

Editorial



Stop the slaughter

Trump must use his leverage to force Israel to end the war in Gaza

In his third White House visit in six months, Israeli Prime Minister Benjamin Netanyahu, on Monday, heaped praise on U.S. President Donald Trump for his "pursuit of peace and security... in the Middle East" and even nominated him for a Nobel Peace Prize but stopped short of making any commitment on the most pressing issue in West Asia today – a ceasefire in Gaza. While indirect talks between Hamas representatives and Israel continue in Doha, Israel appears to be readying the forcible relocation of Palestinians to the south of Gaza. Defence Minister Israel Katz says he has instructed the Israeli Defence Forces (IDF) to come up with a plan to relocate the entire population of Gaza, of 2.3 million people, to the ruins of Rafah, which the Israelis call a "new humanitarian city". There were reports in the Israeli media about the IDF chief, Eyal Zamir, opposing the plan, saying that "the hungry and angry" Palestinians "could turn on the IDF". The IDF killing dozens of Palestinians, including children, in Gaza is a daily occurrence; starving civilians are shot down in aid centres. Doctors who served in Gaza in the past 20 months have horror stories of babies being brought to hospitals with sniper wounds in their heads. None of this moves Mr. Netanyahu and his backers in the West, including Mr. Trump, who calls himself "a man of peace".

Mr. Trump had said before the meeting that he would be "very firm" with Mr. Netanyahu on the need for a ceasefire. But words alone are not enough. Mr. Trump has the leverage to compel Israel to accept a ceasefire in Gaza. He demonstrated his influence in the final hours of the Iran-Israel war, publicly demanding that Tel Aviv turn back its fighter jets that had taken off to bomb Iran. Israel complied, after carrying out only a symbolic strike. Today's Israel is dependent on the U.S. as ever before. During the war on Iran, Israel had to rely on America for offensive and defensive support. Israel needs American weapons to continue its devastating war in Gaza. And Mr. Netanyahu, who is facing an arrest warrant from the International Criminal Court for war crimes and crimes against humanity, needs American political and diplomatic backing to continue his wars across West Asia with impunity. If the U.S. continues to support Israel and refuses to use its leverage to end the Gaza war, it will be condemned by future historians and fact-finders as a country that was complicit in Israel's crimes against Palestinians. There are no excuses for Israel to prolong this brutal war, which has killed an estimated 70,000 people in 20 months. The slaughter must stop, and Israel must be held accountable for its crimes.

Quick fix

Budgetary allowances alone will not solve India's R&D problem

The Union Cabinet recently approved a ₹1-lakh crore Research Development and Innovation (RDI) scheme that aims to incentivise the private sector to invest in basic research. The scheme will primarily consist of a special purpose fund established within the Anandamb National Research Foundation (ANRF), which will act as the custodian of funds. The funds will be in the form of low-interest loans. The ANRF is conceived as an independent institutional body, with oversight by the Science Ministry, to allocate funds for basic research and to incentivise private sector participation in core research. The involvement of the ANRF here is a novel move as the newly created organisation is meant to be the equivalent of a single-window clearance mechanism for funding research and development for universities and academic institutions. It is also expected to get about 70% of its budget from private sources. In sum, through the RDI and the ANRF, the government is looking to stake the bold claim that it has played its part and that it is now up to the private sector to come forward and reverse the ratio from where the government today accounts for about 70% of India's R&D spend. However, already incipient in the government's tall ambitions are traces of what has caused previous such schemes to falter. The first of these is conservatism.

It turns out that a condition for availing funds is that only products that have reached a certain level of development and market potential or, what are called Technology Readiness Level-4 (TRL-4) projects, would be eligible. There are nine TRL levels, a hierarchy that was first conceived by the United States' National Aeronautics and Space Administration (NASA) in the 1970s. TRL-1 represents a basic level of research and TRL-9 a state of advanced readiness. TRL-4 appears to be an arbitrary decision to support any promising research that has progressed halfway. There were such a magic sauce, venture capital industries, premised on the fickleness of predicting the "next big thing", would not exist. The scheme also seems to forget that technologically advanced countries have become what they are because of their military industrial complexes – where the spectre of war incentivises the development of technology that is risky and expensive but, over time, may prove to be of immense civilian value – examples are the Internet or the Global Positioning System. India continues to lack of opportunities commensurate with its training. Finally, it lacks a deeply skilled manufacturing sector that can make the products that scientists conceive of. Budgetary allowances cannot overnight fix that which requires major surgery.

What the 'neutral clean-up' of Bihar's poll rolls really is



Zoya Hasan
is Professor Emerita,
Centre for Political
Studies, Jawaharlal
Nehru University

In recent years, India has experienced a subtle, yet significant, shift in how citizenship and national belonging are defined, and, increasingly, how voting rights are determined. This transformation is most evident in the ongoing electoral roll revision by the Election Commission of India (ECI) in Bihar, just months before the State Assembly elections later this year. The hurried and opaque nature of this process risks the wrongful exclusion of lakhs of eligible voters, posing a serious threat not only to the integrity of the electoral system but also to the constitutional values of equality, fraternity and justice.

Anything but a routine update

On the surface, the Special Intensive Revision (SIR) of electoral rolls in Bihar appears to be a routine update. But in practice, it is anything but. Nearly 4.74 crore voters – close to 60% of Bihar's electorate – are now required to prove their eligibility through a new set of documents. The threshold for inclusion has shifted dramatically. Under the SIR guidelines, any voter not listed in the 2003 rolls must now provide documentary proof of citizenship. This includes birth certificate, school-leaving documents, land deeds, or official citizenship papers, which are records that are difficult to produce even in urban centres, let alone in the rural stretches of Bihar. Crucially, many of these documents, particularly birth certificate, are the responsibility of the state to issue. However, the state has historically failed to do so at scale, placing the burden on individuals to obtain and provide them.

What is being presented as a neutral "clean-up" of electoral rolls carries a serious risk of disenfranchising millions. The poor, Muslims and migrant workers, who make up a significant portion of Bihar's population, with migrants alone constituting around 20% are likely to be disproportionately affected. There is a significant risk that large numbers of migrant workers, predominantly men, could be removed from electoral rolls.

This represents a sharp break from previous practices, where self-declaration was deemed sufficient for enrolment, a principle supported by electoral regulations and the Supreme Court of India. The shift suggests a deeper reconfiguration of the relationship between the state and its citizens.

The ECI claims that the revision is aimed at eliminating duplicate entries, removing deceased voters and filtering out ineligible electors, while also including newly eligible ones. Legally, the ECI is empowered to do this. But the scale, the timing and the method of the current exercise are deeply problematic. It is neither practical to execute such a massive overhaul within a few weeks, nor reasonable to demand documentation that many voters, particularly from marginalised communities, simply do not possess. Media

The hurried and opaque revision is a form of demographic manipulation and part of a broader political project aimed at weakening pluralism

reports suggest that many such voters do have widely held government-issued IDs such as Aadhaar, voter ID card, labour cards, and MGNREGA cards, none of which is being accepted as sufficient proof of eligibility.

There is a Kafkaesque irony at the heart of this: the very voter ID cards issued by the ECI are now deemed inadequate. By refusing to recognise its own identification document, the ECI is not only disenfranchising citizens but also eroding its institutional credibility. If its own ID cards are no longer considered trustworthy for verification, what does that imply about the integrity of the electoral process and the legitimacy of past elections?

An encroachment

Electoral integrity is not just about removing duplicates; it is about ensuring that every citizen has an opportunity to vote. The ECI's mandate is to facilitate participation, not put up bureaucratic hurdles. By shifting into the terrain of citizenship verification, the ECI is encroaching upon a domain that lies with the judiciary and designated tribunals. There is an apprehension that Electoral Registration Officers (EROs) could be given the authority to refer individuals suspected of being foreign nationals to citizenship authorities – a task previously outside the ECI's remit.

This shift, and the resistance to it, both have precedent. In the past, the judiciary has expressed concern over attempts to place the burden of proving citizenship on individuals, including those who had already participated in the electoral process. It has held that prior inclusion on an electoral roll implies that verification had already taken place. Again, in 2005, during the Assam roll revision, the Court stressed that anyone facing deletion from the rolls must be given notice and an opportunity to respond, and that questions of citizenship must be resolved by the appropriate authority.

The current process in Bihar, with its heavy documentation demands and compressed timelines, is beginning to resemble a de facto National Register of Citizens (NRC) but without any legislative basis or judicial oversight. It imports the logic of citizenship audits into electoral administration, turning a democratic procedure into an exclusionary instrument.

There is a deeper political logic behind the timing of this voter roll revision exercise. Its launch is particularly significant in the context of fiercely contested State elections, where every vote matters. The political motivations are hard to ignore: estimates suggest that as many as two crore voters could be removed from the rolls if the current process continues unchecked. In States such as Bihar, the deletion of even a few

hundred thousand names could decisively influence outcomes in tightly contested constituencies. Already facing strong anti-incumbency sentiment and a growing challenge from the Indian National Developmental Inclusive Alliance (INDIA) bloc, the ruling National Democratic Alliance (NDA) stands to gain from such revisions. With the outcome still uncertain, voter roll revisions take on clear political significance.

Compounding matters is the logistical challenge. The ECI has launched this document-heavy exercise during the monsoon season, when large parts of Bihar are flood-prone. It has imposed a 30-day deadline – a window in which many migrant workers are still away from home. This confluence of administrative rigidity and ecological vulnerability has created a perfect storm for disenfranchisement. An institution entrusted with ensuring free and fair elections, risks becoming a gatekeeper to democratic participation.

The larger implications

Critics rightly see the revision as a form of demographic manipulation – a subtler version of gerrymandering by exclusion. The implications go well beyond Bihar, carrying national significance.

This new process is part of a broader political project aimed at weakening pluralism, even as substantive political participation and contestation are systematically constrained. It aligns with majoritarian narratives that cast a doubt on the loyalty and belonging of certain communities, particularly Muslims, and seeks to diminish their political influence by undermining both their representation and their right to vote.

What is unfolding in Bihar may well serve as a template for other States. ECI officials have indicated plans for similar special revisions in Assam, Kerala, Puducherry, Tamil Nadu and West Bengal. If this model is replicated, it may institutionalise a more document-intensive approach to voter verification – one that risks undoing decades of progress in empowering historically marginalised communities by offering them meaningful opportunities to participate in the democratic process.

The Bihar voter roll revision is now under challenge in the Supreme Court for violating fundamental rights including the right to vote, equality before law, non-discrimination, and dignity. If it is not struck down, it could strip lakhs of citizens of their right to vote, distorting electoral outcomes and eroding faith in democratic institutions. What is at risk is not just participation, but the very credibility of free and fair elections, an inviolable part of the Constitution's basic structure.

The dark signs of restricted or selective franchise

We are now in the second week since the sudden launch of the ongoing Special Intensive Revision (SIR) of electoral rolls in Bihar, on June 24, 2025. By now we all know that this SIR is happening after a gap of over 20 years. But this is only a half truth. The SIR now is fundamentally different from all the earlier SIRs. The ongoing SIR entails a complete reconstruction of the electoral rolls based on the submission of documents by aspiring and applicant electors.

Revisiting trauma

Its suddenness and utter lack of transparency have rekindled memories of the traumatic experience of demonetisation in 2016. It is no wonder that the people of Bihar have begun calling the SIR as "votebandi" after the popular Hindi term "notebandi" to denote demonetisation. But the SIR also has features of the ordeal the people of Assam experienced during the National Register of Citizens exercise. An estimated 50 million voters of Bihar are being subject to a harsh "eligibility test" in order to prove their citizenship and voting right.

The NRC in Assam was, however, not a sudden campaign, and was under the watch of the Supreme Court of India. It took six years and two rounds to cover an applicant population of 33 million, and even now the Assam government is not ready to accept the NRC that emerged, with close to two million rejections/exclusions. In Bihar, filled in enumeration forms and accompanying enabling documents are to be collected from all, in just a month's time. And the month in question is July when the monsoon is vigorous, and when large parts of north Bihar are likely to be flooded and seasonal migration is at its peak. While the sheer scale and circumstances of this sudden operation make it clear that it is going to be a logistical nightmare, what makes it an insurmountable hurdle for large numbers of Bihar electors is the list of enabling documents that the Election Commission of India (ECI) wants as proof of electoral eligibility.



Dipankar Bhattacharya
is General Secretary
of the Communist
Party of India
(Marxist-Leninist)
Liberation

What is about to unfold in Bihar is a fundamental disruption of India's electoral democracy, with millions of second grade and insecure citizens

Documents commonly available with the people such as the Aadhaar card, voter card, ration card, job card or even the driving licence are not acceptable to the ECI. Instead, the documents it demands – birth certificate, matriculation degree, land or house ownership record, caste certificate, passport – are rarely available with the common man in Bihar. How on earth are they going to prove their eligibility or citizenship?

What makes matters inordinately more difficult is the high order-migration from Bihar. Almost every family has a member who is studying or working outside the State. During the COVID-19 pandemic, the lockdown in 2020 saw the shocking spectacle of migrant Biharis trekking back home over thousands of kilometres. Now many of these migrant Biharis are liable to be removed from the revised rolls on the spurious grounds that they no longer "ordinarily reside" in Bihar.

The cruel reality that forces millions to seek a livelihood outside Bihar now renders them "outsiders" for purposes of the electoral roll. Even as the slums built by migrant Biharis workers are being bulldozed in Delhi, the electoral rolls being prepared in Bihar threaten to evict them in their own State. The spectre of mass disenfranchisement is now an undeniable reality. The ECI recently gave us an electoral roll in Maharashtra exceeding the adult population of the State. Unable to explain this statistical scam, has the ECI now chosen Bihar for a "balancing act" where millions are liable to be removed from the electoral roll for no fault of theirs?

A fundamental disruption

According to the ECI's declaration, the Bihar SIR template will be replicated across the country in the months ahead. What we are witnessing is a fundamental disruption of the electoral democracy that has been practised in India since the adoption of the Constitution and enactment of the Representation of the People Act 1951.

Amid the chaos that has been triggered by the "votebandi" drive in Bihar, are at least three warning signals for India's beleaguered democracy.

The onus of proving citizenship is being shifted from the state to the citizen. The empowered elector has become a doubtful voter and the onus to clear all doubts and pass the eligibility test lies on the suspect and document-deficient voter. This is akin to a reversal of the fundamental principle of natural justice that one is innocent till proven guilty. This is a huge disaster in the making.

