added that the method is kinetically superior – meaning the chemical reaction is more energetically favoured - thanks to the highly reactive

and unstable nature of plasma.

"The end product of hydrogen reacting with oxygen is water, not carbon dioxide. Therefore, the entire process is carbon-free, using only electricity, hydrogen, and yielding water as a byproduct," he added.

Enabling sustainable production The study focused on laterite ores, a type of soil-rich rocks that contain metals like nickel. They form in hot, tropical regions when rain and heat break down rocks over time, leaving behind metal-rich layers. They are abundant but tough to process. "While sulphide ores are found deeper underground and are easier to process, they're rapidly depleting. The new method used in the study works efficiently on laterites, making it key to future nickel production," Mr. Manzooi

India has substantial nickel laterite reserves, particularly in Odisha's Sukinda region. "These deposits, containing 0.4-0.9% nickel as nickeliferous limonite in chromite mine overburden, are often overlooked because traditional methods require higher-grade ores. But (the team's method) excess at extracting value from these lower-grade resources," Dierk Raabe, professor and director of the Max Planck Institute and co-author of the study, said. He added that the technology could play a major role as the demand for sustainably produced materials continues to grow. India has substantial nickel laterite

"Without such innovations, the sustainability revolution — whether in electrification, renewables, or green infrastructure — risks merely shifting the carbon dioxide and energy burdens from one sector to another. In other words, we might build a 'greener' world through EVs, solar panels, and high-performance magnets while still relying on carbon-intensive methods to mine and refine the critical metals ... that make all of it possible," he said.

The inescapable demand for nickel in multiple industries and its traditionally carbon-intensive production pose "a particular challenge for countries like India, where rapid industrial growth is

India must simultaneously meet ambitious climate goals and leverage market opportunities in the green economy," Mr. Raabe added. He continued that the technology aligns well with India's dual goals — to

angis wen win mid a stud goals – to accelerate industrialisation and infrastructure development while staying committed to the goal of achieving net-zero emissions by 2070. It also reduces the need to import high-grade ores and maximises the potential of domestic, underutilised mineral assets, he added.

he added.

Some challenges

Pratik Kumar, assistant professor in the Department of Civil Engineering at IIT-Jammu and who wasn't associated with the new study, said this research could be a very appropriate method for nickel extraction from an one, especially when the world is thinking critically in the direction of carbon neutrality. The method produces high-purity ferronickel — an alloy with which stainless steel can be made — eliminating the need for extensive refining steps and making the overall process more sustainable on paper. "However, the scalability of the mentioned study to an industrial production would involve certain challenges, including a high initial investment in infrastructure and renewable energy and limitations in ore supplicability. Mean further in depart much departs and control of the control of renewable energy and limitations in ore applicability. Also, further in-depth study on thermodynamic kinetics may be required along with a demand for continuous free oxygen species supply at the arc-melt interface," Mr. Kumar

"Despite these hurdles, the study offers a promising, sustainable alternative to conventional nickel extraction methods."

Hirra Azmat is a Kashmir-bas journalist who writes on science, health and environme

FROM THE ARCHIVES

## Know your English

...the waiter brought us some soup. nat's when we had the big argument." "What was the argument about?"

"That's when we had the big argument."
"What was the argument about?"
"Well, Mala said one 'drinks' one's soup. Who is right. — Me or Mala?"
"You're both right. You can either drink or eat your soup depending upon the kind of soup it is. If it is a thick soup, with lots of chunks of vegetables in it, then you could eat your soup."
"But if the soup is watery..."
"...not watery, but thin."
"O.K., thin. If it is thin and doesn't contain chunks of meat or vegetables in it, then you drink it, I suppose."
"That's right. So, did you drink or eat your soup?"

"Well, I ate mine and Mala drank hers."
"I see. Did she show you the paper
she'd written after you had finished the soup?"
"Yes, she did. But it was illegible.

"Was her handwriting that bad?"
"No, her handwriting was great. It's
just that I didn't understand anything."
"Well, in that case, it wasn't 'illegible',
but 'unreadable'."

"What's the difference between unreadable and illegible?

"When you say someone's handwriting is 'illegible', it means it is so unclear that you cannot see what the letters or you cannot see what the letters or numbers are. For example, as people get older their handwriting becomes illegible." "You don't have to grow old for your handwriting to become illegible, I can assure you. You should see some of my classmates' handwriting?" "That's true. Most doctors' handwriting is illegible. Only the person at the medical store can read it." "At least we think they are able to read it Tell me, what does 'unreadable' mean?"

mean?"

"When you say that a book or paper is 'unreadable' it means it is very difficult or unpleasant to read, especially because it is dull or complicated."

"I see. So when something is unreadable, the handwriting is clear, but it is difficult to understand the contents?"

"Well, yes. For example, most scholarly papers are unreadable."

"What about law documents? Theory was the contents of the contents of the contents."

What about law documents? They are definitely unreadable. Even a person with a PhD in English can't make sense of

"That's true. I find some of the "A large amount of those books are

'Not a 'large amount', but a 'large

"Not a 'large amount', but a 'large number.' Nou use 'large amount' only with uncountable nouns. For example, we had a large amount of rain this year.' "My father bought a large amount of ghee today. My mother is planning to make a large amount of laddus tomorrow."

tomorrow."
"Not 'a large amount of laddus', but 'a large number of laddus'. Laddu is a countable noun, so you say 'a large number of'."
Published in The Hindu on November 5, 1996.

## THE DAILY QUIZ

## The Indian cricket team will start its Test series in England from June 20. A quiz on the performance of India and its cricketers in their previous tours to the Old Blighty

#### Soorya Prakash. N

#### QUESTION 1

This is the 20th Test series for India in England including the one-off test held in June 1932 which marked the debut of India in Test cricket. How many series has India won playing in England so far?

#### OUESTION 2

India has won only nine out of the 64 tests that it has played in England so far. Which is its most successful round?

#### OUESTION 3

ed the most runs for India

o batsmen to score a CM C

QUESTION 4

double 100 on English soil?

hich bowler took five wickets in the very first innings in the debut test played by India in 1932?

#### QUESTION 6

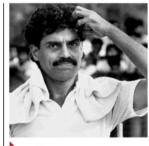
Who is the only bowler to have taken 10 wickets or more in a Test match in England?

#### **OUESTION 7**

Who is the only wicket keeper to effect five or more dismissals in an innings?

#### **OUESTION 8**

QUESTION 8
The third Test played at the Edgbaston,
Birmingham in July 1967 is etched in Indian
cricket history as four bowlers scalped 18
out of the 20 Figish wickets amongst
them. This is the only Test that these
famous four cricketers played together. Who
are they?



This is the only non-English cricketer to score the indreds at Lords's which is touted to be the Mecca of cricket, Name him, THE HINDU PHOTO ARCHIVES

- Questions and Answers to the previous day's daily quiz: 1. Name the railway stations on the Jammu-Baramulia line between which the Chenab bridge is located. Ans: Kauri and Bakkal 2. The Ponte Yecchio and 'Bridge of Sighs' is located here. Ans: Florence
  3. A bundle of hay must be suspended when work is happening on this bridge. Ans: Tower Bridge in London

- In London
  4. This bridge holds the record for the tallest bridge in the world. Ans: Millau Viaduct
  5. The distinct paint for this iconic bridge is currently supplied by Shewin Williams. Ans: Golden Gate Bridge
  6. This bridge connecting Demmark and Sweden
- runs for 8 kilometres before transitioning into an underwater tunnel for 4 kilometres. Ans: Øresund

Bridge Visual: The State where one can see 'living root'

Bridges. Ans: Meghalaya
Early Birds: Erfanally Oosmany| Arun Kumar
Singh| Arvind Tillway| Pranab Biswas| Dashleen
Kaur

#### Word of the day Besmirch:

charge falsely or with malicious intent; attack good name and reputation of someone; or so as to make dirty or stained

Synonyms: defame, denigrate, slander,

Usage: Their reputations were besmirched by

Pronunciation: newsth.live/besmirchpro

## International Phonetic Alphabet: /br/sma:tf/

For feedback and suggestions for Text & Context, please write to letters@thehindu.co.in with the subject 'Text & Context'



# A critical test for institutions

An early resolution is called for in the hate speech allegations against Justice Shekhar Kumar Yadav

he Supreme Court stopped short of instituting an internal probe into the conduct of Justice Shekhar Kumar Yadav, a sitting judge of the Allahabad High Court, following a March letter from the Rajya Sabha secretariat raising issues of jurisdiction, this newspaper reported Monday.