A disenfranchised category

The ECI tells us that being a citizen is a constitutional prerequisite for becoming an eligible elector, and all that the SIR is doing is a verification of that eligibility. Electors on the 2003 roll are being presumed to be India's citizens, and, hence, rightfully eligible voters; all the others will have to prove it. Even if we accept that those eliminated from the electoral roll will still be considered "citizens", we are now looking at a permanent category of disenfranchised citizens. In other words, India will have millions of second grade and absolutely insecure citizens who will, henceforth, be at the mercy of the state or the majority of empowered first-grade citizens. The implications are alarming and clear.

Universal adult franchise has been the cornerstone of India's Constitution and electoral framework. In many countries, vast sections of "excluded" and "disempowered" people, on grounds of race, ethnicity, class and gender, had to fight for decades in order to secure equal electoral rights.

In India we won it at one go with the attainment of freedom and the adoption of the Constitution. Now, in Bihar, with the insistence on submitting educational certificates and ownership records, are we now looking at a new order of restricted or selective franchise?

LETTERS TO THE EDITOR

Bihar roll revision

Going by the swiftness of the exercise relating to the revision of electoral rolls in Bihar State, there is little doubt that a cloud of suspicion has permeated the process. There is no logic, reason or valid ground to lob the ball into

the court of electors, particularly, the vulnerable and unlettered segments of society, to comply with the unreasonable riders of the Election Commission – and pertaining to the production of "the prescribed documents". Depriving a law-abiding citizen the

fundamental right to vote for a candidate of his/her choice in any constitutionally mandated election on flimsy grounds is undemocratic, illegal and irrational. Now that the Supreme Court has taken cognisance of the matter, it is hoped that the judicial

order will adequately address the concerns of citizens of the country and also reflect democratic ethos and constitutional principles.
V. Johan Dhanakumar,
Chennai
The exercise is a step in the

right direction. But the same revision should be extended all over India and not be limited to the Opposition-ruled States. If the Special Intensive Revision has a genuine goal of the elimination of "long term migrants/outsiders", then it should not be

biased. All the parties concerned, including the Opposition, should be taken into confidence in this exercise.
V.S. Kannan,
Chennai
Letters emailed to letters@thehindu.co.in must carry the postal address.

The ECI does not have unfettered powers

The Election Commission of India (ECI) ordered a special intensive revision (SIR) of the electoral rolls in Bihar, which will be facing Assembly elections in November. Political parties in the Opposition have alleged that the SIR is aimed at disenfranchising thousands of voters in Bihar by disqualifying them on the ground that they are not citizens of India. The ECI has denied this allegation and justified the revision. In the meantime, many petitions have been filed in the Supreme Court challenging the ECI's order. While the controversy centres on the motive behind this exercise being conducted just a couple of months before elections, especially when electoral rolls were revised in 2024, this article focuses on the legality of this exercise and the powers of the ECI to undertake it.

Reasons for disqualification
Article 326 of the Constitution declares that elections to the Lok Sabha and the Assemblies shall be held on the basis of adult suffrage. This means every adult person is entitled to be a voter provided they are not disqualified on certain specified grounds. There are two essential qualifications of being an elector under this Article: the person should be citizen of India and should be aged not less than 18. The Representation of the People Act (RPA), 1950, lays down disqualifications for registration as an elector. These are namely unsoundness of mind as declared by a competent court, and disqualification from voting as provided in Section 11A of the 1951 RPA. Conditions for registration as a voter are laid down in Section 19 of the RPA: the person should not be less than 18 years of age and they should be ordinarily resident in a constituency. The term 'ordinarily resident' is explained in Section 20, which says a person shall not be deemed to be ordinarily resident merely because they own or possess a dwelling house in that constituency. Also, a person does not cease to be ordinarily resident if they absent



P.D.T. Achary
Former Secretary
General of the
Lok Sabha

themselves temporarily from their ordinary place of residence.

The ECI enjoys enormous powers in respect of the preparation of electoral rolls and the conduct of elections to Parliament, the State Legislatures, and to the offices of the President and Vice President. Article 324 of the Constitution, which empowers the ECI to undertake these tasks, is characterised by the Supreme Court as a "reservoir of power". Since the conduct of free and fair elections is an essential feature of the basic structure of the Constitution, the ECI needs to be vested with all the necessary powers to complete its task.

Nevertheless, it is inconceivable that the Constitution should confer on any authority unfettered powers. The Supreme Court has made it clear that the ECI can exercise all powers in its discretion in areas which are not covered by any statute but shall act in accordance with the law wherever it exists. In *Mohinder Singh Gill v. Chief Election Commissioner* (1978), the Court stated the law as follows: "Firstly when Parliament or any State Legislature has made valid law relating to or in connection with elections, the Commission shall act in conformity with, not in violation of, such provisions but where such law is silent, Article 324 is a reservoir of power to act for the avowed purpose of pushing forward a free and fair election with expedition."

The qualifying date

Let us look at the relevant provisions of the RPA to get a perspective on the powers of the ECI in regard to revision of the electoral rolls. Section 21 of the 1950 RPA deals with the preparation and revision of electoral rolls. It speaks of four stages of revisions: (1) before elections to the Lok Sabha or Assembly; (2) before each by-election; (3) on the direction of the ECI in any year; and (4) a

special revision for a constituency or part of a constituency with the ECI recording reasons for doing so. All revisions except (4) are done with reference to a qualifying date, which, under Section 14, is the first day of January. The only exception is (4): no qualifying date is mentioned because it can be done any time.

The ECI order of June 24 mentions the qualifying date as 01/07/2025 and is a direction under Section 21(2)(b) of the RPA. It can be assumed that the revision being done in Bihar is under the same Section. But under this provision, the qualifying date should be 01/01/2025. The revision then should have been done from January 1, 2025. The qualifying date mentioned in the ECI order has no sanction under the law. Similarly, the term 'special intensive revision' is not found in the law. The only case where a special revision can be ordered by the ECI at any time is in relation to a constituency or a part of it and not in relation to an entire State.

Thus, it is reasonable to conclude that the SIR in Bihar is not in conformity with the provisions of the RPA. The ECI has claimed in its order that it has power under Section 21 to undertake the exercise. True, but that power is limited to a constituency or part of it under Section 21(3) of the Act.

While enjoying enormous powers under Article 324, the ECI is responsible to the rule of law and should be amenable to the norms of natural justice as per the Supreme Court. Electoral registration officers cannot summarily reject applications on the ground that foolproof documents are not being furnished to prove citizenship. Rule 8 of the Registration of Electors Rules clearly state that information shall be furnished "to the best of ability" of the citizens. The ECI cannot ignore this statutory stipulation.



The Special Intensive Revision in Bihar does not conform with the provisions of the Representation of the People Act

Grand ambitions, troubling questions

The Polavaram Banakacherla Link Project carries several risks

STATE OF PLAY

G.V.R. Subba Rao
subbarao.govindarajpu@thehindu.co.in

The Andhra Pradesh government's ₹81,900 crore Polavaram Banakacherla Link Project, which aims to transfer surplus water from the Godavari river to Banakacherla in the drought-prone Rayalaseema region, is in limbo. This is a contentious project as Telangana argues that it violates the provisions of the Andhra Pradesh State Reorganisation Act, 2014.

Last week, the expert appraisal committee denied clearance for the terms of reference required to conduct the environmental impact assessment and environmental management plan for the project. The committee argued that the Godavari Water Disputes Tribunal award must first be examined and that the Central Water Commission (CWC) should be consulted before any environmental approvals are granted. The government has not yet commented on this decision.

A political dialogue between the Chief Ministers of A.P. and Telangana may be necessary to move the project forward. While the bold project seems to be a solution to Rayalaseema's acute water scarcity, a troubling question lies behind the grand ambition. Is the State mortgaging its future for a project that may never be economically viable or ecologically sound?

On paper, the project is an engineering marvel. However, its scale demands scrutiny, particularly when weighed against its energy costs, environmental footprint, and legal uncertainties. The project will require an estimated 3,377 MW of power. This is a staggering demand for a fiscally



stressed State. Officials point out that the scheme will eventually generate around 430 MW; this is barely a fraction of what is needed to run it.

The environment footprint of the project is alarming. The 19.5-kilometre-long main tunnel will cut through the ecologically sensitive Nallamala forest and tiger reserve. A total of 17,739 acres of forest land is proposed for use.

It is also unclear why the State is opting for an energy-intensive solution when gravity-fed alternatives exist. The Krishna river, particularly the Srisailem reservoir, offers a natural gradient that could irrigate Rayalaseema with significantly less financial and environmental cost. Gravity-based projects such as Galeru Nagar, conceived decades ago for this very purpose, remain unfinished.

The project is being proposed under the hybrid annuity model, which combines Central grants, State equity, loans, and private investment. A special-purpose vehicle, Jalaharathi Corporation, has been set up to execute it. The funding model envisions ₹40,950 crore in loans, ₹16,380 crore in Central grants, ₹8,190 crore in State equity, and ₹16,380 crore through private investment.

Unusually, the responsibility for obtaining critical clearances from various ministries and from the CWC is being placed on contractors.

Even if the finances and power needs are somehow

managed, the project hinges on the assumption that excess floodwaters from the Godavari are flowing wastefully into the sea. But this is unverified. And as noted earlier, the committee has already denied permission for the terms of reference. Without clearance from the CWC, Central funding is uncertain.

Telangana's Kaleshwaram Lift Irrigation Project sets a cautionary precedent. The CWC refused to approve an add-on component after determining that water availability projections were exaggerated. The A.P. government's proposal may face similar resistance, especially in the absence of a formal agreement on sharing surplus Godavari flows.

Telangana has already raised objections under the A.P. Reorganisation Act, 2014, which mandates that all new projects on the Krishna and Godavari rivers receive clearances from river management boards. A.P., however, argues that this is an intra-State project using floodwater headed for the sea. It is a legal grey zone that could lead to years of litigation.

In recent years, A.P. has often found its interests sidelined. The Centre supported Karnataka's Upper Bhadra project just before elections. In Telangana, it adjusted the terms of reference on Krishna water allocation just before elections. As the TDP is back in the NDA fold, speculation is rife that the Godavari-Banakacherla project could become a political bargaining chip. Rayalaseema's long-term water security should not be reduced to Delhi's short-term arithmetic. At the same time, development in Rayalaseema must happen through projects that are sustainable, legally defensible, and based on hydrological realities.

How fast is India's fastest man?

Since 1968, 1,027 athletes from around 90 countries have run the 100 m faster than Animesh Kujur

DATA POINT

Vignesh Radhakrishnan

Last Saturday, Animesh Kujur became India's fastest man by breaking the national record in the men's 100 metres. He clocked 10.18 seconds in Greece, becoming the first Indian to run the 100 m event under 10.2 seconds.

Chart 1 shows the best 100 m runs of all Indians equal to or below 10.55 seconds. Notably, two of India's fastest 100 m runs have come in quick succession in 2025. In March, Gurindervir Singh set a record of 10.2 seconds; he is now the second fastest. On a parallel lane, Manikanta Hoblihdhar ran the 100 m race in 10.22 seconds; he is now the third fastest Indian.

Since 1968, 1,027 athletes from around 90 countries have run the 100m faster than Kujur (Chart 2). Kujur's effort is still a significant 0.6 seconds slower than Usain Bolt's world record of 9.58 seconds, set in 2009, which remains unbeaten (Chart 3). Bolt also holds the record for the second-fastest 100 m (9.63 seconds).

Chart 4 shows the progression of the 100 m world and Indian records over time. Kujur's national record is 0.02 seconds faster than the legendary sprinter Jesse Owens' best of 10.2 seconds, set in 1936. The current Indian national record is comparable to world records set in the 1930s to 1950s.

On Saturday, Kujur broke Singh's record of 10.20 seconds, set earlier this year. Singh had surpassed Hoblihdhar's 2023 mark of 10.23 seconds, who in turn had broken Amiya Mallik's 10.26 seconds from 2016. Mallik had bettered Abdul Najeeb Qureshi's 10.30 seconds, set in 2010, which had equalled Anil Kumar's record from 2005. In essence, over the past 20 years, Indian sprinters have improved their 100 m time by 0.12 seconds.

Need for speed

The data for the charts are sourced from Worldathletics.org. In the charts, records which are yet to be ratified by the Athletics Federation of India were not considered

Chart 1: The best 100 metre runs of Indians, equal to or below 10.55 seconds. Only events recorded in Worldathletics.org and ratified are presented

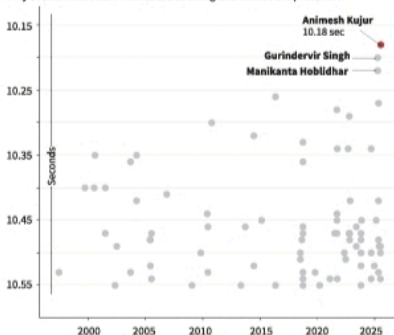


Chart 2: The best 100 metre runs, equal to or below 10.18 seconds. Each dot represents one athlete and his best run equal to or better than Kujur's national record

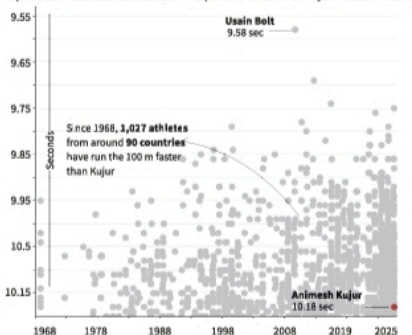


Chart 3: All the 100 metre runs, equal to or below 10.18 seconds. This chart includes an athlete's multiple runs if it was equal to or better than Kujur's record

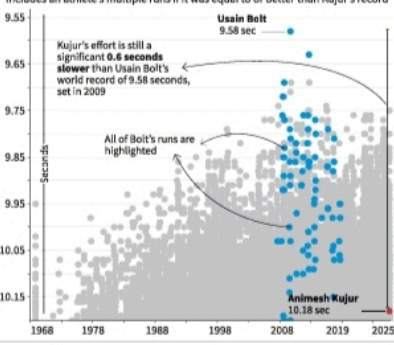
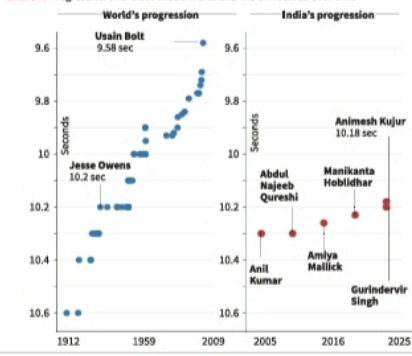


Chart 4: Progression of the 100 metre world and Indian records over time



FROM THE ARCHIVES

The Hindu

FIFTY YEARS AGO JULY 9, 1975

WHO panels clears 'genetic engineering'

Geneva, July 7: The dangers of genetic engineering, altering the structural foundation of life, can be controlled, an international panel of top scientists has told the World Health Organization. The panel, meeting here privately at the end of last month, has made recommendations for action which, a WHO official said, would "give the amber light" to research on artificial recombination of genes. This is a field which has caused disquiet among many scientists because of the prospect of "engineering" human beings by changing genes. "The field has tremendous implications in cancer research, for example," a WHO spokesman said yesterday. "But last year it was discovered that it could have unexpected and fatal results." The details of the recommendations by the WHO's Advisory Committee on medical research are being kept secret until July 24. The committee heard a report from Dr. E.S. Anderson, of the London Central Public Health Laboratory on his work, the WHO spokesman said. A WHO statement last week said only that the committee "discussed at some length the safety problems involved in the experimental handling of pathogenic organisms." It added, "Special attention was given to the developments which are likely to stem from the new techniques which have recently become available." The statement added: "This powerful methodology amounts to performing artificial recombination between genes of different organisms. It was recognised by the committee that extremely important advances in medical science could be expected from the application of these techniques to the solution of a wide variety of problems in the prevention and therapy of human and animal diseases."

A HUNDRED YEARS AGO JULY 9, 1925

Russo-Polish relation

Warsaw, July 8: Farther incidents on the Polish-Russian Frontier are reported. 20 Russian soldiers who crossed the frontier were fired on by the Polish Frontier Guards, who drove back the Russians, of whom one was mortally wounded.

The Political Police have recently arrested 200 Soviet emissaries on the Eastern border.

Text & Context

THE  HINDU

NEWS IN NUMBERS

Number of lives lost in Gaza by Israeli strikes on Tuesday

29 The war, which began in 2023, has killed at least 57,523 Gazans, the health ministry said. Gaza's civil defence said that 29 people were killed by an Israeli attack on July 8. Nine of them were killed during a drone strike at a displaced persons camp outside of Khan Yunis. *AP*

Number of Indian students who got the Erasmus+ scholarship

101 The Erasmus+ programme, started in 1987, is part of the EU academic exchange initiative, and pays for tuition, and living costs. India is the leading global recipient, a testament to robust EU-India relations. Students will pursue various fields of study in more than 19 EU nations. *PII*

People missing after the Nepal-China border bridge collapse

18 At least 18 people, including six Chinese nationals, have gone missing, after the Nepal-China border bridge was washed away in Nepal. The Bhotekoshi River in Nepal had flooded after continuous monsoon rainfall in China. Eleven people, including two police personnel, were rescued. *PII*

People who embarked on a three-day peace march in Bosnia

7,000 Thousands embarked on a three-day peace march through Bosnia in memory of the victims of the 1995 Srebrenica massacre, Europe's only acknowledged genocide since World War II. The march consisted of Bosniak ethnic groups. *AP*

Worth of assets restored by ED to Karnataka Waqf Board

3.82 in ₹ crore. The Enforcement Directorate (ED) said it has restored assets to the Karnataka State Waqf Board following a money laundering investigation into a case of alleged fraud against the body. *PII*

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What will be effect of rising military spending?

Why have NATO nations decided to increase their defence expenditure? During which period was global military spending the most? Will increased remilitarisation have an effect on domestic health spending? Why has the United Nations decided to cut down on its budget?

EXPLAINER

Nissim Mannathukkaren

The story so far:

The North Atlantic Treaty Organization (NATO) summit in June pledged to increase military spending to 5% of the member nations' GDP (specifically "core defence requirements as well as defence and security-related spending by 2035"). The previous spending target was 2%. Such a move is symptomatic of the sharp increase in global military spending in the last few years.

What has been the historical trajectory of military expenditures?

According to the Stockholm International Peace Research Institute (SIPRI), which produces the most comprehensive database on military spending, global military spending was \$2,718 billion in 2024. The year saw a 9.4% increase, which was the highest year-on-year increase since 1988, with the Russia-Ukraine war and the Israel-Gaza conflict contributing to it. In 2025, the world saw two big additional conflicts, between India and Pakistan, and Israel and Iran. This, combined with the NATO pledge, will see further increases in global military spending in the coming years.

Historically, the Cold War period saw the highest amounts of global military spending. It was 6.1% of the world's GDP in 1960. In the last year of the Cold War, it was at 3%. It reached its lowest levels in 1998 at 2.1% (a total expenditure of around \$1,100 billion). In 2024, it reached 2.5% (from 2.3% in 2015).

Who are the biggest military spenders?

The United States is the biggest military spender in the world with \$997 billion, followed by China at \$314 billion, Russia at \$149 billion, Germany at \$88.5 billion and India at \$86.1 billion — these nations are the top five military spenders. Almost 80% of the total worldwide military spending is spent by the top 15 military spenders. All of the NATO members (32) combined spent \$1,506 billion, which makes it around 55% of global military spending. Thus, there is a concentration of spending in a few countries.

In terms of GDP percentage, among the top 20 spenders (excluding countries at war such as Russia, Ukraine and Israel), the highest spenders include Saudi Arabia (7.3%), Poland (4.2%) and the U.S. (3.4%). The rest fall in the range of 2.6% to 1.3%.

What about the expenditure on other public goods?

The present wave of remilitarisation threatens to eliminate the gains made from declining military expenditures after the end of the Cold War. According to the Global Peace Index, in 2023, militarisation increased in 108 countries and the year saw the highest number of conflicts since World War II. Of course, military spending, driven by the military-industrial complex, can benefit certain sectors of the economy. Yet, as studies show (for example, by Masako Ikegami and Zijian Wang, based on 116 countries), there is a significant crowding-out effect that increased military spending has on domestic government health spending, the effects of which are borne more by middle- and low-income countries. But even high-income countries are not immune. Spain, which spends only 1.24% of GDP on defence, asserted its sovereignty and opted out of the new NATO target citing



Increasing the cost: Police experts work at the site of the Russian drone strike, amid Russia's attack on Ukraine, in Kharkiv, Ukraine on July 7. *REUTERS*

that it is "unreasonable" and that the extra burden of 300 billion euros will cut welfare spending. It should be noted that nine NATO members failed to meet even the 2% target by 2024 despite it being proposed first in 2002.

What about the UN?

The present military spending of \$2.7 trillion and its scale can be understood only by placing it in the context of other critical global expenditures. The latest budget of the United Nations is only \$44 billion — with which it should fund development, humanitarian aid, and peacekeeping operations. But the UN, in six months, has only received \$6 billion, and as a result, is seeking to reduce the budget to \$29 billion. In the 12-day Israel-Iran war, the U.S. is estimated to have spent nearly \$1 billion on missile interceptors alone.

The U.S., under President Donald Trump, seeking to cut foreign aid is the major cause of the UN funding crisis. While Mr. Trump wants to be known as a peace-making President, he has pushed NATO to adopt the 5% military spending target and has closed down the U.S. Agency for International Development (USAID), which provided annual assistance to the tune of \$50-60 billion worldwide in the few years until the Russian-Ukraine war. A *Lancet* study found that USAID assistance in healthcare, nutrition, etc., prevented 91 million deaths in low- and middle-income countries in the past two decades, and that Mr. Trump's decision could potentially cause a staggering 14 million

additional deaths by 2030, a third of them being children. It demonstrates that peace is not just the absence of war, but also the material conditions for the healthy sustenance of life.

Additionally, increased defence spending is upending the progress of achieving the UN Sustainable Development Goals (SDGs). It is estimated that ending extreme poverty and absolute monetary poverty globally by 2030 would need \$70 billion and \$325 billion respectively per year. It constitutes only 0.1% and 0.6% of the gross national income of high-income countries. The UN estimates that in 2021, around 4.5 billion people did not have full coverage of essential health services, and that even spending just \$1 per person yearly on preventing non-communicable diseases could save nearly seven million lives by 2030.

Increased military spending has deleterious effects on another SDG as well — combating climate change.

According to a study by the Conflict and Environment Observatory, if NATO's defence spending reached 3.5% of GDP, greenhouse gas emissions would increase 200 million tonnes annually. When the world is seeing unprecedented heatwaves, and with 2024 being the hottest year on record, increased military spending will only divert scarce resources from climate mitigation, and other pressing public goods.

How is India affected by increased military spending?

Close to home, after Operation Sindoor,

\$50,000 crore was additionally sanctioned (to supplement the annual budget of ₹6.81 lakh crore) for emergency defence purchases to replenish used weaponry.

To put it in perspective, funds allocated by the centre for Ayushman Bharat health insurance which covers 58 crore people was ₹7,200 crore for 2023-24. India spends 2.3% of GDP on the military whereas the public expenditure on health, despite increasing in recent years, is very low. It is 1.84% of the GDP, less than the 2.5% target of the National Health Policy, and much less than the 10% mark of most developed countries. In the light of heightened tensions and public sentiment being in favour of militarisation, spending on other public goods might suffer. Military conflicts and spending can be ruinous for middle- and low-income countries. Lebanon spent 29% of its GDP, and Ukraine 34%, on military spending last year.

NATO Secretary General Mark Rutte stated that "We must spend more, to prevent war." The present proposed increase is, according to NATO, mainly to counter Russia. Scholars note of the huge disparity between Russia and NATO: Russia's economy is 25 times smaller and military spending, 10 times lesser. This shows how fear-mongering can be used by leadership to militarise society further.

If the NATO pledge does indeed become a reality, the consequences for human well-being will be enormous.

Nissim Mannathukkaren is a professor with Dalhousie University, Canada, and he is on X @nmannathukkaren.

THE GIST

According to the Stockholm International Peace Research Institute (SIPRI), which produces the most comprehensive database on military spending, global military spending was \$2,718 billion in 2024.

The latest budget of the United Nations is only \$44 billion — with which it should fund development, humanitarian aid, and peacekeeping operations. But the UN, in six months, has only received \$6 billion, and as a result, is seeking to reduce the budget to \$29 billion.

The U.S., under President Donald Trump, seeking to cut foreign aid is the major cause of the UN funding crisis.

CACHE



ISTOCKPHOTO

Fostering innovation from business models to DeepTech

Without a culture of experimentation and long-term thinking, no amount of funding can build DeepTech. For R&D culture to flourish, founders need to dirty their hands in technicality. Great DeepTech companies are built by founders with hands-on technical expertise

Rihupendra Bhate

Few months back, the Minister for Commerce and Industry Piyush Goyal sparked a debate by drawing comparisons between Indian startups and their Chinese counterparts. While his comments stirred some discontent within the startup ecosystem, they also raised a crucial point – India must now shift its gaze from surface-level innovation to DeepTech.

The journey so far

If we look at our startup ecosystem journey so far, it has flourished largely on the back of business model innovation. From food delivery apps and e-commerce to fintech and gig economy platforms, startups have created new value by reimagining how services are delivered. While this has driven revenue and encouraged entrepreneurship, it's time to aim higher. As Mr. Goyal emphasised, the next frontier is DeepTech – technology grounded in scientific discovery, engineering excellence, and fundamental research.

But what is DeepTech? One will get different answers depending on who you ask. Ask around in VC circles or among founders, and the usual buzzwords emerge – AI, robotics, Internet of Things (IoT), drones etc. While these are important, DeepTech is far broader.

Material science, power electronics, advanced manufacturing, and molecular drug research are the fields which underpin critical advances in everything from energy systems and robotics to next-generation healthcare and AI hardware. For example, what makes drones both lightweight and durable?

Material science. Why is China ahead in battery tech? Because companies like BYD invested early in core chemistry and engineering, and not just assembly.

DeepTech isn't about repackaging existing components. It's about bold and original work. It's about building from scratch, failing repeatedly, and pushing the boundaries of what is possible.

Building DeepTech

Understanding DeepTech is like peeling an onion with each layer revealing new dependencies and challenges. There are five core pillars which must align – a product mindset; R&D culture; technical depth; the educational ecosystem; and supportive government policies.

Product mindset is a big missing link. Let's start with a simple question. Which globally recognised product, across sectors – consumer, industrial, medical, telecom, mobility etc – have been conceived and built in India? Even in software, our supposed strength, we haven't produced tools like TensorFlow, Android, QNX, or SAP. While Indian talent leads some of the world's top companies, the DNA of product creation remains weak at home. China began by reverse engineering global products, steadily moving up the value chain, and eventually creating new products with original R&D.

A product mindset and R&D go hand in hand.

Without a culture of experimentation and long-term thinking, no amount of funding can build DeepTech. For R&D culture to flourish, founders need to dirty their hands in technicality. Great DeepTech companies are built by founders with hands-on technical expertise. Think of Google, Tesla,

NVIDIA, and Microsoft. Their founders were engineers, builders, and coders. Larry Page and Sergey Brin wrote the algorithm that became Google while Bill Gates wrote software as a teenager.

To create such companies from scratch, we need founders with deep domain knowledge and an urge to solve complex problems, and not just manage teams.

Moreover, to promote technical depth, our education system needs to change its focus from tools to fundamentals. The journey towards DeepTech starts in the classroom. But how many Indian colleges teach AI or robotics from first principles, the mathematical derivation of AI or close loop control systems fundamentals? Beyond a few IITs, most focus on tool-based training, not foundational understanding. As a result, our engineers often become tool users, not tool creators.

We can emulate the likes of MIT and Stanford, where students master core theory before picking up tools.

Multidisciplinary collaboration is another must. Most innovations especially in healthcare, mobility, or automation lie at the intersection of fields. Our college projects should involve multi-disciplinary student participation. We must move toward academia-industry collaboration, internships, and real-world problem-solving. In the U.S., the Defense Advanced Research Projects Agency has funded challenges that have fostered innovation in robotics, leading to breakthroughs like Intuitive Surgical's Da Vinci robot.

And finally, smarter government support will always be a catalyst. India has institutions like the National Research Development Corporation (NRDC) to

promote R&D, but many of the qualifying criteria are irrational. For example, why restrict funding to startups only inside incubators? Shouldn't we evaluate based on the technical depth of the founders, the R&D roadmap, and its potential impact?

DeepTech startups often need access to fabrication labs, pilot facilities, and test and certification centres, all of which are costly infrastructure the startups themselves can't build. Micro, Small and Medium Enterprises often lack precision, and large corporations demand volumes that early-stage ventures can't deliver.

The government must create shared facilities, and affordable, high-quality spaces for low-volume, high-precision prototyping and testing. This is the only way to bridge the gap between idea and viable product.

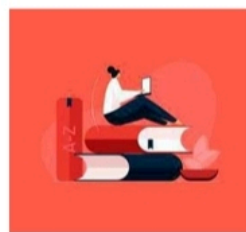
The road ahead

India's aspiration to lead in DeepTech is both timely and necessary. But to realise this vision, we must orchestrate a coordinated shift across the entire ecosystem.

Founders must deepen technical expertise and adopt a true product plus R&D mindset. Educational institutions must prioritise fundamentals and interdisciplinary learning, and the government must offer smarter, broader, and more agile support.