The letter reiterated the process as referred to by Rajya Sabha chairperson and Vice-President Jagdeep Dhankhar previously in February in Parliament — that only Parliament and the President have the jurisdiction to proceed against the judge, who is in the dock for alleged hate speech against Muslims delivered in anegeo nate speech against mustims delivered in December 2024. Even as the Supreme Court took note of that speech, a group of 55 opposition MPs filed a notice in the Rajya Sabha seeking Justice Yadav's impeachment for "grave violation of Judicial ethics". As per the law, the removal of a high court or Supreme Court judge for "proved misbehaviour or incapacity" must go through Parliament. The chairperson will now have to decide on the admissibility of the motion

and if an inquiry needs to be held. The Rajya Sabha chairperson, who has been vocal about judicial integrity and institutional probity, should ensure that the complaint against the judge is now processed in a transparent manner and concluded before the judicial officer retires in April next year. A timely closure in the matter is necessary to ensure that there is no reputational damage to the judiciary, Parliament, or the concerned judge, in case

Judiciary, Fariament, or the concerned judge, in case he is found innocent of the alleged hate speech.

Interestingly, while Justice Yadav, reportedly, regretted his conduct and assured the Supreme Court collegium that he will render a public apology in a closed-door meeting with it in December, he has not issued one and instead defended his speech. delivered in a meeting of Vishwa Hindu Parishad activists in Prayagraj, as reflecting India's cultural ethos. A judge is bound by oath to protect constitutional values, not articulate majoritarian sentiments or populist views, even if they are part of some perceived cultural ethos. Any deviation is a violation of the oath and compromises the integrity of the judiciary. The Justice Yadav case presents a critical test. It is not

merely about the conduct of one judge but will have wider implications for the principle of separation of powers and commitment of public institutions to constitutional ideals. How this matter is now handled by the Rajya Sabha will set an important precedent for the future of India's democratic institutions

## In Madurai, the BJP's pitch to win Tamil Nadu

amil Nadu's assembly elections are due only in April next year. However, the BJP has already sounded the poll bugle. Union home minister Amit Shah addressed a public meeting in Madurai on Sunday, where he accused the ruling DMK of running a corrupt government. He also flagged Operation Sindoor and reminded the audience that Prime Minister Modi had installed the sengol (sceptre) at the new Parliament premises. With an alliance with the AIADMK, the chief opposition party, almost in place, the BJP seems to have readied its arsenal to launch a poll battle in Tamil Nadu.

That Shah chose to launch the BJP's campaign in Madurai is not at all surprising. Madurai is both the state's cultural capital and the gateway to southern Tamil Nadu, a region where the BJP has made significant inroads since the 1980s. But can the BJP translate these gains into electoral wins? Shah's speech suggests that the party is likely to rely on nationalism, corruption allegations and faith to tide over the formidable political alliance that the DMK leads. In recent years, the DMK has doubled down on its Dravidian legacy, also in a bid to corner the BJP on charges of promoting a Hindi-Hindu nationalism, which it claims is against the political and cultural ethos of Tamil Nadu. The BJP has also embraced local symbols (sengol, for instance) and faith traditions to appeal to the faithful in the state. Shah pointedly spoke about the Murugan conference that Madura is set to host later this month. Five years ago, the party had held a Vel (spear) Yatra to appeal to followers of this popular Tamil deity. Considering the competitive nature of Tamil politics, with multiple fronts likely to be in the fray, any incremental gains in vote share can make a difference to the outcome. The BJP is aware of it.

# India's stakes in the coming Arctic Rush

in the polar region, which has rich energy sources and hosts two shipping routes that will open up in the coming years

the coming years

In March, Russian ambassador to India Denis Alipov addressed a conference on the somewhat arcane topic of Uniting North and South for Sustainable Development in the Act of the India March of the India Mar

This diplomatic outreach needs to be viewed in the light of rapidly deep-ening China-Russia cooperation in the Arctic, driven by a convergence of eco-nomic and strategic interests, particu-

larly in the context of Western sanctions on Russia and China's future Polar Silk Road initiative. Observers have noted that the theme of Arctic collaboration has become a recurring agenda point in every Putin-Xi Jipping meeting since 2022.

In India, while the polar regions may not figure prominently in popular imagination. India's scientific community— with full political support— has been engaged in polar research since 1981. Reflecting the growing commitment of the political support— has been engaged in polar research since 1981. Reflecting the growing commitmospheric science, the climate crisis, glaciology, and polar biology, the Goa-based National Center for Polar and Ocean Research has been implementing India's policy for polar studies.

India established its first research base in Antarctica at Dakshin Gangotri, in 1983-494, with Maitri and Bhanatt being constructed later. In the Arctic, Cladica at Dakshin Gangotri, in 1983-494, with Maitri and Bhanatt being constructed later. In the Arctic, Council, an inter-governmental body, comprising the eight Arctic nations, including Canada, Denmark, Norway, Russia, the U.S. Weeden, Pinland, and Iceland. The significance of India's early and active interest in polar affairs is best understood vis-4-vis the approach adopted by other nations, significance of India's early and active interest in polar affairs is best understood vis-4-vis the approach adopted by other nations.

Russian flag on the seabed. Apart from the scientific and technological significance of this venture, Russis's objectives was to stake an early dealm to the Arctic's continental shelf with its embed del hydrocarbon and mineral wealth. China, identifying itself as a near-Arctic State, has been understaling scientific exploration for many years and Arctic Council. While eyeing the Arctic as a potential source of voluble natural resources. China looks forward to the future establishment of a shorter trade route through these waters. China's ambitious programme to build ice-breakers, ships essential for cutting a safe path through polar ice, for merchant shipping, is an indication of its Arctic ambitions.

The Arctic is the smallest

merchant shipping, is an indication of its Arctic ambitions.

The Arctic is the smallest
and shallowest of the world's ware
and shallowest of the world's ware
and shallowest of the world's ware
main outlets – one is into the Atlantic
through the Greenland-lecland-UK
(G-UK) gap, and the other through the
Bering Strait that separates American
Alsaka from Russian Siberia. Due to
low salinity, the Arctic Ocean is coveserored fluctuates seasonally, making
mavigation in these waters hazardous.
For centuries, polar waters had
mavigation in these waters hazardous.
For centuries, polar waters had
mavigation in these waters hazardous.
For centuries, polar waters had
mavigation in these waters hazardous.
For centuries, polar waters had
mavigation in these waters hazardous.
For centuries, polar waters had
mavigation the sew saters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries, polar waters had
mavigation the swaters hazardous.
For centuries waters hazardous.



An area of intense interest to seafaring and trade-dependent nations is access to two potential sea routes that run across the Arctic.

access to two potential sear routes the est time of flight to the continental US as well as the Russian hearrland, the Soviets had established naval basdons for SSBNs, which NATO maritime for-ces sought to keep under continuous surveillance. But now, intense jockey-ling has commenced, not only by the surveillance. But now, intense jockey-ling has commenced, not only by the ingle copploit nature's last frontier for far resources. Conflicting claims seek access to what geologists believe are a quarter of the globe's unexploited oil and gas reserves as well as other natural/mineral resources. Given its techno-economic resur-gence, India will soon be the world's second-largest energy consumer after

ratmineral resources. Given in section-economic resurgence, India will soon be the world's second-largest energy consumer after 
escond-largest energy consumer after 
resources, and plans for nuclear and 
resources, and plans for nuclear and 
renewable energy resources having 
long gestations, it will need other 
potions. Under these circumstances, 
collaboration with Russia, which has 
been engaged in developing advanced 
technologies for polar exploration, 
would be a logical decision. 
A second area of intense interest to 
seafaring and trade-dependent nations 
is access to two potential sea routes 
that run across the Arctic, connecting 
the Pacific to the Atlantic, One is called 
the North-West Passage, which runs 
through the Canadian Arctic Archipeland 
and one the court of North America, 
and one of the court of North America.

ago along the coast of North America, and the other is the Northern Sea Route

{ RAFAEL GROSSI } CHIEF, IAEA

A.

and the accepted and th

become "a strategic partner in the joint development of the Arctic area"

Arun Prakash is a former chief of naval staff. The views expressed are personal

## Building a resilient, globally respected, self-reliant India

prime Minister Narendra Modi's leadership over the past II years has redefined Indu's governance, establishing 
ency, decisiveness and inclusivity. Operation 
Sindoor, which neutralised nine terror 
camps and II bases in Pakistan, epitomised 
this shift, treating terrorism as an act of war 
and dismissing Pakistan's nuclear bluff. As 
Modi 3.0 marks its first year, this decadepluss of reform has transformed India's tranjectory across security, economy, gender 
empowerment, and social welfare. This 
vision is encapsulated in two acronyms: 
RAM (rashtriya suraksha, arthywaastha and atmanirharta, mahila empowerment and middle-class relief) and GITA 
(global positioning, infrastructure, technology, alleviating powerty).

Rashtriya suraksha fantional searityl: Since 
2014. India has adopted a zero-tolerance 
stance on terrorism, moving from 
appeasement to assertive action. 
Operations like the surgical strikes, 
Balakot airstrike, and Operation 
Sindoor reflect a spolicy that 
and their state sponsors, rejecting 
dossiers for decisive responses. The 
2019 abrogation of Article 370 hilly 
onal 
and their state sponsors, rejecting 
dossiers for decisive responses. The 
2019 abrogation of Article 370 hilly 
integrated Jammu and Kashmir, 
ressuring one flag and one constitution autonwide. Maoist-affected 
districts have dropped from 10s in 2015 to 18 in 
2025. blending development and security 
operations. Home minister Amit Shah has 
pledged a Maoist-free India by March 2026. 
Defence self-reliance has surged, with 5,000 
items on indigenisation lists and 75% of the FY 
2025-26 defence modernisation budget allocated to domestic production. Defence exports 
reached 223,622 crore in 2024-25, marking a 
new era of strategic autonomy and strength. 
Arthywawstan and amanithrata (conomy 
and self-reliance): India has transformed from 
noe of the friggle five to the world's fifth-largest sconnomy, with projected growth of 6.3% in 
08.5% in 2025-26. posset to become the thirdlargest soon. Economic reform

Shehzad Poonawalla

PMMVY, while 10.33 crore smoke-free kitchens have enhanced women's bealth. Women received 68% of Mudra loans (74.72 lakh crore) and own 73% of PM Awas-Gramin homes. Initiatives like tollets in schools and tap water connections prioritise women's dignity, health, and education. Laws against triple taliaq, the Uniform Civil Code, and the Women's Reservation Act promote gender equity. Operation Sindoor's press briefings, led by women officers, colonel Sofiya Qureshi and wing commander Vyomika Singh, inspire young girls to join the armed forces,

showcasing women's leadership.

The middle-class benefits from tax rebates up to 81,25° lakh and controlled inflation, easing financial burdens. Over 15,000 Jan Aushadi Kendras offer generic medicines at 50–99% lower costs. Ayushman Bharaf's \$5 lakh health cover for 50 crore Indians, now including seniors over 70, has saved 21 lakh crore in health care expenses. Metro services in 23 cities. 136 Vande Bharat trains, and modernised aliporst enhance connectivity. Digital India thrives with 46 crore UPI users, 52 crore Digitacker users, and a 59% drop in occupation of the control of the c

platforms like GeM (2H3.41 lakh crore in orders). Direct benefit transfers (244 lakh crore) have eliminated welfare leakages, ensuring benefits reach the needy directly. Alleviating poverty: Poverty has plum-med, with the rate dropping from 27.1% in 2011-12 to 5.3% in 2022-25 (World Bank), Mid-tidimensional poverty fell from 29.17% to 11.28% (NHt Aayog), Ilfring 25 crore people. Schemes like PM Garib Kalyan Anna fojana, Jal Jeevan Mission, PM Ujiwala Yojana, and PM Jan Dhan Yojana prioritise dignity, self-reliance, and access to food, water, and finance, empowering millions to rise above poverty.

Ilinance, empowering millions to rise above poverty. Modil 3.0's first year builds on a decade of boid reforms, redefining India's governance through security, conomic growth, women's empowerment, and poverty alleviation. The RAM and GITA framework reflects a resti-tent, self-reliant, and globally respected india, poised for inclusive progress and a redefined destiny.

#### We could determine ... that documents that belong to IAEA were in the hands of Iranian authorities ... this is not compatible with the spirit of cooperation HI

# Bengaluru stampede: Some questions for Karnataka govt

Raghavan

The magnitude of the recent tragedy at Bengaluru's Chinnaswamy studium defies words. Many young lives were sautifed out during the phastly events that occurred during the public elebration of the Indian Premier League (IPL) winner, Royal Challengers Bengaluru's (RCB). The horror could have been averted if only all those who held public office in the city and displayed professionalism instead of getting immersed in a dubious celebration. IPL is a big money-laden spectacle that has an intoxicating effect on the young and old. At the Bengaluru carnival, one powerful VIP was pictured holding the trophy and hosting it sky high as if he had himself scored runs and taken wickets to help RCB with the cup. This was typical of many of our bigwigs who do not miss any photo-pot project themselves as heroes and grab the honour from those who deserved it. It doesn't matter if their antics disrupt public life and inconvenience the community at large. I am more than convinced that if RCBs well-deserved triumph had not been so unabashedly politicised, the tragedy would not have happened.

What is a spelling in the manner in which the superiment has suspended the commissioner of police and a host of other policemen. It is not as if Karnataka alone is guilty of clausing a stampede, Inefficiency and negligence on the part of any government agency has to be punished, no doubt. There is no room for any charity here. But then, fairness demands that a simple and credible WHAT IS APPALLING IS THE MANNER IN WHICH THE

WHAT IS APPALLING IS THE MANNER IN WHICH THE STATE ADMINISTRATION HAS ACTED TO DISTANCE THEMSELVES FROM THE HORRIFIC HAPPENING AND

procedure has to precede any harsh action like suspension. As head of government, the chief minister should remember that such peremptory action only damages his image and reduces his credibility. More than this, the suspension of a high police official demoralises the whole force and makes it less effective in a crisis.

There are several questions which call for answers from the Karatakia government. Did the city police refuse to give the not on the holding of the event? There are reports that suggest the police commissioner was against the celebrations being held at such short notice. If so, why was he overruled? The bane of our democracy is that the political is omniscient and is considered superior in wisdom to any professional civil servant, such as the commissioner of police with years of field experience. Our system endows the ballot bow with undeserved wisdom in some places. Let me add that the replaced commissioner enjoyed a good repatriculation and seems to be a victim of unfortunation and the properties. We would have endoorsed this of the promoting administrative many real reason of promoting administrative norms or efficiency. My hunch is that the State action was for appeasing enraged public opinion. This is the ruse many governments adopt when caught napping.