Only through this kind of systemic transformation can we build world-class DeepTech products which are driven by science, born in India, and built for the world.

Bhupendra Bhate is CEO and co-founder of Saintian Technologies Pvt Ltd, a company specialising in advanced medical devices powered by AI.



FROM THE ARCHIVES

Know Your English

K. Subrahmanian
S. Upendran

"So, tell me, what's the difference between 'look at' and 'watch'?"
"When you 'look at' something, you pay attention, you concentrate."
"If I say, I looked at the painting, it would mean I paid particular attention to the details. Is that what you're saying?"
"Yes, that's right. The word 'watch' has more or less the same meaning as 'look at'..."

"...but you said they were different!"
"Let me finish what I'm saying, will you? Unlike 'look at' the word 'watch' carries with it the sense that something is taking place or is about to take place."
"You mean if I'm watching something, there's something happening?"

"That's right. There's something happening or there is something about to happen. The word is usually used with things that move or change. For example..."

"...I watched the painting."
"...no, not that. You cannot watch a painting because nothing ever happens to it. It doesn't move, or change. It remains stationary. You can only look at a painting. But you can watch a painter at work."

"I see. I can watch a bird, a man, a child, but not a painting... Hey, but wait a minute! I've heard people in movies say, 'Watch that house!' The house isn't going to move, or change, so why do they use the word 'watch' in this case?"

"Because something is happening or is about to happen in that house. Maybe a wanted man is going to walk out of it or something."

"I see. But what about games? You watch games, don't you?"
"That's right. You watch football, you watch cricket and hockey. You do not say 'I look at football games'."

"I don't watch football all that much. But I watch a lot of tennis."

"And where do you watch all your games? You watch it on TV. You either 'see' or 'watch' programmes on TV. You do not 'look at' programmes on TV."

"I see. Yesterday, I watched Sujatha play tennis."

"Is she any good?"
"Not bad, actually. She caught me looking at her."

"Did she smile at you?"
"Why should she smile at me? I didn't do anything stupid."

"People don't smile at you when you do something stupid. They laugh at you when you do something stupid."

"Don't 'smile at' and 'laugh at' mean the same thing?"

"No, they don't. When people 'laugh at' you they are making fun of you. For example, at the circus when a clown slips and trips, everyone laughs at him."

"Our physics teacher laughs at us whenever we make a mistake."
"It's not polite to laugh at other people's mistakes."

"Tell that to my teacher. Anyway, what does 'smile at' mean?"
"When you 'smile at' someone, it just shows you are being friendly."

"You are not making fun of the other person?"

"Most definitely not!"
Published in The Hindu on March 11, 1997.

THE DAILY QUIZ

A quiz on the films directed by Guru Dutt on the occasion of the filmmaker's centenary

V.V. Ramanan

QUESTION 1
Dutt's directorial debut was the 1951 *Baazi*, a crime thriller which was produced by Dev Anand's Navketan Films. Which famous Indian cinematic legend wrote the screenplay?

QUESTION 2
Which flick made in 1953, which had Guru Dutt debut as an actor under his own direction, is a period piece set in the 16th century depicting an uprising against the Portuguese?

QUESTION 3
In *Aar Paar* made in 1954, what is Guru Dutt's profession and which sibling of his assisted him in the direction?

QUESTION 4
Which popular star is said to have rejected a role in the romantic comedy *Mr. & Mrs. 55* due to her hectic schedule, later lamenting it as her "worst decision ever"?

QUESTION 5
Dutt's not-so-successful *Sailaab*, made in 1956, was produced by his brother-in-law who also gave the music for the film. Name him.

QUESTION 6
In *Pyasa*, who were supposed to play the roles that Mala Sinha and Waheeda Rehman eventually enacted?

QUESTION 7
Name the Oscar-winner who designed the costumes for *Kaagaz Ke Phool*.



Visual question:
Name this Dadasaheb Phalke awardee and what is his connection to Dutt's career as a director. FILE PHOTO

Questions and Answers to the previous day's daily quiz:
1. The first player to achieve a triple century. **Ans: England's Andy Sandham**
2. Apart from Bradman and Sehwag, these batters have scored two triple tons in Tests. **Ans: Brian Lara (WI) and Chris Gayle, both from West Indies**
3. The two Asian stars who were helming their team while getting a triple hundred. **Ans: Sri Lanka's Mahela Jayawardene and Pakistan's Younis Khan**
4. The teams that played in the first two England-India Tests had these batters who scored a 300+ for their team. **Ans: Harry Brook and Karun Nair**
5. The connection between Headingley in Leeds and Antigua Recreation Ground in St. John's. **Ans: They are the two cricket grounds that has seen three triple hundreds**
6. The common link among the triple tons scored by Graham Gooch, Sanath Jayasuriya, Michael Clarke and Brendon McCullum. **Ans: They all came against India**
Visual: The speciality about this triple hundred. **Ans: It is the fastest triple hundred, blasted off just 278 balls!**
Early Birds: Sukdev Shet (Sumana Dutta) Tito Shiladitya (Arun Kumar Singh) Sunil Madhavan

Word of the day

Sodden:
wet through and through; thoroughly wet
Synonym: sopping

Usage: He wrung out his sodden shirt.

Pronunciation: newsth.live/soddenpro

International Phonetic Alphabet: /so.dən/

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



Gene-edited japonica rice fared better due to higher seed and panicle numbers. SPECIAL ARRANGEMENT

NIPGR's gene-edited rice has better phosphate uptake, more yield

Phosphorus is an essential mineral for plant growth and development. In case of limited phosphorus availability, crop productivity drops drastically. Even when phosphate fertilizers are used, only about 15-20% are taken up by plants, while the balance gets leached out or lost through runoff

R. Prasad

Scientists at the Delhi-based National Institute of Plant Genome Research (NIPGR) have used CRISPR-Cas9 gene editing technology to increase phosphate uptake and transport in *Japonica* rice varieties. The resulting rice lines had higher seed and panicle numbers, and thus higher yield without compromising seed quality. The studies were carried out in a greenhouse.

Phosphorus is an essential mineral for plant growth and development. When its availability is limited, crop productivity plummets. Even when phosphate fertilizers are used, only about 15-20% are taken up by plants; the rest is leached out or lost in surface runoff.

In the gene-edited rice lines, a recommended amount of phosphate fertilizer increased yield by 20%. However, when only 10% of the recommended dose was used, the yield increased by 40% over the control group, Jitender Giri of NIPGR and the corresponding author of a paper, published in *Plant Biotechnology Journal*, says.

"The purpose was to just demonstrate that even under extreme conditions of using only 10% of the recommended dose, the gene-edited lines showed increased phosphate uptake, resulting in 40% higher yield compared with the control group, where the yield reduced sharply," Dr. Giri says. "But if phosphate fertilizer supply is reduced by 10% or even 30%, it is very likely that the gene-edited lines will still outperform the control plants."

Rice absorbs phosphate through its roots and transfers it to the shoots. One class of transporters brings phosphate from the soil into the root while another inorganic phosphate transporter (OsPHO1;2) transfers phosphate from the root to the shoot.

The NIPGR researchers restricted their work to the root-to-shoot phosphate transporter. "When the phosphate transporter OsPHO1;2 starts working more, it will create more demand for phosphate in the root. When this happens, the root-bound transporters will bring more phosphate from soil into the root," Dr. Giri explains. "We already know there is a negative regulator that controls the expression of the phosphate transporter in the model plant *Arabidopsis*. But what's happening in rice was not known till now."

Identification, removal of repressor
In *in silico* and DNA-protein interaction studies, the researchers identified the repressor gene, OsWRKY6, and showed that the repressor physically binds to the promoter. To verify if the repressor was indeed reducing the expression of the phosphate transporter, they silenced the repressor by knocking it out using the CRISPR-Cas9 gene editing tool. The

expression of the phosphate transporter OsPHO1;2 consequently increased significantly.

The increased expression of the transporter should have ideally led to more yield. But instead, the gene-edited rice lines fared poorly compared with the control.

"This was unexpected. We figured out that the repressor was also needed for other functions in the plant. While knocking out the repressor gene completely helped in removing the repression of the phosphate transporter thereby increasing the levels of phosphate in the shoot, we were also removing some essential functions regulated by the repressor," Dr. Giri says.

Removing the binding site

The researchers then identified the site where the repressor actually binds to the promoter. The binding site in the promoter is a very short sequence of just 30 base pairs. Again CRISPR-Cas9 was used to remove the binding site of the repressor on the promoter. "We removed only the binding site and not the repressor itself. So the repressor is present in the plant and continues to execute other vital plant functions," Dr. Giri explains.

The phosphate transporter OsPHO1;2 is also regulated by other regulators. By specifically removing only the site where the repressor binds to the promoter, the researchers ensured the binding sites of other regulators are intact, so they could continue to bind to the promoter and regulate its function. Dr. Giri likens it to undertaking a precise, minimal invasive surgery in the promoter gene.

There was enhanced expression of the promoter in the roots, along with increased shoot phosphate accumulation and improved plant growth. When the binding site of the repressor gene was removed from the phosphate promoter, the gene-edited rice plants transferred more phosphate from root to shoot.

"The roots start behaving like a sink by absorbing more phosphate from the soil, and this phosphate is distributed throughout the plant," Dr. Giri says.

The team found that the gene-edited lines were channelling the extra phosphate absorbed by the roots to produce more seeds by increasing the number of panicles – the fruiting body that bears seeds – leading to an increase in yield by 20%. The researchers analysed the seeds' sizes, dimensions, and starch and phosphate content, and found their quality to be normal.

Since the roots of gene-edited plants absorb more phosphate than before, will it become more necessary to continue using the same amount of phosphate fertilizer? Dr. Giri says phosphate is very reactive.

In alkaline soil, phosphate forms complexes with either calcium or magnesium or, if it is acidic, with iron and aluminium. Since these complexes are

In the gene-edited rice lines, a recommended amount of phosphate fertilizer increased yield by 20%. However, when only 10% of the recommended dose was used, the yield increased by 40% over the control group

insoluble, the transporters in the root can't absorb them.

"In the case of gene-edited rice, the plants will quickly absorb more phosphate before it combines with aluminium, iron, calcium or magnesium and become insoluble," he explains.

Testing the hypothesis

In the study, *japonica* cultivar Nipponbare was used, since making gene-edited lines and transgenics is generally easy with *japonica*. "*Japonica* variety is easy to work with. It's not easy to raise transgenics using *indica* varieties. It will take more time to generate a sufficient number of gene plants when using Indian cultivars," Dr. Giri says.

"It's a very important scientific advancement," says P.V. Shivaprasad of the Epigenetics lab at the National Centre for Biological Sciences, Bengaluru.

He wasn't part of the study. "Soil in several parts of India has phosphorus deficiency. When the same modifications are performed in *indica* rice lines, it will be extremely useful. One must also check the efficacy of phosphate absorption, and how much less phosphate fertilizer can be used without compromising yield in *indica* lines. Exciting times ahead."

Off-target events

Activists have previously objected to gene-editing on the grounds that the IP rights are held by foreign entities. Dr. Giri says India is negotiating to license the CRISPR-Cas9 technology.

"This technology doesn't always target only the bases or genes of interest. Off-target events do happen – another concern that activists have raised.

To address this issue, Dr. Giri says there is software to predict where a gene edit might have unexpected, unwanted or even adverse effects on the genome.

"We checked for all off-target genes to check if there are any changes. In our case, we tested the top 10 contender off-target sites and did not find any deletion on those sites," Dr. Giri says. Before the seeds are actually approved and released and farmers are allowed to cultivate, efforts will be taken to ensure the deletion is restricted only to the receptor binding site on the promoter, with no off-target effects, Dr. Giri adds. "What we do actually is that we produce a large number of lines and then select the best line and check for off-targets."

"It is very much possible to eliminate off-target events," says Dr. Shivaprasad.

"There are multiple tools available for guide RNA design that almost eliminate the possibility of off-target events. It is also important to check for off-target regions to ensure off-target events have not happened. It needs expertise."

According to Dr. Shivaprasad, there are more than three good *in silico* tools available to check for off-target events: "Southern blot analysis, particularly junction fragment analysis, is carried out to verify the successful integration or modification of DNA sequences within a genome and to confirm if multiple copies or half copies are not present."

NIPGR researchers have tissue culture-based transgenic generation. When plants are produced using tissue culture, the plants are tested to check if gene-editing has been precise even before the seeds are produced.

"Only if the gene editing has been precise with no off-target events will we even allow the plants to grow to the seed stage," Dr. Giri says. "The rest are discarded. So whatever plant we grow until the seed stage will always carry the correct gene editing."

The seeds coming from that plant and from the progeny will carry the phosphate transporter that has been precisely gene-edited to remove the 30 base pairs that form the binding site for the repressor."

Foreign DNA

The third major objection is the presence of foreign DNA. The Cas9 protein used in CRISPR gene editing is derived from *Streptococcus pyogenes* bacteria.

Therefore, Cas9 – which is the DNA-cutting enzyme – carries foreign DNA. Foreign DNA also comes from a soil bacterium as a vector to deliver the CRISPR-Cas9 components into plant cells.

Dr. Giri claims that the DNA from bacteria is removed in the second generation through a simple Mendelian segregation method, as the plants are tested before growing to the seed stage to know if the gene-editing has been precise. "If you have one trait, the next generation will segregate into 3:1, where three will have the foreign DNA, and one will not. In the next generation, foreign DNA free plants are identified and propagated," he says.

"It is possible to remove the DNA of *Agrobacterium tumefaciens* – the soil bacterium that is used as a vector for delivering the CRISPR-Cas9 components into plant cells – through the Mendelian segregation method," Dr. Shivaprasad confirms. When the soil bacterium vector is removed, the *S. pyogenes* bacterium is also removed as well.

India depends almost entirely on imports to meet the domestic demand for phosphate fertilizers. If the new technology is successfully replicated in Indian rice varieties, it could contribute to sustainable agriculture.

(prasad.ravindranath@thehindu.co.in)



An aerial view of structures on Nyangai Island on April 30. AFP

Sierra Leone islanders despair as rising ocean threatens survival

Agence France Presse

Wading through water up to his knees, Hassan Kargbo points to the vast ocean before him, which is eroding the land and imperilling residents' survival on his island off Sierra Leone.

"Where we are now, it used to be my house, and we used to have a big football field," Kargbo said, but "the water destroyed everything".

Over the past five years, the 35-year-old fisherman has seen the losses pile up as the rising Atlantic waters, which threaten millions across his west African nation, have claimed enormous portions of his island.

The inhabitants of Nyangai, located in the Turtle Islands off southern Sierra Leone, have made virtually no contribution to global warming, driven by humanity's burning of fossil fuels.

Yet they are widely considered the country's first people displaced by climate change, as the ever-hotter temperatures melt more of the earth's ice caps, swelling the seas around the archipelago.

The majority of Nyangai's exhausted residents have lost their belongings and homes several times over, as they crowd further into the island's interior.

A team of reporters was able to visit several of the Turtle Islands, travelling seven hours by canoe from the capital,

The island has lost two-thirds of its surface area and measures only about 200 m long and 100 m wide. All that remains is an islet ringed by canoes, with shacks clustered in the centre

Freetown.

On arrival in Nyangai, pelican colonies, white sand beaches and palm trees make the island appear almost like a paradise.

Then the devastation comes into focus: palm trees uprooted by wind and wave, beaches littered with branches and debris, sandbags serving as insufficient ramps, abandoned furniture scattered by people who have long moved on.

In less than 10 years, the island has lost two-thirds of its surface area, and now measures only about 200 m long and 100 m wide.

Seen from above, all that remains is a small islet ringed by fishing canoes, with thatched-roof shacks clustered tightly in the centre.

Ten years ago, Nyangai still had a thousand inhabitants. Although there is no official census, community leaders estimate that fewer than 300 residents remain. Goats and chickens roam between houses made of white tarpaulins stretched around wooden frames. Fishermen mend their nets, women smoke and dry fish on the sand, and children scamper on the beach.

Due to the shrinking space, the island is incredibly overcrowded. Potable water is lacking due to the soil's salinity and there are no toilets, electricity or health clinics.

More than two million people along Sierra Leone's coast are threatened by rising sea levels, according to a June 2024 study by the country's National Disaster Management Agency and the NGO Internal Displacement Monitoring Centre.

Fisherman and community chief Amidou Bureh stood on the beach looking far into the ocean where the land used to be.

"We had many trees here, mangoes, coconut and other trees, but over the years water has destroyed all of them," the 60-year-old said. Officials and international organisations have not provided any concrete assistance beyond recommending relocation, he added.

Kargbo said that his family has already lost its belongings and rebuilt their house in Nyangai twice. But the sea is at their door once again.

"I have no confidence that Nyangai will continue to exist," he said.

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The IndianEXPRESS

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RAMNATH GOENKA

BECAUSE THE TRUTH INVOLVES US ALL

ADDRESS MISGIVINGS

Projects on Great Nicobar Island have strategic importance. Government must not ignore transparency-related concerns

IN THE PAST five years, the government has taken steps to develop the Andaman and Nicobar Islands as a bulwark of security to the east of the country's peninsular area and as a crucial node for safeguarding India's interests in the Indo-Pacific. The project involves revamping airfields and jetties and building logistics and storage facilities, a base for military personnel, and a robust surveillance infrastructure. It also involves a massive infrastructure upgrade on Great Nicobar Island — an International Container Transshipment Terminal, a greenfield international airport, a township, and a gas and solar-based power plant spread. Given that the rapid enhancement of the capabilities of China's People's Liberation Army Navy has greatly increased the strategic importance of the Bay of Bengal in the past two decades, Delhi's infrastructure push and the building of a strong military deterrence at Great Nicobar hasn't come a day too late. However, the island's ecological sensitivity has made the challenge more complex. Civil society activists and wildlife conservationists have alleged that the infrastructure upgrade will harm the region's indigenous communities, including the largely uncontacted Shompen people, it will have negative spinoffs for coral reefs and marine systems and pose a threat to endangered species, including the terrestrial Nicobar megapode bird and leatherback turtles. In 2023, the National Green Tribunal (NGT) directed the Ministry of Environment to constitute a high-powered committee (HPC) to revisit the environmental clearances to the Great Nicobar project. On Monday, even as the ministry submitted the panel's report to an NGT bench, there was little indication that a resolution to the impasse was at hand.

The HPC has reportedly concluded that the environmental clearances accorded to the project "adhered to statutory provisions". The government has, however, not made the panel's report public. Keeping information classified is, of course, necessary at times in matters involving strategic affairs. But in an ecologically fragile region with a vulnerable local population, a project to create a formidable maritime bastion requires engagement with all sections of society. The government's insistence on secrecy will do more harm than good, especially because the lack of transparency around due procedures was a major sticking point with civil society activists. The government has reportedly also wielded the RTI Act's provisions on security and strategic concerns to deny right to information requests about environmental clearances. In March, it used an equally unconvincing argument — the matter is sub judice — to evade a Rajya Sabha question on the red flags raised by the NGT and National Commission for Scheduled Tribes about the project's impact on local communities. Two months later, Union Minister of Tribal Affairs Jai Oram said that the government was examining the concerns raised by tribal communities, but again refused to divulge details. The Andaman and Nicobar Islands Integrated Development Corporation Limited, which is in charge of the infrastructure development activities, claims that its wildlife conservation plan (WCP) is derived from a framework developed by scientists at the Salim Ali Centre for Ornithology. But the WCP, too, is not in the public domain.

Delhi has taken more than 70 years to recognise the strategic importance of the Andaman and Nicobar Islands. It now needs to set the record right on transparency — a project of national importance cannot be clouded with misgivings.

PEACE IS THE PRIZE

Biggest obstacle to a ceasefire in Gaza remains Netanyahu.

As he visits the US, Trump must seal the deal

AFTER 21 MONTHS of conflict, yet another ceasefire in Gaza appears imminent. Over the weekend, talks between Israel and Hamas, mediated by Qatar and Egypt, though there was no breakthrough at the end of the first round. The optimism around a successful deal, however, stems from PM Benjamin Netanyahu's ongoing trip to the US, and because President Donald Trump has been pushing for an end to Israel's bombing campaign. If a new ceasefire is agreed upon, it will be the third one so far. The first, in November 2023, lasted for a week. The second was discarded by Israel before negotiations moved to the next phase.

The urgency cannot be overstated. Israel's military response to Hamas's 2023 terror attack has, according to the Hamas-run health ministry, killed more than 57,000 Palestinians and displaced almost the entire 2 million-strong population. A UN body has said that more than 600 have been killed near aid sites run by a US-Israeli-backed group. The UN's humanitarian chief has said people in Gaza are being subjected to forced starvation. Amid this continuing catastrophe, that Netanyahu nominated Trump for the Nobel Peace Prize Monday would look less like a cruel joke if it could nudge Israel towards a cessation of hostilities first.

In Israel, there is growing opposition to the war. Ending the war now and getting the hostages back could even allow Netanyahu to sell Gaza and Iran as his victories. International opinion has turned as well. Israel's allies are either suspending or reviewing existing agreements with it. Ultimately, the biggest obstacle to a ceasefire remains Netanyahu himself. The war arguably keeps him in power. His government has been propped up by right-wing hawks and his corruption trial continues to be delayed on security grounds. Netanyahu's stated goal of wiping out Hamas from Gaza is at odds with the aim of the militant group's leaders, who seek to retain some presence in the strip, even if it's a significantly weakened one. The one person, however, who can coerce the Israeli PM into a definitive ceasefire is Donald Trump. The US President should ensure the peace before coveting the prize for it.

ON HIS BIKE

Originator of the 'cricket test', Norman Tebbit was key to Margaret Thatcher's project

IN 1981, NORMAN Tebbit told a Conservative Party conference that his unemployed father didn't riot during the Great Depression. "He got on his bike and looked for work, and he kept looking till he found it." This soon passed into the popular imagination as the younger Tebbit's — Britain's newly minted employment secretary — panacea for unemployment, despite his clarifications. He would be greeted with shouts of "onyrkebike" for years to come. That's not the only Tebbitism to be mythologised; his "cricket test" is perhaps the most famous internationally — a suggestion that the loyalties of Britain's Asian population could be judged by which side they cheered for in cricket matches. To top it all is his puppet from the satirical TV show Spitting Image: Margaret Thatcher's leather-clad, knuckle-duster-wielding enforcer (the real Tebbit later expressed his fondness for the puppet). To the younger generations, he was always more caricature than man, a ghost of the Thatcher years.

As a young man, Tebbit, who died on Monday aged 94, developed the individualistic, pro-enterprise philosophy that would make him a natural fit for Thatcher's new conservatism — a marked departure from the post-war, Keynesian consensus until then: Nationalised industries, strong trade unions and welfare state. Thatcher's 1979 victory would see much of this demolished, leaving a legacy that remains deeply divisive. Tebbit played his part, weakening the powers of unions, driving privatisation and, as party chairman, leading a successful re-election campaign in 1987. He retired from frontline politics afterwards to care for his wife, who had been left disabled by an IRA bombing.

A working-class Tory who died a baron, Tebbit's life was not without its paradoxes: He developed his animosity for certain union practices early on, but later served as a union official during his career as a pilot and even went on strike. Always a plain speaker and a caustic wit, he was once asked if God existed. "He ought to," he said.

Old Delhi, new Washington

Trump's unilateralism demands a deeper understanding of the domestic forces shaping it



MAKING SENSE OF US President Donald Trump's latest move — sending "tariff letters" to countries including long-standing Asian allies like Japan and South Korea — requires understanding the profound internal changes in America and their impact on the global order. Some interpret Trump's actions as mere pressure tactics against trade partners. Others argue it was never realistic for Washington to negotiate separate trade agreements with every country. Trump has repeatedly said he would unilaterally set tariffs for most nations while striking deals selectively. As this column goes to press, India is in the second category and might see an interim agreement announced soon. (So is Pakistan, which is hopeful of securing a trade deal. Bangladesh is in the first category with a 35 per cent tariff rate.)

Yet these developments should not distract India's elite from grappling with the deeper forces shaping Trump's worldview — a set of radical ideas that are shaking the international system to its foundations. In two seminal essays in *Foreign Affairs*, Michael Beckley of Tufts University gives us one perspective on this tumultuous American change. He points to the potential rise of the United States as a "rogue superpower".

Beckley first advanced his argument during Trump's first term, when the President openly challenged core principles of US foreign policy: Economic globalisation, security alliances, and openness to immigration. Back then, Trump's inexperience and the constraints imposed by the Washington establishment tempered many of his instincts.

In his second term, however, Trump is less constrained and commands near-total dominance over a political system the American founding fathers designed precisely to prevent the concentration of power in a single individual or party. One might argue that Trump's defiance of this constitutional structure is a passing phase. But for now, he has a free hand to pursue policies of three of his core priorities: Trade, international security, and immigration — heralding the "age of American unilateralism".

Crucially, Beckley contends that Trump is not the source of this new American orientation but rather a catalyst for a deeper transformation rooted in structural features of the US's position in the world. Since the end of World War II, US foreign policy has been

framed as a choice between global leadership and isolationism. Beckley argues that the Trump years have revealed a third path: America as a rogue superpower — abandoning any pretence of global stewardship, scornful of multilateral institutions, and pursuing its interests in a brutally transactional fashion.

This new unilateralism is grounded in America's "autonomy". Unlike ageing allies in Europe and Asia or rivals like Russia and China, the US enjoys distinct advantages: A relatively young and growing population supporting strong consumer demand and economic resilience; technological leadership in artificial intelligence, robotics, and automation enabling the reshoring of manufacturing and reducing dependence on global supply chains; and self-sufficiency in energy. Moreover, while the US economy is less reliant on exports, the rest of the world depends heavily on selling goods and services to American consumers. It is this asymmetry Trump sees as powerful leverage to reshape the global economic order that America itself built and nurtured over decades.

If there is one shortcoming in India's approach, it is the limited appreciation of how American domestic politics is reshaping US foreign, economic, and security policy. Filling this gap demands a broader circle of Indian engagement within America's political system and the policy class. India needs American interlocutors who can do more than lament Delhi's 'illiberal turn' and can explain America's own march away from liberalism. India needs friends who can go beyond objecting to India's "lack of commitment" to the US partnership.

America's unilateralism has also been reinforced by the political coalition behind Trump's rise. The MAGA movement argues that globalisation has hollowed out American manufacturing and betrayed working people. It opposes security alliances and views them as a burden. It resents Washington's "endless wars" fought in the name of global leadership. For this coalition, defending America's borders against illegal immigration takes priority over defending distant allies. Tellingly, Trump's latest budget allocates \$37 billion to US Immigration and Customs Enforcement (ICE) — nearly half of India's defence budget and larger than Italy's entire defence spending. ICE's increasingly aggressive tactics to round up and deport migrants would make many a third-world tinpot dictator envious.

The US is likely to remain the world's pre-eminent power for the foreseeable future. China's rapid rise once led to predictions that it would overtake the US in aggregate GDP this decade. That now seems less likely. US GDP stands near \$30 trillion, compared to China's \$20 trillion and the EU's roughly similar level. If the Trump administration's projections of 3 per cent annual growth for the US economy hold, the gap will only widen.

How should Delhi navigate this complex moment in America's evolution? For one,

Delhi already recognises that an unconstrained Trump is driving momentous global shifts that require major intellectual and policy adaptation in India. To its credit, Delhi has gone further than ever to negotiate a trade agreement with Washington and has learned to manage Trump's anti-immigration agenda.

Second, despite Trump's often provocative pronouncements — on everything from trade to Indo-Pak peace — Delhi has maintained composure. Indian policymakers are acutely aware of the gap between signals from the White House and the rest of the US government. Staying engaged with the broader American establishment is essential to steady the relationship amid turbulence.

Third, India has intensified its engagement with other major powers, both bilaterally and through forums like BRICS. The rhetoric at BRICS might suggest a return to the "glorious days" of the Non-Aligned Movement and the pursuit of a collective confrontation with the US. Sceptics, however, see Delhi as being as cynical as Beijing and Moscow in betting that bilateral deals with Washington matter more than grandstanding in multilateral gatherings. In other words, Delhi is not about to revive the foreign policy adventurism of the past.

One shortcoming of India's approach is the limited appreciation of how US politics is reshaping its foreign, economic, and security policy. Filling this gap demands a wider circle of Indian engagement within America's political system and the policy class. India needs American interlocutors who can do more than lament Delhi's "illiberal turn" and can explain America's own march away from liberalism. India needs friends who can go beyond objecting to India's "lack of commitment" to the US partnership and illuminate why Trump preserves his harshest criticism for America's long-standing allies. India needs American experts who can move beyond criticising Delhi's "Moscow connection" and help unpack Trump's reasons for sparing Russia from the tariff wars. Put simply, Delhi needs more intellectual investment in the study of American affairs at home and a more diverse class of experts in the US to engage with.

The writer is distinguished fellow at the Council on Strategic and Defence Research, Delhi, and contributing editor to international affairs for The Indian Express

BENGALURU BLUES

To survive in the city, all you need is a little perspective



BY ZAINAB SULAIMAN

IT'S PAST THREE in the afternoon, and after a long, hard but happy day teaching elementary school, we are on our regular trek back home, in a big blue BMTC bus, the acronym for the Bengaluru City Public buses.