If any harsh action against a civil servant such as suspension should appear credible it has to be preceded by a brief and quick preliminary enquiry. Without that any punitive action such as suspension is unwarranted and bad in law. Suspension of a government official, whatever be the rank, without application of mind on the part of the head of administration smacks of arbitrariness and vindictiveness.

administration smaxcs of a rotterariness and vindictiveness.

The suspended policemen were not com-mon criminals who deserved to be hanged without a hearing. They could have been withdrawn from the field temporarily and made to await the outcome of internal enquiry. The haste with which they were suspended is disgraceful.

R. N. I. No. 503/1957 • Postal Reg. No. DL(ND)-11/6058/2018-19-20 'Licensed

## Progress on poverty

India needs fresh official estimates

There is little doubt that the prevalence of absolute poverty in India has fallen con siderably over the last two decades. However, the exact measurement of poverty has been somewhat hampered by the absence of official poverty estimates. These had become problematic and controversial in the past because of some disagreement over what constituted an accurate and fair poverty line. In the absence of an internal consensus in the Indian establishment over this question, many have used the poverty line set out by the World Bank for countries in India's income class. The World Bank's line was introduced in 1990 as "a dollar a day", and has been updated since in 2001, 2008, 2015, and 2022. It has now produced a fresh estimate of its powerty markers, and has set the line for low income at \$\$ worth of consumption a day, up from \$2.15. For lower middle-income countries, the cutoff has been increased to

This provides a possible entry point into estimating India's progress in eradi This provides a possible entry point into estimating india a progress in eradi-cating poverty. The number of people living in extreme poverty, under the \$3a day line, is now only 5.3 per cent of the population, compared to 27.1 per cent in 2011-12. Under \$4.20 a day, the proportion has reduced from 57.7 per cent to 23.9 per cent in the same period. This progress should not be undersold because it represents a sub-stantial increase in human welfare. It reflects a combination of overall economic growth and targeted poverty-alleviation programmes. This broad reformist con sensus has been more successful at reducing poverty in India than any other policy mix, and must continue to be followed.

mix, and must continue to be rotiowed.

However, that does not mean that there are no geographical and other disparities in poverty reduction that must be addressed. The data used by the World Bank suggests, for example, that poverty rates in rural areas are still considerably higher than in urban areas. It might be argued that this difference is exaggerated because of the different price levels between the two zones. If so, that argument must be substantiated through consumer and other surveys. The essential problem here for India is that although consumption surveys have now resumed, with two back-to-back such exercises being conducted, there is still no effort to create a clear set of poverty estimates. The last such exercise was carried out a decade ago. Now that data is available for two back-to-back household consumption surveys, India must revisit the process to arrive at fresh estimates.

An updated poverty line is essential for India as it moves towards eliminating absolute poverty. The last mile in this effort is usually the toughest, and it will require a clear sense of where and what remain problem areas. It is also important to not give in to triumphalism. As the experience of the pandemic showed, the emergence of many from poverty is fragile, and they can fall back into destitution in the face of various economic shocks. Some will also, while acknowledging the in the face of various economic shocks. Some will also, while acknowledging the importance of the welfare state, will question how only a quarter of the country can be poor when such a large proportion of it qualifies for free food under government schemes. It is also worth finding out to what extent such programmes are helping in reducing poverty. These questions can best be answered by data. Indian policy should not be dependent on multilateral poverty estimates.

## Special zones

SEZ policy demands all-round reform

Recent policy relaxations to encourage the manufacturing of hi-tech items such as semiconductors and electronic components in special economic zones (SEZs) mark yet another effort by the Union government to strengthen a nearly two-decade-old effort to encourage exports of manufactured products. The new miland requirement for SEZS from 50 hectares to 10 hec-tares, offered concessions in net foreign exchange calculations, allowed the sourcing of capital, raw materials, and components from domestic markets from the ing of capital, raw materials, and components from domestic markets from the earlier provision of imports only, and eased stipulations for the movement of fin-ished goods. These new rules, which came into effect recently, represent a proactive strategy to boost the four-year-old findian Semiconductor Mission, which aims to develop a robust semiconductor and display ecosystem and position India as a global hub for electronics manufacturing and design. It is an open question, however, whether the SEZ policy relaxations can be a game changer for the sector. In theory, the SEZ environment would be ideal for the requirements of semi

In theory, the SEZ environment would be ideal for the requirements of semiconductor manufacture, which requires stable power, clean water, and access to a
skilled workforce. The problem, however, is that the objective of creating SEZs that
would follow the highly successful Chinese model and act as the dynamo for manufacturing and exports has not worked out. India has 276 operational SEZs with an
investment of around 77 trillion. But in almost two decades, these units have managed to generate employment for just about 3 million people — far less than the 5.4
million employed in the information-technology (T7) and T7-enabled services busimesses in India and far below the requirements of the workforce. In China, the
mammoth SEZs account for 60 per cent of exports, in India, they account for just
about a fifth, and the ratio has barely changed for years. Nor is manufacturing the
main driver in India; instead, I7 and I7-related services account for 60 per cent of
SEZ exports. The gradual shrinking of minimum land size stipulations also reflects
a critical infirmity for any mega-project in India — Inda acquisition. This factor
alone has proven a major hurdle in SEZ development, which includes obtaining
necessary permits and developing the world class infrastructure necessary to sustain streamlined manufacturing operations.

There is also the question of policy discrepancies, with poor coordination
between government departments causing delays in the application of incentives.
The poor response prompted the government to introduce a Development of

The poor response prompted the government to introduce a Development of Enterprise and Service Hubs (DESH) Bill in 2022 to encourage companies to pro duce both for global and domestic markets. This, too, has gone nowhere, as the government has shelved the DESH Bill. The prospect of poor connectivity, social infrastructure, and other support services in India's more rural regions has meant that SEZs tend to be located near areas that are already developed. If SEZs are to develop beyond a lucrative real estate play for developers, they need an enabling cocystem — from transport and internet connectivity to flawless infrastructure, world-class housing, security services, schools, and hospitals. That implies envisaging these units as integrated socioeconomic structures, as they are in China, rather than as hubs insulated from the various vicissitudes of India. Solving the ageold structural problems in the investment environment rather than frequent policy shifts would be the best bet for India's faltering SEZ policy.

# Beating China's mineral dominance

Removing bottlenecks alone won't create the conditions for firms to invest in mining and processing

Stealth aircraft, drones, computer chips, electric motors, batteries, surveillance equipment, and mobile phones all rely on a class of minerals we now call critical minerals. Unfortunately, India has illimited domestic critical mineral resources and pro-cessing expertise; together, these gaps compromise the realisation of our manufacturing ambitions. The challenge is not a small one, for it will affect

almost every part of the economy — manufacturing, services, and even agriculture. Take, for instance, our

services, and even agriculture. Take, for instance, our path towards greater electrification of the economy, where combustion-based energy steadily gives way to electricity. This requires greater electricity storage, both for utilities and for mobility. Therefore, be it automobiles, driners, tobots, shipping & alteraft, or utility-scale power storage, batteries and motors will become central to the Indian economy. Given current trends, lithium, cobat, nickel managense, and a few others will

Given current rems, infinim, cooat, nickel, manganese, and a few others will steadily become more important.

Or take the move towards greater computing and digitalisation, the growing trend of surveillance and monitoring, the artificial intelligence revolution, and

the artificial intelligence revolution, and LAWEESH is possibly quantum computing, etc. All are intimately dependent on a variety of electronic products. Given their criticality — and China's proclivity to put up export controls — India's rightly attempting to enhance its manufacturing prowess in these areas. A range of minerals will therefore need to be accessed, ranging from gallium, germanium and indium for image sensors and optical equipment, to tantalum, niobium for chips, and to rare earths like europium, yttrium and terbium for magnets, etc.

magnets, etc.

And we must also consider defence needs.
Within a short period, and with a distinct change in
government policy, a dynamic military-industrial
complex has taken root in India. The manufacture of missiles, guns, aircraft, submarines, among others, is only expected to grow. Minerals like titanium and tungsten have been used for some time, but with the increasing use of space equipment and missiles. beryllium and rare earths, among others, will be needed at significant levels.

This is where I would be expected to write about what the government is doing. And indeed, there is

what the government is doing. And indeed, there is much. Critical minerals have been identified for India; mineral resources are being tied up globally through its joint venture KABIL; incentives for building mineral processing capacities have been pro posed; private participation in critical mineral blocks is being encouraged; and international efforts appear to be yielding fruit, with a Critical Minerals Partnership involving like-minded countries, including the United States,

oan, and Australia. Sothen, why am I penningthis essay?

Sothen, why am I penningthis essay! Rightfully, the Indian government is shifting its approach to a more eco-systemic level. However, the govern-ment's current reduce-the-bottlenecks strategy does not by itself-create the right conditions for firms to invest — whether in mining or in processing. But since the future of Indian manufacturing — and

ANDARI future of Indian manufacturing — and mossquently the economy—rests on the mining and processing of critical minerals, we cannot afford to get it wrong.

The underlying problem here is the time mismatch increating the critical minerals value chain. To simplify: It takes about a decade and a half for a mineral to be identified and for a mine to become fully eral to be identified and for a mine to become fully operational. On the processing side, it takes five to to years to obtain permissions, align the factors of production, and put up a unit, whereas, on the manufacturing side, a unit typically takes around three years—give or take a bit.

The point is, to set up a facility, upstream mining takes the longest, midstream processing takes less time, and downstream manufacturing takes the least. There is a time mismatch to upstream unit can be planned properly without a sufficiently large domestic

mised in the absence of a domestic supply of critical inputs. In other words, the temporal mismatch within the value chain causes a market failure that prevents the spontaneous growth of the sector, and this necessitates experiences.

the spontaneous growth of the sector, and this necessi-tates some government intervention.

Government policy, therefore, needs to address so this market failure emanating from the differing time horizons of mining, processing, and manufacturing units in the critical minerals value chain. Merely facili-tating licences or subsidising investment or enabling research & development (ReM), for that matter, will be too little for something that is, literally, so critical.

Policy can work on two fronts simultaneously, if mining and processing are better aligned, then the count lite is to valued, and the elements of market

overall risk is reduced, and the elements of market failure diminish. First, it would do well to address the failure diminish. Pirst, it would do well to address the mismatch in time horizons. On possibility isto work and delay the manufacture of some items until the requisite processing capacity arises. So, for instance, it could (hypothetically) delay the growth of some types of defence equipment and rely on imports until the rare earth value chain is ready. Or it could reduce the time horizon in mining, facilitating pre-clearance tne time norizon in mining, fiscilitating pre-clearance of various permissions and licences that would otherwise take many years. This would reduce the time required to operationalise mines, lower costs, and mitigate risks for private investment.

Second, it can directly enter the critical minerals value chain in the midstream segment, that is, at the

value chain in the midstream segment, that is, a processing stage. The objective would be to (a) el critical minerals are available on tap for downst manufacturers, and (b) the domestic upstream mining and processing industry gets the right

mining and processing industry gets ule right environment to grow through a readily available market for their produce. Many possibilities exist on how such an intervention may be structured. One method could resemble the minimum price-Food Corporation of India-public distribution system approach, where the government announces a purchase price, buys and stores the processed minerals and sells on demand. An alterannounces a purchase price, buys and stores the processed minerals and sells on demand. An alternative is the MMTC-plus-price-stabilisation approach, where a critical minerals trading entity is mandated to purchase first from domestic processing units, and then sell to domestic firms, adjusting for surpluses and shortages through global market interventions. The key here is the mandate: The responsibility to ensure processed minerals are evaluable like services where the contraction of the processed minerals are evaluable like services where the contractions are supported to the processed minerals are evaluable like services where the contractions are supported to the processed minerals are evaluable like services where the contractions are supported to the processed minerals are evaluable like services where the contractions are supported to the processed minerals are evaluable like services and the processed minerals are evaluable like and the processed mineral are evaluable a available lies squarely with this entity. Yet another approach would involve the government identifying a few 'chosen' private players, but regulating them strictly. After all, oligopolies in critical sectors often tend towards profiteering.

The larger objective is to ensure price and quantity stability in the critical minerals supply for

tity stability in the critical minerals supply for manufacturing to prosper in key product lines. Recall that the Western world had dominance in this Recau trattne western woria nad dominance in trus-space at one point, but its dependence on profit at every stage of the value chain forced it to shut down its facilities. It yielded to China, which achieved global dominance because it focused on the benefits downstream in manufacturing and not on upstream mining or processing.

The author is an economist. The views are personal

# New warriors of language streaming

Eken Babu is an unlikely detective. The rotund, balding character was created in 1991 by the late author Sujan Dasgupta for Bengali magazine Anandamela. Eken Babu became a web series on Holchol, a Bengali streaming service, in 2018. The show is now in its eligith season. Eken Babu's popularity prompted Holchol's parent, SVF Entertainment, a major studio and distributor based in Kolbata, to produce a film featuring the character in 2022. This May saw the release of the third film in the franchies. Eken: Benarase Bibhi-shika. Holchol, a subscription-based service, which launched in 2017, now makes a small profit on its \$100 crore top line (FY 2024-25).

In Hyderabad, Aha, a Telugus streaming app brithed by real estate major, My

ing app birthed by real estate major, My Home Group, and Allu Aravind's Geetha Arts, will break even this year on its ₹150 crore top line. It has 2.5 million subscribers. Stage, another OTT, just raised over ₹100 crore in a Series B funding round as it tries to scale from its claimed 4.4 million subscribers to 70-80 million. offers programming in Haryanvi, nojpuri, and Rajasthani with plans to

Intopurt, and kajastnam with piars to dadd is more dialects/languages, including Maithill, Bundell, Awadhl, and Marathl.

The numbers seem small. In 2024, streaming video generated \$3,600 crore in advertising and pay revenues from 125 million subscribers, according to Media Partners Asia. So a couple of million subscribers and a few hundred crore in top line doesn't

m much. It is for two reasons — history and profitability. Take history. Streaming is following the same with trajectory as television. Private television

broadcasting took off in India in 1991 with the entry of Star TV and CNN. Zee entered the scene in 1992, and soon after came the first Tamil channel. Kalanithi Maran's Sun TV, in 1993. Ramoji Rao's Eenadu TV (Telugu) launched in 1995. Zee Marathi, Asianet (Malayalam), Maa TV (Telugu), and many others followed. Except for Zee, none of the big broadcasters got into non-Hindi immediately.