What should take 45 minutes is now taking double the time, something to do with the fact that almost every second road is being dug up, repaired, cemented and built upon. Some roads have flyover and Metro construction work going on simultaneously — and everywhere there is a cacophony of honking, ambulance sirens and the occasional yell from an incensed driver.

This is good, as it usually drowns out the monotonous drive-only-crazy drone of a seven-year-old chatting his buddy up — who possesses a litigating glass-shattering voice — all the way back home; they never seem to run out of things to say. Today, though, something is wrong with the bus, and there's a high-pitched beeping that's accompanying us, as the driver and conductor both have no idea what's causing it.

A day in the life of a typical Bengalurean, but hey, who's complaining. All you need is a little perspective. For, if I was suddenly on my deathbed, wouldn't I die — wrong word, but you get the drift — to leap back into this wonderful life-affirming chaos? Wouldn't I ache

THE CITY AND I

Compared to what I see unfolding around me — wars, genocides, caste conflicts, murders, victory parades turning to tragedies — a city that is falling apart is small stuff. I just have to hold my breath as a whiff of garbage or the stink of pee wafts through my nostrils, and shortly I can breathe again.

to shout at the watchman for not planning for the next water shortage and to hire that expensive tanker to come over and fill up dried-up pumps? As for the unseasonal rain that has the cute habit of flooding the roads, it's simply time to go "online", no matter that no real work gets done during those classes.

Jokes apart, I really think I would. Compared to what I see unfolding around me — wars, genocides, caste conflicts, murders, victory parades turning to tragedies — a city that is falling apart is small stuff. I just have to hold my breath as a whiff of garbage or the stink of pee wafts through my nostrils, and shortly I can breathe again.

Also, there is that small thing — the people. If nothing else, we have each other. The receptionist at my GP's clinic tells me that the later she goes home from the clinic, the worse the commute; a few weeks later, a new receptionist is checking my BP. The doctor educates me on the need to drink only boiled and cooled water, as the stomach bug I have may be waterborne. He explains that with all the digging of the roads in the city, the water pipes are getting contaminated, and that the drinking water is possibly getting infected, too. I nod and continue drinking my usual filtered water, and perhaps, manage to frighten that stomach bug away.

Speaking of infections, my problem is that this city has found a way to get under my skin. It's hard to live in it, but I don't think I can live outside of it either.

Maybe it's the sweet sambar served with a hot oily dosa at my favourite Darshini. Perhaps, the gentle pleasure of reading a few lines in Kannada, whilst not being able to recognise each letter separately, just that the whole makes sense. The old Bengaluru lingi my fellow teachers and I slip into when we're complaining about how bad things are — "No men, the electricity was off all night." Or, the yellow Tabebuia that never fails to show up every spring, lighting up the view from my balcony. Commercial Street and its tailors who never give you your clothes on time, but always have a polite excuse delivered with a smile. The quiet graveyard on Hosur Road, with its huge shady trees, where in season, a bed of cream and rose-petted Pongamia flower buds drench your naked feet as you stand beside the graves of loved ones, sending up a prayer. All this and so much more. Like a wise man said, "If you wake up in the morning, are safe at home, in good health and have enough for the day, you have all the good things in this world." Amen to that.

Sulaiman is a writer and teacher

JULY 9, 1985, FORTY YEARS AGO

EMERGENCY THREAT

SEVERAL OPPOSITION LEADERS have interpreted the PM's press conference remarks about the Emergency as a threat that it might be reimposed. Leaders of the Janata Party, the BJP and the Lok Dal expressed shock at the PM's remarks and declared that they would mobilise the people against such dictatorial trends. The BJP president, Atal Bihari Vajpayee, said he was shocked to read the PM's statement that the Emergency was justified.

AKALIS IGNORE CENTRE

THE AKALI DAL (L) has ignored the Centre's

overtures for talks and has said the government must "rectify its mistakes" leading to excesses against Sikhs, if it wanted to solve the Punjab problem. The "mistakes" would be rectified if the government accepted the party's demands to normalise the situation. Harchand Singh Longowal, party president, G S Tohra, president of the SGPC, and Parkash Singh Badal, former CM, said.

SRI LANKA TALKS START

THE FIRST-EVER negotiations between the Sri Lankan government and the militant Tamil groups, along with the TULF, started at the Bhutanese capital of Thimphu. The talks were

of a preliminary nature and held in a "relaxed and friendly atmosphere". They were characterised by "mutual understanding and accommodation", a press release said.

INDUSTRIAL SAFETY

PROPRIETORS OF INDUSTRIES termed hazardous will now face "compulsory imprisonment" as penalty for violation of safety regulations. A decision to this effect has been taken by the Centre following recommendation of the Labour Secretaries and Labour Ministers Conference held in Delhi recently. It has now been communicated to state governments and Union Territories.

THE IDEAS PAGE

It's not just about a voter list

A sample survey shows that the very principle of universal adult franchise is in danger of being undermined by the way EC's special intensive revision exercise is being conducted in Bihar



DESHKAAL
BY KAMAYANI SWAMI
RAHUL SHASTRI AND
YOGENDRA YADAV

CONFUSION AND CHAOS among ordinary people. Staggering discrepancy between official claims and ground reality. A majority of people without any of the documents that are being demanded of them. An overwhelming anxiety among the marginalised sections about losing their right to vote, if not their citizenship.

These are some of the conclusions that emerged from a rapid appraisal, based on perhaps the first sample survey of its kind, of the Special Intensive Revision (SIR) exercise currently underway in Bihar. Over three days (July 5-7), volunteers of the Bharat Jodo Abhiyaan travelled to eight districts and collected information about 709 potential voters. They carried a copy of the latest electoral rolls of 2025 as well as the electoral rolls of 2003 for the relevant booth, downloaded from the Election Commission website. They conducted long face-to-face interviews with 163 households and asked them about supply of the enumeration forms and the availability of the documents required for enrolment as per the ECI order for each adult member of the household.

The sudden announcement of the SIR and widespread reports about disruptions and apprehensions caused by it demanded a quick, if rough, idea of the big picture. Our survey cannot claim the level of accuracy of a proper scientific study. Six of the eight districts we surveyed (Katihar, Araria, Darbhanga, Madhubani, Saharsa, Sitamarhi, Patna and Rohtas) are in north Bihar. Except Patna (ranked among the top performers), all these fall among the mid-ranking performers in the SIR. While the selection of assembly segments (12 in all) and that of polling booths (17 in all) was dictated by the availability of teams, the household selected for interview was chosen randomly from the latest electoral rolls. While the findings of the survey are subject to a wide margin of error, they may be more robust than drawing-room speculation or anecdotal evidence.

The big news first: Two-thirds of Bihar's adult population had not received the enumeration forms till the 13th day of the SIR. We found that, in all, only 43 per cent of families reported receiving enumeration forms, despite a slight but steady improvement on each day of our survey—from 39 per cent on the first day to 43 per cent on the final day. Since these forms are individualised (with the printed name and photo of the person from the latest ER), not all members of the family receive the forms simultaneously. In all, only 36 per cent of the adult household members reported receiving the form. Only 6 per cent had received two copies of the form (one to be submitted and another to be retained by the applicant) as required under the SIR guidelines. The remaining 30 per cent were supplied only one copy.

Compare these sobering figures with the official claims. The ECI claimed on July 5 that it had disbursed enumeration forms (presumably two copies each) to 94 per cent of the persons on the last electoral rolls. Not just that, the ECI has also claimed that more than 36 per cent have already filled in the enumeration form and submitted it to the election officials by July 7. Now, as mentioned above, our survey may contain fairly large errors, but the difference between the official claims of 94 per cent and the survey estimate of 36 per cent is simply too big to be the result of a sampling error. Unless the ECI has misread the number of forms dispatched from its office as the number delivered to the end user and the number of forms supplied as the number submitted, we are looking at a Himalayan discrepancy that is crying for attention.

The survey findings also confirm the aggregate data analysis and the series of reports in this paper that a large proportion of the voters who may be required to submit documents to prove their citizenship do not possess any of the 11 documents on the ECI list. Our teams helped the household members to locate their names on the 2003 rolls and explained documentary requirements to those who did not figure there. In all, only 60 per cent of all the persons surveyed fulfilled the ECI's conditions for inclusion of their names per the guidelines of the SIR. As many as 37 per cent of all persons did not fulfil any conditions: Their names did not figure on the 2003 rolls and they did not possess any one of the documents asked for by the ECI. (The remaining 3 per cent of cases were unclear.) The proportion of those who may be declared ineligible was staggering—above 60 per cent—among those in the age group 18-40.

This rapid assessment estimate of 37 per cent "ineligible" voters works out to about 2.9 crore potential eligible voters who may be deprived of their right to vote. The figure may come down if many people succeed in obtaining fresh certificates in the next fortnight. Or, if the ECI expands, formally or informally, the "indicative" (not exhaustive) list of documents in its SIR order. As things stand today, the apprehension of mass disenfranchisement is not misplaced. Our teams discovered that marginalised social groups—poor, Dalit, extremely backward communities, Muslims and women cutting across all communities—were disproportionately at the receiving end of possible exclusion. In the village of Sharapur, 25 km from Araria, is the Nonia (BNC) family of Rampati Devi. Four of the eight adults do not have their names on the 2003 list, nor do they have any of the listed documents. Like most families we surveyed, they have Aadhaar and ration cards and the MGNREGA job card, which the ECI won't accept. The condition was much worse in families in Mahadali groups like Musahars. Our surveys found a mad rush for caste or residence certificates, often triggered by the BLO's instructions. In Sonwarsha segment of Saharsa district, Pirvat Ram, a Dalit worker, has spent Rs 150 to apply for a caste certificate for himself, his wife and his mother. Women face a special problem. In the family of Palti Devi from Bahadurpur in Darbhanga, her three daughters-in-law, Sanjana (26), Pooja (20) and Neha (18), do not know if their parents had their names in the 2003 list. Tara Khatoon (36) in Sarjapur tola have the same question: How do we get the 2003 list from our *mayka* (parents' home)?



CR Sasikumar

To be sure, this preliminary and rough estimate cannot settle the debate on the impact of the SIR. But at the very least, it points to a desperate need for independent verification of official claims. We would invite all mediapersons to travel to rural Bihar and investigate the ground reality. We would urge academics and social scientists to carry out bigger and more representative sample surveys, immediately after July 25, to assess the impact of the SIR. We would also urge the ECI to put out unit-level data (names of persons who have submitted forms) in the public domain, so that it can be verified. (This is not confidential information, as the draft electoral roll will in any case be published.) What is at stake is not just the voter list in Bihar, but the very principle of universal adult franchise.

Our surveys found a mad rush for caste or residence certificates, often triggered by the BLO's instructions. In Sonwarsha segment of Saharsa district, Pirvat Ram, a Dalit worker, has spent Rs 150 to apply for a caste certificate for himself, his wife and his mother. Women face a special problem. In the family of Palti Devi from Bahadurpur in Darbhanga, her three daughters-in-law, Sanjana (26), Pooja (20) and Neha (18), do not know if their parents had their names in the 2003 list.

kamayani swami is state coordinator of Bharat Jodo Abhiyaan, Bihar. Rahul Shastri and Yogendra Yadav work with the national team of Bharat Jodo Abhiyaan. We would like to thank district team leaders Ram Babu Arya, Mohammad Tawfeeq, Pawan, Govind, Umesh Sharma, Vishwanath, Sanjay Kumar and Bhola Nath Singh

WHAT THE OTHERS SAY

"Even with four years of his term to go, there's a palpable feeling in the air that Mr Starmer's time may be coming to an end. Any momentum... was halted by his bizarre decision to begin the new era with sombre warnings... and announcements of imminent cuts to public services."

—THE NEW YORK TIMES

Cool clothing in times of heat

Many states and cities are implementing heat action plans. These should also include access to smarter fabrics



ROHINI NILEKANI

THE MONSOON ARRIVED early this year, bringing relief across the country. It may be hard to forget the record-high summer temperatures, though, when parts of Delhi felt like 54 degrees Celsius and Orly had its warmest day in the past 73 years. In Kashmir, too, it has been the hottest June in five decades, with average temperatures three degrees above normal. Heat records are being shattered every year.

Much has been written about climate change, global warming and how India will be one of the worst affected by heat waves. We know how heat adversely impacts human health, causing not only mild symptoms such as exhaustion and dizziness but also death.

India is not alone. Europe and the US are experiencing extreme heat across large swathes of land, with the added danger of deadly wildfires. Heat claims more than 1.75 million lives in Europe annually. In India, while thousands suffer or die, government data is unreliable. An analysis from Down to Earth estimates that a single five-day heat wave leads to 30,000 excess deaths in summer. This is way above official figures, though state governments are trying to better classify deaths from heat exposure.

In the West, despite the rising heat, summers are still about getting fit, unpacking the bikinis and shorts, and heading outdoors. In India, skimpier wear does not take over the season. Linen kurtas and cotton dhotis do. Natural fibres, khadi, khil, khil, and, thin fabrics become ubiquitous, from the high street to the fashion ramp. And of course, there is the most popular gamcha or thin cotton towel.

Yet, it is worth asking a serious question: What should human beings wear in the face of rising heat? Will traditional clothing suffice? Is cotton really the fabric of choice?

In dry climates, it might well be. Cotton has always been celebrated for its breathability, accessibility and affordability in India. India is the world's second-largest producer of cotton after China, and fine handspun cotton always had pride of place in its textile history.

Can cotton retain its reputation when things get both hotter and more humid? A "wet bulb" temperature of 35°C, when high heat combines with high humidity, creates a deadly combination for human beings. The body's natural cooling mechanisms fail, making exposure life-threatening.

Cotton and other natural fibres do absorb sweat, but only to a point. When ambient humidity is high, they dry slowly, leaving the fabric sticking to the body, increasing trapped heat and the risk of skin infections. They also do not provide protection against harmful ultraviolet rays, which are linked to cancer.

Humid heat is increasing across India, especially in the Indo-Gangetic plain, which shelters half a billion people. When

half the population works outdoors, or indoors with poor insulation, what to wear is a question not just for frustrated teenagers but for every worker and citizen. At home, in the workplace, or in public spaces, people will have to think carefully about protective clothing.

In a country almost romantically attached to its natural fibres, especially khadi and cotton, it might be hard to face a startling reality—manmade fibres are better for adapting to heat stress caused by climate change. Recently, in Varanasi, Blinkit delivery partners went on strike to demand, among other things, cotton uniforms for the summer. Perhaps they should have asked for more sophisticated materials.

There has been a stunning revolution in material science and biotechnology-inspired textiles in the past few years. Athletes and urban cyclists and joggers were the earliest adopters of synthetic fibres designed to wick away sweat. But the need is far greater for farmers, construction workers and street vendors with high occupational exposure. How can we rethink the future of clothing?

Elsewhere, innovation has been driven by governments. The US set up the Advanced Research Projects Agency-Energy (ARPA-E) to fund and direct discovery across a wide range of technology areas. As part of that mission, Professor Yi Cui and his team at Stanford University developed a textile that is transparent to infrared wavelengths and radiates heat away from the body. Already marketed in China, he claims it is not too expensive to take to a mass market, and would be critical for farmers around the world as part of a climate adaptation strategy.

Other biomimetic fibres are being tested, some inspired by polar bear hairs with high porosity and aligned pores, for superior thermal insulation. New phase change materials (PCMs) integrated into fabrics can absorb excess heat and release it when things cool down. The list of climate-smart wearable technologies is growing longer.

India will have to develop its own innovation engine to suit our needs. On July 1, the Union cabinet approved the Research, Development and Innovation (RDI) Scheme with an outlay of Rs 1 lakh crore, which will support the development or acquisition of technologies of high strategic importance. Some of these funds should be directed to make wearable cooling technologies affordable and available to all citizens at the earliest.

Many states and cities are creating and implementing heat action plans. So far, none of them has included strategies to help people access smarter fabrics. The RDI scheme might be the right nudge for fresh thinking. This is one opportunity for both *sarkaar* and *bazaar* to be accountable to the *samaaj* to thwart an unimaginable human crisis if the modelling on warming in India proves accurate.

Khadi was deeply associated with India's independence movement. It will always remain precious. But the past may not always inform the future. Swadeshi new fibres might better dress up the mission for a healthier, more resilient Bharat.

The writer is chairperson, Rohini Nilekani Philanthropies and author of Samaaj, Sarkaar, Bazaar: A Citizen-first Approach

What the West doesn't get

There can be no equivalence between India and Pakistan



VINAY SAHASRABUDHDE

A BRAHMOS MISSILE—several were fired during Operation Sindoor in response to the gruesome terror attack in Pahalgam—typically costs around Rs 35 crore. For approximately less than half that cost, seven allied delegations have made as much of an impact. Just like the Brahmos, they were precisely on target. Galvanising global political and social opinion in India's favour at such a time cannot be left to career diplomats. The decision to convene these delegations is itself a historic step by the government, with the political class across the spectrum rising to the occasion.

This step was needed as foreign governments and media, especially from the West, have not grasped the gravity of the challenge of cross-border terrorism faced by India in the last several decades. The West, generally speaking, also has the habit of looking at Pakistan as just another Islamic state, ignoring the history of its origin, its partition in 1971 and its habit of promoting terrorism while playing the victim card. Many consider both India and Pakistan to have legitimate complaints against each other, viewing both as being at fault, in one way or another.

Why does the global media continue to see in calling a spade a spade? Why are terrorists in Jammu and Kashmir referred to as militants? Let's examine the seriousness of these mistakes, as India has been paying a huge price for the ignorance—manufactured ignorance, in some instances—of the global community.

First thing first: The global community needs to be told that the creation of Pakistan out of undivided India is not comparable with the case of East Timor or Kosovo. Those who left for Pakistan during Partition were neither persecuted nor did they face any injustice. However, the deep-seated complex of Indian leaders of the time manifested through the policy of Muslim appeasement for several decades post-Partition and lent credence to Pakistan's attempts to present itself as an underdog. This went unchallenged primarily because we failed to make the right noises, backed by data, in opinion-making circles, thereby falling into the Pakistanis' traps and patronising terrorists to ensure its own survival.

The second grave mistake of the global community lies in equating the separation of East Pakistan with Pakistan-sponsored secessionism in Jammu and Kashmir. Unlike the government of Pakistan back then, governments in India—regardless of which party is in power—worked to transform J&K into a developed state. They've done this by providing huge welfare support to the people of this border area. It would not be wrong to suggest that the continuation of Article 370 was used by the global community as evidence of India's wrongdoing, that it undermined its claim over this Union Territory. It is high time we

make it clear to the global media, academia and intelligentsia that the case of J&K is not comparable to that of Bangladesh and that the J&K is not the Mukti Bahini.

The BJP has made it clear that not just cultural nationalism, but even the idea of a Hindu *rashtra*, has nothing to do with a theocratic state. *Ekam sat, vipra bahudha vadanti* is the foundational value of our cultural nationalism, reflected not just in the BJP's worldview but in its governance. Indian culture is all about abhorrence of any monopolistic approach in spiritual matters. Sadly, thanks to many in our own intelligentsia, there are attempts to build a false narrative that eventually allows Pakistan to take shelter under a manufactured whataboutery.

Right from the time of its founding, Pakistan has presented itself as a victim. Indian governments of the time, on the other hand, failed to present Pakistan as an aggressor state. Post-independence, our leadership always shied away from bringing Pakistan's expansionism to the notice of the global community with adequate force.

The writer is a national executive committee member of the BJP

LETTERS TO THE EDITOR

NOT THEIR BURDEN

THIS REFERS TO the article "Now, prove your identity" (IE, July 8). The ECI's move is callous; the exercise risks either leaving voters out or putting their livelihoods in jeopardy. Not to mention the impractical time frame. Citizens with little means will be at the mercy of petty officers. Critics are apprehensive that the SIR will end up stripping those living on the margins of society of their right to vote. There is little doubt that the controversial NRC has made its appearance on the electoral scene, albeit through the back door. It is against the principles of justice to place an enormous burden on the state's electorate to prove who they are.

SH Quadri, Bikaner

STRIKING A BALANCE

THIS REFERS TO the article "Brown man's burden" (IE, July 8). Zohran Mamdani's experience reflects a deeper issue. Often, critics are apprehensive that the SIR will end up stripping those living on the margins of society of their right to vote. There is little doubt that the controversial NRC has made its appearance on the electoral scene, albeit through the back door. It is against the principles of justice to place an enormous burden on the state's electorate to prove who they are.

Elksha Srivastava, Patna

HIDDEN RISKS

THIS REFERS TO the editorial, "Raise the red flag" (IE, July 8). The Jane Street case highlights the serious hidden risks retail investors face in the rapidly evolving, fast-moving, algorithm-driven equity markets. It is a wake-up call for retail investors who are busy with short-term trading. Namita Jane Street's deal partner, fell over 11 per cent, while BSE, Angel One, and CDSL, also declined.

SS Paul, Nadia

AN OVERDUE RESET

THIS REFERS TO the editorial, "Why call it a reset?" (IE, July 8). The recent BRICS summit in Rio de Janeiro marks a pivotal moment in geopolitics, highlighting the urgent need to reform global governance structures. The declaration's criticism of arbitrary tariff hikes underscores the frustration of developing nations with an unequal global trade system. India's call for reform and balance is timely, especially as China's posture becomes increasingly self-serving. For BRICS to truly serve as a counterweight, it must consistently uphold the principles of equity and justice. The Rio declaration signals the beginning of a necessary reset in global power structures.

Sanjay Chopra, Mohali

THE INDIAN EXPRESS, WEDNESDAY, JULY 9, 2025

EXPLAINED



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Signals from the continuing purge of top officials in China

RISHIKA SINGH
NEW DELHI, JULY 8

LATE LAST month, China's national legislature removed Miao Hua, a senior admiral in the People's Liberation Army (PLA) Navy, from the Central Military Commission (CMC), the country's top decision-making body on military affairs.

Miao had been suspended in November 2024 for "serious violations of discipline", which is Chinese government terminology for corruption.

On the same day that the National People's Congress voted to remove Miao — June 27 — another senior military official, Vice Admiral Li Hanjun, was stripped of his legislative credentials.

In recent years, two Ministers of Defence, one Minister of Foreign Affairs and several other key figures in the Chinese state have been purged, with corruption often cited as the reason. Last month's removals are different because of the seniority of the officials, and the fact that they are from the PLA.

"The PLA is the Communist Party's army,

its primary allegiance is to the party, not to the state or the People's Republic of China, and its main task is to help the party remain in power. The party commands the gun, and the CMC is the party's highest military leadership body," Jabin Jacob, an associate professor of international relations at Shiv Nadar University, Greater Noida, said.

Who are these two officials?

MIAO, 69, headed the political work department of the CMC, tasked with political education and personnel management.

"Miao Hua is the biggest fish [caught] in the past two-three years of investigations [into corruption] and subsequent purges," said Anushka Saxena, a researcher at the Bengaluru think tank Takshashila Institution, whose research focuses on the PLA.

LI, 60, was rumoured to be under investigation since March, and has not been in public since then. Such "disappearances" in China often indicate that the official is facing an inquiry. Li was chief of staff of the PLA Navy, and its third-ranking officer.

What is the CMC, and why is it important?

The CMC is the final decision-making authority on a wide range of defence matters, including weapons procurement, military priorities, and combat preparedness.

At the top of the seven-member CMC is paramount leader and President Xi Jinping. "Xi's position as CMC chairman is his second most important position in the Chinese political system after the position of general secretary of the Communist Party of China, and more important than his position as China's President," Jacob said.

Saxena recalled that when power was being transferred from Deng Xiaoping, the leader who initiated China's economic liberalisation in 1978, he initially refused to let go of his position in the CMC.

"Deng believed that ultimately, being President of China or general secretary of the Communist Party doesn't matter because by being the CMC chairman, you have the army at your command," Saxena said.

The CMC also comprises two vice chairmen and four members, who head various departments. Protégé networks or client-patron networks within the party play an important

role in CMC appointments, Saxena said.

The CMC ranks higher than China's Defence Minister. "This is why in the wake of the 2020 Galwan incident [in which Indian and Chinese troops clashed violently in Ladakh], Foreign Secretary Vikram Miri, who was India's ambassador to Beijing at the time, met with CMC officials," Jacob said.

The Defence Minister is usually part of the CMC. However, after the previous Minister, Li Shangfu, was removed from the CMC in October 2023 and dismissed from the Communist Party in June 2024 (also for corruption), his successor, Dong Jun, was not made a CMC member.

EXPLAINED GLOBAL

Why is corruption often cited as the reason for these purges?

Corruption has been a concern in China for decades.

Shortly after assuming power in 2013, Xi unleashed a massive anti-corruption campaign. "The focus has [now] shifted from the political and legal apparatus to the military to the financial sector, but all groups continue to be targeted," Jacob said.

Corruption in the PLA is "entirely logical", he said — given that it has been growing rapidly for several decades now, and significant sums of money and serious responsibilities are at play, with great power accorded to individuals and institutions.

While tackling corruption might help Xi consolidate power in some instances, it is not the only motive driving the purges, Jacob said. Saxena said that if corruption were only a front, it would not be prudent for Xi to remove loyalists such as former Minister of Defence Li or Foreign Affairs Minister Qin Gang (in July 2023). Both men were elevated as they enjoyed Xi's support.

Within the Communist Party, various factions — based on common regional backgrounds or closeness to senior leaders — continuously jostle for power. "In this sub-leadership-level factionalism, each faction will try to reveal skeletons in the other person's closet. Xi can sometimes have no option but to take action. A key reason he is in power today is that he told party elders he would not out corruption from the party," Saxena said.

What does the turmoil mean, ultimately?

The purges suggest an element of instability and inefficiency in the system. But they also demonstrate Xi's ability to easily remove high officials.

"Xi demands not just loyalty but also honesty to go with efficiency and progress. Such culling at the top might indicate a deep-rooted malaise within the system, but it also signals to the public that the supreme leader is serious about improving it. Simultaneously, lower-ranked officials get the message that there exists a path to promotion based on both loyalty to the party and following party discipline," Jacob said.

What incentive could the supreme leader in a non-democratic setup have to demonstrate zero tolerance for corruption?

There is a sense of political insecurity in China currently, Saxena said. "From Beijing's perspective, it is in a precarious position with regard to domestic economic concerns, Taiwan, and the economic and political state of the world. It cannot afford an inefficient bureaucracy or military right now," she said.

Well-functioning defence, political, and economic systems will also help ensure the longevity of China's one-party state structure.

EXPLAINED SCIENCE

MELTING GLACIERS CAN LEAD TO MORE VOLCANIC ERUPTIONS: NEW STUDY

ALIND CHAUHAN
NEW DELHI, JULY 8

THE RAPID melting of glaciers and ice caps as a result of global warming can result in more frequent and more explosive volcanic eruptions, according to a new study.

West Antarctica, where approximately 100 volcanoes are buried under thick ice, is the greatest risk of these volcanic eruptions, researchers have said. The ice is expected to disappear due to continuously rising global temperatures.

Parts of North America, New Zealand, and Russia could also observe an increase in volcanicity, Pablo Moreno-Yaeger of the University of Wisconsin-Madison in the US, said during a presentation of the findings at the summit at the 2025 Goldschmidt Conference that is currently underway in Prague, Czechia.

The conference, the largest international conference on geochemistry, is organised by the Geochemical Society, a US-based international community of scientists who study geochemistry, and the nonprofit European Association of Geochemistry headquartered in France.

Climate change & volcanoes

That melting ice could affect volcanic activity was first suggested by scientists in the 1970s. When glaciers or ice caps melt, the pressure that the weight of the ice exerts on underground magma chambers of volcanoes, reduces. As underground gases and magma expand, explosive eruptions can take place.

The planet has already seen such occurrences. During periods of major deglaciation in Iceland (the last of which occurred between 15,000 and 10,000 years before the present), volcanic eruption rates were 30 to 50 times higher than they are today.

Studies have also found that the decrease in pressure due to ice loss can re-ignite the production of magma. This is because rocks held at lower pressure tend to melt at lower temperatures.

The other factor which seems to affect volcanic activity is precipitation. "Precipitation — also modified by climate change — can infiltrate deep underground and react with the magma system to trigger an eruption," Thomas Aubry, a researcher at the University of Exeter (England), told *Polytechnic Insights*.

Findings of the research

The latest study has confirmed these findings.



Deception Island in Antarctica, captured by the American Landsat 8 satellite in March 2018. The horseshoe-shaped island is the caldera of an active volcano. NASA

Researchers examined Chile's Mocho Choshuenco volcano to estimate the age of volcanic rocks produced before, during, and after the last ice age. They found that due to a thick ice sheet over the volcano, pressure had suppressed the volume of eruptions between 26,000 and 18,000 years ago. This led to the formation of a large reservoir of magma 10-15 km below the surface of the volcano. However, once this ice sheet melted about 13,000 years ago, explosive eruptions took place.

The effects on climate

Volcanic eruptions can cause temporary cooling as they release ash or dust into the atmosphere, which blocks sunlight. These eruptions also emit sulphur dioxide into the atmosphere which is more effective than ash particles at cooling the surface of the Earth. Sulphur dioxide in the stratosphere reacts with water to form sulphuric acid aerosols, which reflect incoming solar radiation.