That is because, in both value and volume, Hindi is the largest part of the media and entertainment pie, given it is spoken in large swathes of India. Its creative ecosystem was better developed, thanks to cinema and Doordarshan. Buniyaad or Katha Sagar, among other popular shows from the '80s, were made by people making films. Telugu, Tamil and Malayalam were the other languages with well-developed cre-

retugu, tatini and analayalari were the other languages with well-developed cre-ative ecosystems — with writers, film-makers, technicians — who could create for a new audience on television. So those languages took off after Hindi. Tamil, Telugu and Malayalam were

LiTamil, Telugu and Malayalam were imited by the fact that each of those languages is spoken by only 5-10 per cent of the people who speak Hindi. But funnily enough, Sun TV was the most-watched channel in India across languages for decades. Just after the pandenic, Dangal TV displaced it. Sun, Maa TV, and a bunch of others routinely feature in the top 10 most-watched TV channels in India. This is because many Northern states never managed the 80-90 per cent cable TV penetration that Kerala, Tamil Nadu, and Andhra Pradesh (including Telangana) had. On TV, those three languages are reaching almost their entire audience — Hindi isn't. Consider other languages, Punjabi, Bhojpuri, Ben-gali or Marathi audiences are bilingual. Hindi with its sharper production values is an easy substitute in these markets. To match the aesthetic of Hindi means sharper production values is an easy substitute in these markets. To match the aesthetic of Hindli means pushing costs from, say, £1 lakh per episode to ₹10-51 lakh per episode. The ad and pay revenues in these markets couldn't support those costs. That explains why attempts by both independent and large net-works in these languages simply didn't work while investment into South Indian languages did. Star, Vlacomis, and Zee did get into Punjabi and Gujarati, umong other languages, but with limited success. That brings this to the second reason why the slow, steady march of a Hochoi or Aha is interesting. They are profitable businesses, at a scale a non-Hindl lan-uages business can be, and they are sustainable by

are profitable businesses, at a scale a non-Hindi lan-guage business can be, and they are sustainable by virtue of being part of a bigger entity. For instance, bloicho's parent, SVF, has been focussed on Bengali cinema and television for 30 years now, much like Sun 'T has been in Tamil of Eenadu was in Telugn. Think of this — In 2025, Nefflix has a slate of 36 shows and films from India: Flochois has 25 only for Bengali. By the turn of the milliennium, many large broad-custor scaled and expanded their lannuage of ferting

By the turn of the millennium, many large broad-casters scaled and expanded their language offering by buying strongly entrenched local players. Star bought both Asianet (2009) and Maa TV (2015). Today, non-Hindi languages typically bring close to 25-30 per cent of the total revenue for most broadcasters. If the growth of language television is anything to go by, then at some point in the future, brands like Holchol and Aha could become highly valued takeover targets when the big platforms try to bulk up revenues and of their non-Hindi businesses conine. History, as they get their non-Hindi businesses going. History, as they

# Pride, prejudices, and the nine lives of Musk



#### PROSENJIT DATTA

Elon Musk's life and business shenani gans make for highly readable books. Apart from becoming staggeringly rich
— and at one point the world's richest — and at one point the world's inchest man — he is eccentric, utterly arrogant, super confident in his own abilities, extremely inconsistent and, finally, given to impulsive decisions. He has built a legion of followers who swear by him and are willing to go to war against onowers wno swea ng to go to war agai his perceived enemies after a single p by him on X (earlier Twitter). His personal life and beliefs are even more col-ourful. And the number of mistakes he has made and wrong gambles he has taken should have made him bankrupt

many times over. Often overlooked is his ability to take Often overnooseu o na sand still come out ahead. This has happened far roo many times in his career. If this is luck, then he would be one of the lucklest people on earth (and maybe eventually on Mars if he manages to turn it into a habitable colony for billionaires as is his land the sand of the lucklest and habitable colony for billionaires as is his land the sand of the land have likely (despite stated ambition). More likely, despite his eccentricities and hubris, he hides a shrewd business brain and the ability to manipulate public officials, investors, and even customers. He can sell out-rageous dreams and make a large number of people believe only he can fulfil them.

He has been the subject of many books. The book under review is Hubris

imus, but in the past year, this wer had the pleasure of reading The iders: The Inside Story of PayPal by ny Soni and Character Limit: How Elon Musk destroyed Twitter by Kate Conger and Ryan Mac. This is, of course, apart from the constant bombardment

apart from the constant bombardment of news and feature articles about him in almost every publication tracking Sili-con Valley and its tech moguls. Faiz Siddiqui is a technology jour-nalist with The Washington Post and has covered and broken many stories about covered and broken many stories about Mr Musik. Tesla and even the "witter takeover. He is an excellent investigative reporter and an accomplished story-teller. This book would have been very difficult to put together for Mr Siddqui. Apart from the fact that Mr Musik doean't like any article or story that por-trays his business or actions negatively. he suspects that Mr Siddiqui has been put to work on making him look bad by

MEDIASCOPE

his rival tech tycoon Jeff Bezos, the owner of *The Washington Post*. The volume is deeply researched and focuses on parts of Mr Musk's business in the past couple of decades. Mr Siddiou the past couple of decades. Mr Skddiqui spends a good portion of the book on the ups and downs of Tesla's self-driving soft-ware, the errors and accidents that took several lives—while Mr Musk managed to cock a snock at the safety agencies. It looks at the cuit-like following that Mr Musk has developed that often manifests itself in legions of followers trolling and threatenion course and or while off fields of itself in legions of followers trolling and threatening even senior public officials of safety agencies at the slightest perceived signal from Mr Musik. It also looks at his ability to come out unscathed despite his outrageous tweets and statements. He got pest the infamous "Punding Secured" tweet, which should ideally have been considered market manipulation. He managed to get away with no punish-ment despite calling a British engineer

who rescued children from a tunnel in Thailand a pedophile. And he tried to wriggle his way out of his Twitter deal. The book also looks at how he has managed to get away with thumbing his nose at elected representatives and senior US government officials. It traces his cynical politics — first as a Democrat funder and follower before shifting allegiances to the Republican Party. Though a good part of Hubris Maximus has been covered in great detail in who rescued children from

by Faiz Siddiqui Published by covered in great detail in other articles and books, HarperColli

other articles and books, notably Character Limit, the book is a racy read. I have some minor quibbles. The narration sometimes juu and forth, making some part repetitive. Also, the secret sa makes Mr Musk so successful time and again when people have written him off



Hubris Maximus: The Shattering of Elon Musk

either). The book ends with Mr Trump's victory and Mr Musk's role as czar of the Department of Governmen ciency, Now, Mr Musk and Mr Trump are warring openly and the US President's

is not explored, (To be fair, it has not been explored in other books this reviewer has read either).

and the US President's recent moves could prove fatal to Mr Musk's Tesla and SpaceX businesses. Of course, Mr Musk may prove that he has not exhausted his nine lives yet. For people with an interest in colourful business tycoons, most books on Mr Musk are a must-read — though the final chapter on the definitive story o Elon Musk will not be written for ecades at least.

The reviewer is former editor of Business Today and Businessworld, and founder of Prosaic View, an editorial consultancy

























If there are questions of current or contemporary relevance that you would like explained, please write to explained@indianexpress.com

EXPLAINED SPACE

## 'REALISING THE RETURN': HOW AN INDIAN BECAME PART OF AXIOM-4



Prime Minister Narendra Modi with US President Joe Biden during a State Dinner at the White House in Washington on June 22, 2023. The New York Times

#### ANNONA DUTT & AMITABH SINHA

National Modi's state visit to Washington, India and the US announce a decision to finalise a strategic framework for human spaceflight cooperation. It was also revaled that Indian and American space agencies, Indian Space Research Organisation (ISRO) and National Aeronautics and Space Administration (NASA), would mount a joint effort to enable an Indian astronaut to travel to the International Space Station (ISS) by 2024. (ISS) by 2024.

The announcement came as a surprise, Till then, it was understood that the first Indians to travel to space after Rakesh Sharma's historic flight in 1984 would Sharma's historic flight in 1984 word inde the Gaganyaan mission which ISRO had been preparing for since 2018, when Modi unweiled India's ambition to send humans into space by 2022. The 2022 timeline could not be adhered to. But astronauts had been selected and trained, and systems were under development and being tested. The 2023 announcement offered India an opportunity to get real-life experience for one of its astronauts ahead of the Gaganyaan mission. Only three nations – the US, Russia and China – have a human spaceflight programme of their

a human spaceflight programme of their own. Shubhanshu Shukla's flight, which came about on the back of the 2023 announcement, is thus being seen as an-other preparatory step ahead of the waan mission.

#### A growing partnership

A growing partnership
It has since emerged that the 2023 announcement was the result of at least a
few years of discussions between India
and the US. Their space agencies have
been working on a joint NISAR (NASAISRO Synthetic Aperture Radar) mission
for over a decade now, enabling a closerthan-ever partnership. That mission is finally ready now, and likely to be launched
in the next few weeks from Sriharikota,
Andhra Pardseth

The need to further strengthen their partnership, possibly through a joint hu-man spaceflight programme, had been broached several times during these in-

capabilities with missions, such as Chandrayaan and Mangalyaan, and the development of sophisticated space

development of sophisticated space systems. This closer collaboration was for-malised a couple of months after Modi's Washington visit in June 2023, when India signed the Artemis Accords, a US-devised set of principles for responsible behaviour and cooperation in space ex-ploration, particularly in lunar and deep planetary missions. It paved the way for unprecedented collaboration between the two countries in space-related matters, the first benefits

in space-related matters, the first benefits of which have begun to unfold with the

#### Axiom Space's invitation

Axiom Space's invitation
Shortly after the Artemis Accords
were signed, Axiom Space, a private USbased space company, invited India to
participate insission to the ISS, Axiom
Space has been the first and till now the
only beneficiary of a NASA programme
to enable private US industry to send
commercial crewed missions to lowearth orbits and the ISS. This is part of
NASA's endeavour to build capabilities in
the private sector while it focuses on science and planetary exploration.
Axiom Space has sent three multinational missions to the ISS so far, each carying four astronauts. The inaugural mis-

rying four astronauts. The inaugural mis-sion, in 2022, marked the first instance of an all-private crew making its way to the ISS. None of the astronauts were affiliated to, or selected by, any national space agency, though one of them had been a former NASA astronaut. The other three

toffner (NASA assumate, the outer times were businessmen.

The second mission in 2023 also had three private individuals, and was commanded by Peggy Whitson, a former NASA astronaut and the world record holder for having spent the maximum number of days in space. The third mission last year had an all-European crew, with the first Turkish national to ever go intressace.

nto space,
For its fourth mission on Wednesday
n which Shukla will travel to the ISS on which Shukla will travel to the ISS, Axiom Space invited three countries who had last been to space more than 40 years ago — India (1984), Hungary 40 years ago - India (1984), (1978) and Poland (1980) n named commander once again. Aptly, the mission has been themed 'Realize the Return'. e the Return'

# **JUDICIARY FOUNDATION COURSE** 16 June | 8:30 AM 19 जून | सुबह 8:00 बजे 17 June | 8:00 AM 2 जून | सुबह 8:00 बजे

# Why Axiom-4 matters

When the first Indian went to space, India's space program did not have the capability to make productive use of the experience. This will not be the case with Group Captain Shubhanshu Shukla's space flight



SOMAK RAYCHAUDHURY

THE TRAVEL of Indian astronaut Shubhanshu THE TRAVEL of Indian astronaut Shubhanshu Shulda to the International Space Station (ISS) on the Axiom-Amission on Wednesday marks the beginning of a new era in Indian space. In the last few years, the Indian Space Research Organisation (ISRO) has carried out a number of important missions that have placed India in

organization (and near the total continuous organization) represents the several proup of countries with cutting-edge space apabilities. The Moon-landing that SRO achieved with the Chandrayaan-3 was the highlight of these efforts.

With Shulda's flight, we are moving into the next gear. This might still not be our own human spaceflight mission, which is supposed to happen very soon, but it is not as though we are just hitching a ride on someone else's mission. The Aviorn-4 mission is closely integrated with our own space plans, and will provide some critical inputs to the Gaganyaam mission and other missions to follow.

#### Rakesh Sharma to Shubhanshu Shukla, India's space story

I remember how excited people o neration were when Rakesh Sharma nto space on a Russian mission in 1984. It was a very big event. It showed where we wanted to be, and what our aspirations were.

But that event happened when India's space program was still in its very early stages. We did not have the infrastructure and the ca-

We did not have the infrastructure and the ca-pability to make productive use of Sharma's achievement. We also did not have a definitive plan or roadmap for the future: a human spaceflight was not on the horizon. Sharma's achievement became an isolated event of sorts. This is where Shulda's flight is fundamen-tally different. Sharma's flight had huge sym-bolic and inspirational value. Shulda's flight will have practical uses as well. LSRO has, in the intervening years, emerged as one of the leading space agencies of the world with the ability to execute very complex missions. Human spaceflight is one of the few remain-ing frontiers that LSRO still has to conquer. In fact, if Gaganyaan had followed its orige.

In fact, if Gaganyaan had followed its orig-inal schedule — 2022 was a very ambitious deadline — we would already have sent humans into space by now. But it is just as well that the Axiom-4 mission is happening be-fore that. We will benefit from Shukla's experience and learnings.

#### Gaganyaan ahead, importance of Shukla's critical inputs

of Shukla's critical inputs
Human spaceflight missions are extremely challenging, more so when you are
doing it for the first time. They are maybe a
couple of orders of magnitude more complex
than uncrewed missions because of the safety
protocols that have to be integrated. This is
the challenge that ISRO faces with the
Gaganyaan mission. And every bit of additional input that reduces the risk and in-

creases the safety of the mission is invaluable. That is why Shukla's experience with the Axiom-4 mission is important. He will bring

Axiom-4 mission is important. He will bring real-life exposure that can be utilised in Gaganyaan. Shudia is the designated pilot of the Axiom-4 mission. He will learn a lot and gain in many ways during this mission.

Although a lot of the spacecraft is automated, it does require human intervention. It is not a point-to-point travel. The spacecraft has to follow a complicated orbit to reach the ISS, which is a moving target in space. The pictor will be required to take a number of decisions, and initiate several processes, during the flight to the destination.

This kind of experience will be critical for the other Indian astronauts who would be going on the Gaganyaan mission. Real-life expe-



## Mission Specialist, Polish

of European Space Agency's Astronaut Reserve Class of 2022. Has made significant contributions at the European Organization for Nuclear Research (CERN) in Geneva, where he served as a reliability expert and project lead. From 2018 to 2020, was Engineer in Charge for the Large Hadron Collider (LHC), overseeing its round-the-clock operations.

## Pilot, Indian

Group Captain Shukla was oned into IAF's fighter wing commissioned into IAFs fighter wing in June 2006, has 2,000 hours of flight experience across a range of aircraft. Will pilot Axiom 4 mission to the ISS. Named on February 27, 2024, as one of four clite astronauts for Gaganyaan, India's maiden human spaceflight mission.

#### 2. PEGGY WHITSON

with more than 38 years of experience. Three previous missions to ISS; holds record among US astronauts & among record among us astronauts a among women for spending the most time in space, 675 days. Trailblazer: first femate commander of 185; only women to serve as ISS commander twice; first female commander of a private space mission (Axiom 2); most spacewalks by a woman (10 walks, 60 hours).

## 4. TIBOR KAPU

Mission Specialist, Hungarian

Mechanical engineer, specialist in polymer technology, has contributed to pharma and logistical industries. In 2022-23, he focused on space radiation protection at an aerospace technology company. In 2023, was selected as one of four Hungarians the Hungarian to Orbit (HUNOR) Astronaut Program.

a unique setting for studies that are extremely difficult to do on Earth. For example, one of ISRO's experiments relates to the study of muscicle behaviour. Muscle degradation can be because of natural causes; it can also be affected by a person's weight. On Earth, it is very difficult to decouple these two causes because of gravity. Space's zero-gravity environment gets rid of the weight factor and allows the study of changes in muscles on such due to natural ex-

changes in muscles purely due to natural rea

the understanding of human health,

sons, which that can lead to breakthroughs in

on moong dal, on the micro-algae, and others

The experiments on sprouts, specifically

- More than 60 scientific studi and activities scheduled to take place aboard the ISS
- This will be the most research and science-related activities conducted on an Axiom Space mission aboard the ISS to date
- Thirty-one countries involved in these studies, including the US, India, Poland, Hungary, Saudi Arabia, Brazil, Nigeria
- ISRO has designed 10 experiments. These include: growing crops in space; examining tardigrades in space; investigating muscle loss in astronauts in space; and analysing impact of gazing at computer screens in microgravity
- Astronauts will also engage in scientific outreach activities such as addressing students and people from the space industry

the creation of a strong ecosystem for space activities that would also involve the participation of the private sector.

Space is a costly endeavour, and the sector can benefit hugely from private-sector participation. It will also make the sector more vibrant, facilitate innovation, expedite technology development, and attract new, young talent. It can also boost economic gravath

Globally, the space market is worth about \$500 billion, and is expected to double by the ear 2030, India, despite being a major space faring nation, accounts for a just 2% share o this market. We have the ambition of increas

this market. We have the ambition of increas-ing our share to at least 10% in the coming years. Shukla's flight, and similar events, can make an important contribution towards this. School children will be witnessing this — it is the kind of event that is likely to dominate their imagination and, at least in some cases, shape their careers and future. Unlike 40 years ago, these children have the opportunity and the ecosystem to turn their dreams into reality.

# rience is very different from training and sim-ulations. Right now, we only have Rakesh Sharma with this experience, and the tech-nologies during his time were very different. Countries that have a human spaceflight pro-gram benefit a great deal from astronaust transferring their knowledge and experience to the next everation. to the next generation, Also, Shukla will be the first Indian to go to

the ISS. He will have an opportunity to see how the ISS functions and operates. ISRO's next big project, after Gaganyaan, is to build its own space station. That is a massive infrastructural endeavour. After his two-week stay on the ISS, Shukla would be in a position to offer critical inputs here as well.

## Muscle behaviour to moong dal:

Muscle behaviour to moong dat: Experiments for future projects
The experiments that ISRO has designed for the Axiom-4 mission are very interesting. And again, they directly feed into ISRO's own future needs and projects. This is the first opportunity for ISRO to carry out such customised experiments in space. Many are biology-related, and a few are technology experiments.
The zero-gravity conditions in space offer

on moong dat, on the micro-algae, and others are all very interesting, and tailored to Indian requirements. Participation in the Axiom-4 mission has given India an opportunity to carry out these experiments in space. These can be followed up with a new set of experi-ments on the Gaganyaan mission.

#### Boosting space economy and attracting new talent

Shukla's flight is the beginning of a series of steps that will lead up to the human Moon landing that ISRO has planned to undertake by 2040. An important prerequisite for that is

Somak Raychaudhury is an astrophysicist and Vice Chancellor and Professor of Physics at Ishoka University. He spoke to **Amitabh Sinha** 

# Why scientists study tardigrades, tiny eight-legged 'water bears', in space

AMONG THE scientific experiments astronaut Shubhanshu Shukla will undertak during his two week stay at International Space Sation (ISS) is one that will examine the revival, survival, and reproduction of tantigrades in spec.

What is the Voyager Tardigrades experiment? And why do scientists study these the specific consense in which James 1.

Tardigrades, also known as "water bears", are robust aquatic animals that have been

around for roughly 600 million years, 400

million years before dinosaurs walked the planet. They have survived all the five major mass extinction events to have taken place thus far, and scientists believe they could be around long after humanity has died out. Typically about 0.5 mm long when fully

microscopic, eight-legged organisms?

SCIENCE

grown, tardigrades have four pairs of legs, with 4-6 claws on each foot. They also have a specialised mouth which helps them suck nutrients from plant cells, algae, and other small invertebrates.

Tardigrades can be found almost everywhere – from the highest mountains to the deepest occans. Their most common habitat, however, is the thin film of water found on mosses and lichens, which bestows upon these animals the moniker of "moss piglets".

Why do scientists study

Although these micro-animals were discovered in 1773 by German zoologist Johann August Ephraim Goeze, they have become a subject of intensive re-search in the past few decades.

This is because tardigrades are remark-ably resilient creatures, known to survive in the harshest of conditions. Water bears have been known to withstand tempera-tures aslow as minus 272,95 degrees Celsius or as high as 150 degrees Celsius; endure ul-



Tardigrades are also called water bears and moss piglets, Wikimedia Comm

traviolet radiation of space and pressures of 40,000 kilopascals (equivalent to what can be experienced at a depth of 4 km under the occan's surface); and live after being stored in a freezer for 30 years, according to a report by Front Line Cenomics.

A better understanding of tardigrades' survival mechanisms can potentially have several applications: from helping scien-

ing advanced sunscreens to preserving hu-man tissues and organs for transplantation.

Why are tardigrades so resilient?
Siddharth Pandey, an affiliate research
scientist with U-Sased Blue Marble Space
Institute of Science, told The Indian Express
that tardigrades owe their incredible resilience to cryptobiosis, a state in whichogaainsts bring their metabolism to a nearcomplete standstill in the face of adverse
component conditions. Tarditure dues an
energy and the standard conditions. Tarditure dues a onmental conditions, Tardigrades reduce their metabolism to less than 0.01% of normal, and drop their water levels by more than 95%, a state called anhydrobiosis.

Both anhydrobiosis and cryptobiosis re-sult in the emergence of a durable shrunken state, called tun, in which tardigrades are

able to withstand extreme conditions Also, these animals produce unique pro-teins such as cytoplasmic-abundant heat soluble (CAHS) proteins which are key to their resilience. "These [proteins] form agel-like matrix within their cells, vitrifying and protecting essential cellular components stand extreme temperatures, radiation, and the vacuum of space," Pandey said.

What does the Voyager Tardigrades experiment seek to do?
Scientists will take tardigrades to the ISS in a state of tun, before reviving them and examining the effects of space radiation and microgravity on their biological processes.
The primary objective of the experiment is to identify the genes that are responsible for making these animals resilient. In other search experits the new to reject the transwords, scientists hope to pinpoint the spe-cific molecular machinery that enables tardi-grades' survival and DNA repair in space.

This will help scientists develop strate gies to protect astronauts during long-duration space missions, and preserve biological

unn space missions, and preserve biological materials for extended space travel.

For instance, the survival mechanisms of tardigrades can be used to come up with strategies that better shield astronauts from space radiation, or counteract muscle and bone density loss experienced during lengthy space stays.

Tardigradeshave been apart of space mis-sions since 2007, when some 3,000 mos piglets hitched a ride to space aboard the European Space, Agency's Florin-MS mission. The tardigrades, in a state of fun, were kept in a little round box on the side of the space-craft whose lid was opened in space. Upon returning to Earth, they were rehydrated and examined. The German and Swedish scientists undertaking the experiment found that not only did many water bears survive the harsh space environment, some were also

able to reproduce successfully.

"While exposure to UV radiation did cause some damage and reduce survival ates slightly, the experiment confirmed that the vacuum of space alone was not a barrier to their survival, solidifying their sta-tus as one of Earth's most durable organ-

isms," Pandey said.

The experiment also made tardigrades the first animal to survive exposure to space. Before water bears, animals had only survived space in the safety of a spaceship or space suit.