"The aerosols can stay in the stratosphere for up to three years, moved around by winds and causing significant cooling worldwide. Eventually, the droplets grow large enough to fall to Earth," according to the US Center for Science Education.

However, sustained volcanic eruptions can release large amounts of greenhouse gases, including carbon dioxide and methane, which could increase the warming of the planet. This can become a vicious cycle — as global temperatures rise, there will be a higher rate of melting of ice, which could cause more eruptions and further global warming.



AMITABH SINHA

THE INTERNATIONAL climate negotiations, held under the UN Framework Convention on Climate Change (UNFCCC), have been facing a credibility crisis in recent years.

Their outcomes have been largely underwhelming as they have not delivered the kind of action required to curb global warming. Developed countries that fail to meet their targets, or deliver on their commitments, have not been held to account. Developing countries, particularly the small and most vulnerable of them, have repeatedly complained that their concerns are ignored, and that the negotiations have failed to deliver climate justice.

Also, the withdrawal of the United States from these negotiations, following the return of Donald Trump to the White House this year, has threatened to make the entire process irrelevant.

As a result, there has been an effort to re-build trust and confidence in the system in the lead-up to the COP30 meeting in Brazil which will take place in November. As the host of the COP30, Brazil has been actively engaged with other countries to explore the possible steps that can be taken in this direction.

The annual mid-year climate meeting in Bonn, Germany, which wrapped up last month, discussed the ideas and suggestions submitted by countries, climate groups, and non-government organisations, to reform the system and make it more effective.

Suggestions for reforming climate negotiations

The Bonn meeting, held in the second half of June, acknowledged that the "growing scale and complexity" of the climate negotiations presented challenges. It also emphasised the need to "improve the efficiency of the UNFCCC process in a transparent and inclusive manner".

However, the proposals that were included in the discussions were not radical.



The closing plenary of the Bonn summit on June 26. UN Climate Change

Amongst the things proposed was streamlining agenda items to eliminate overlapping or redundant issues, and asking countries and observer groups to restrict the length of their statements to allow for more time for negotiations. Notably, it was also proposed that countries limit the size of their negotiating teams. The discussions remained inconclusive, and would continue in the COP30 meeting.

Civil society organisations and climate advocacy groups, which have been at the forefront of the demands to reform the UNFCCC process, have been asking for more fundamental changes. At Bonn, a letter signed by more than 200 such groups, suggested five major reforms. One of them was a demand to allow majority-based decision-making when attempts to find a consensus remain elusive.

The UNFCCC works through consensus, which means no decision is accepted till every country accepts it. In a way, every country has a veto. Getting all of the more than 190 parties to agree to every part of a decision has always been a big challenge. This is often blamed for the lack of ambition in the outcomes of climate negotiations.

The civil society groups suggested that countries that do not have a good track

record of climate action be not allowed to hold the COP meetings. In the last few years, the choice of Dubai and Baku for holding COP meetings has come under criticism as their economies are sustained largely by the fossil fuel industry.

These groups also called for reducing the participation and involvement of representatives of fossil fuel companies and other polluting industries in COP meetings. There have been allegations that these companies influence the outcomes of COP meetings in their favour.

Any decision to reform the UNFCCC process will have to be approved through consensus by all the parties, and it is unlikely that any of the more radical suggestions would go through.

Brazil's bid to rebuild trust in the system

As the host of the COP30, Brazil has to take leadership in ensuring its success. The outcome of this meeting will be measured largely by the faith and confidence that countries, mainly developing and vulnerable ones, are able to put back into the process.

In a recent letter to all the parties, Brazil acknowledged the need for reforms, and asked them to "consider" the future of the

UNFCCC process.

Brazil said long-standing issues such as excessively long agenda items, overlapping themes, scheduling constraints, and barriers that prevent meaningful participation of smaller delegations needed to be resolved. The country has also talked about mainstreaming climate conversations in other multilateral forums, including different UN agencies and financial institutions.

It has floated the idea of creating additional multilateral mechanisms that can complement the UNFCCC process, and push the implementation of the decisions taken at climate meetings.

Brazil has also drawn up a list of 30 items on which it would work with other countries to accelerate climate actions.

Developing nations' demand to increase climate finance

For developing countries, the single biggest issue currently is the lack of adequate money to finance their climate actions, and the failure of developed countries to deliver on their obligations to provide climate finance. To comply with the provisions of the 2015 Paris Agreement, the Baku meeting had to decide on a new finance mobilisation target for developed countries, which, as of now, are under obligation to, collectively, raise at least \$100 billion a year to help developing countries.

While the needs of developing countries were assessed to be at least \$1.3 trillion a year, developed countries agreed to mobilise a sum of just \$300 billion a year, and that too from 2035 onwards.

Developing countries have continued to put pressure on the developed world to take additional steps to increase the availability of finance. They stalled the discussions in the Bonn meeting last month, and managed to force a special meeting on the issue. However, it remained inconclusive. The matter is likely to dominate the discussions at the COP30.

BRICS, a group of nine large and influential developing economies, also weighed in on the subject at its recently concluded meeting in Brazil.

In a separate declaration on climate finance, the BRICS countries asked developed countries to fully deliver on their finance commitments under the UNFCCC and the Paris Agreement, while increasing their contribution to adaptation finance.

Ship 'arrested' after Kerala claims damages: how do admiralty suits work?

NIKHIL GHANEKAR
NEW DELHI, JULY 8

THE Kerala High Court on Monday ordered the conditional "arrest" of Liberian container ship *MSC Akatika II*, currently anchored at Thiruvananthapuram's Vazhijam port, over compensation claims arising from the sinking of the *MSC Elsa III* in May.

The order came after the Kerala government filed an admiralty suit — a legal proceeding pertaining to maritime law and disputes — in the High Court. The suit named the Mediterranean Shipping Company, one of whose firms operates and manages the *MSC Akatika II*. Another company of the same group operated the *MSC Elsa III*.

The government has sought compensation of Rs 9,531 crore for the alleged pollution of Kerala's marine ecosystem due to the sinking of *MSC Elsa III* on May 25, around 25

km southwest of Alappuzha.

The ship went down with more than 600 containers, some of which carried plastic pellets, hazardous substances, and diesel.

What law governs maritime disputes?

The Admiralty (Jurisdiction and Settlement of Maritime Claims) Act, 2017 governs maritime disputes in India. Under the Act, admiralty suits can be filed for maritime claims such as damage to ships, ownership and agreement disputes, loss of life, wage issues, and environmental damage.

The 2017 law replaced the colonial-era Admiralty Court Act, 1861, and Colonial Courts of Admiralty Act, 1890. The previous laws gave jurisdiction only to the High Courts of Bombay, Calcutta and Madras, as these were the only major ports in India earlier. Now, the HCs of Kerala, Karnataka, Odisha, Telangana and Andhra Pradesh also have jurisdiction over maritime disputes.

EXPLAINED LAW



MSC ELSA III capsized off Kerala coast on May 25. Reuters

The jurisdiction of the courts extends up to the territorial waters of their respective jurisdictions. The limit of territorial waters is up to 12 nautical miles from the nearest point of a low-water line along the coast. This also includes the seabed, subsoil (the layer of soil under the topsoil on the surface), and airspace above it.

What does the law say about claims

over environmental damages?

The Kerala government has sought compensation for environmental damage under Section 4 of the Admiralty Act. This section states that the HC "may exercise jurisdiction to hear and determine any question on a maritime claim, against any vessel, arising out of... damage... caused by the vessel to the environment... measures taken to... remove such damage; compen-

sation for such damage," etc.

Apart from the Admiralty Act, other laws too address issues of compensation and accountability in such cases. Under the Merchant Shipping Act, 1958, ship owners are liable for oil pollution damage in the event of leaks. The Environment Protection Act, 1986 empowers authorities to take action against polluters.

The National Green Tribunal (NGT) can also be approached to seek environmental compensation. In 2016, the Tribunal ordered a Panama-based shipping company to pay Rs 100 crore in damages for an oil spill after its vessel *MVR Rak* sank off the Mumbai coast in 2011.

So what does Kerala's admiralty suit say?

The Kerala government's admiralty suit sought the arrest of the *MSC Akatika II* until compensation was paid to the state. In maritime law, the arrest of a ship refers to a legal procedure where a court or other competent

authority detains a vessel to secure a maritime claim against it or its owner. The court found merit in the maritime claims of the Kerala government, and ordered the detention of the *MSC Akatika II* until Rs 9,531 crore was deposited or security was furnished by the owners of the vessel.

"It is averred in the plaint that the damage occurred on account of oil pollution caused by the said vessel and pollution caused by the cargo in 643 containers carried in the said vessel. It is averred that the compensation is computed in accordance with the Central Pollution Control Board Guidelines," the court order said.

Of the Rs 9,531 crore claim, Rs 8,626.12 crore has been sought for environmental damage caused due to the sinking of *MSC Elsa III* and Rs 378.48 crore for the remediation work to minimise, prevent or remove the damage caused to the environment by the capsized ship. An amount of Rs 526.51 crore has been sought for economic losses caused to fishermen in Kerala.

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[OUR TAKE]

More of Trump trade uncertainty

The latest move underscores the need for countries to have a strong bargaining chip in talks with the US

When President Donald Trump announced reciprocal tariffs on April 2, he marked the end of an era in global trade where the US was both a vanguard of the rules-based multilateral trade order and the largest market for many exporters. This arrangement did not just help exporters, the US too had access to cheap goods. Before the tariffs could kick in, Trump put them on hold till July 9 during which period bilateral deals were to be negotiated on terms beneficial to the US.

A day before the deadline was supposed to expire, the US announced almost identical tariffs on 14 countries — they range from Japan to Myanmar in economic importance and India is yet to get a "letter" — and threatened significant additional tariffs in case they retaliate. To be sure, Trump has kicked the can of tariff imposition down the road once more, this time to August 1. A few days ago, he announced a differentiated tariff deal with Vietnam: 20% for Vietnamese goods and 40% on trans-shipments (read redirected Chinese exports to the US). A temporary truce with China had been struck even earlier.

Is there a larger takeaway from all this? Three observations can be made.

One, Trump seems to have overestimated his deal making abilities with other countries. The tariffs are pretty much what they were in April, and the announcements have been unilateral rather than bilateral. Two, the US's approach to trade has now clearly shifted from a "target China" strategy to "target everyone". While Trump has agreed to a 55% tariff on China as part of a temporary truce, tariffs on other countries are also significantly high, even though lower than China. The rest of the world will clearly take note of this. Three, and this is the most important, is the message that in order to negotiate with the US, one has to have a strong bargaining chip now. Trump's détente with China came after the latter held back its critical rare earth mineral supplies, the lack of which would have crippled electronics manufacturing in the US. Countries which do not have such cards against the US are being dealt a much worse deal.

To be sure, Trump's ultimate test would be whether the US economy can survive the inflationary impact of these tariffs as and when they kick in. The August 1 deadline might well be extended once again. Uncertainty is the only certainty now.

Need to make cities pedestrian friendly

Indian cities, including the national capital, are increasingly becoming uncaring of pedestrians, as this newspaper reported on Monday. Pedestrian demands are limited, but by no means insignificant when it comes to mobility planning — accessible, unobstructed, levelled and continuous walkways. Yet, India's mobility infrastructure seems to ignore such needs, apart from infrequent afterthoughts in some cities. It is perplexing why civic administrations fail to provide for walkers in India's cities. Unlike roads, highways, and expressways that now overwhelmingly cater for private vehicular traffic (funding for the roads sector has increased phenomenally over the last couple of decades), footpaths do not need large investments. Neither are they complicated civil construction work. Yet, civic agencies rarely get factors determining pedestrian friendliness — such as dimensions and accessibility — right. The less said about maintenance and upkeep, the better.

Walking infrastructure is a sorry state for multiple reasons. First, pedestrian needs are easy to overlook. They don't have the heft of private-vehicle owners to influence policy. As a result, while the demand for wider roads gets political attention, well-designed walking space remains a fringe concern. Moreover, the powers that be, including those making and executing civic policies, have a clear disconnect with pedestrians, rarely having to walk anywhere. Second, a multiplicity of civic governance authorities means routine digging of footpaths and road-cutting even as no one takes ownership of repair. Third, whatever infrastructure is available is often hijacked for parking, vending, etc.

The solutions are straightforward, subject to political and administrative intent. To start with, Indian Road Congress standards for pedestrian infrastructure must be adhered to strictly. Parking policies on paper must be implemented to declutter the cityscape, including footpaths. Multiple civic agencies must be brought together — Bengaluru's Tender SURE attempts this — to ensure road cutting is minimised. Walking infrastructure can't remain no one's baby any longer.

Lower games that the big boys play

With India vying for a place on the global high table, its representatives in Bretton Woods Institutions must recognise these are institutions of international governance and not just partners for economic development

The 2025 World Economic Outlook of the International Monetary Fund (IMF) listed India as the fourth-largest economy in the world with a GDP of \$4.187 trillion, pushing Japan to the fifth place. And the World Bank's 2025 Poverty and Equity Brief notes that India has achieved record poverty reduction with the share of those living in extreme poverty (under \$2.15 per day) having fallen from 16.2% in 2012 to just 2.3% in 2022-23.

Such affirmation should normally have meant only *khushi* (happiness) with the Bretton Woods Institutions (BWIs). But, it has been *kabhi khushi, kabhi gham* (sometimes happiness, sometimes sorrow) principally because of their largesse towards Pakistan, overlooking its role in fomenting and spreading terror in India and globally.

Added to this, there has been the

termination of the services of our executive director (ED) at IMF at the very moment that matters pertaining to a bailout for Pakistan were coming up. There are allegations he misused his position to get several state-owned banks to buy a book of his in extraordinarily large quantities. There are also reports of his having fallen foul of internal protocols at IMF related to handling of insider information and work methods. The Fund's ethics committee was likely to act, leaving the government with little option other than avoiding the ignominy of its ED facing sanctions on ethical issues.

Galling, from the IMF perspective, was India's decision to authorise the release of \$1 billion as a pre-emptive bailout to Pakistan soon after the Pahalgaon terror attack on April 22, despite India's strong protest. A few days later, there were reports of the World Bank agreeing to a 10-year, \$40-billion development package for Pakistan. Following this, the Asian Development Bank (ADB) authorised \$800 million in early June, again, sidestepping strong criticism from India. Are there lessons for us in these happenings?

The most important one — more so now than earlier, as India climbs the global leadership ladder — is internalisation of the role of Bretton Woods Institutions in national governance and not just partners for economic development. Apart

from pursuing our domestic development agenda, we must also play the power game of nations.

Second is having a clear understanding of the structure of the BWIs, where voting, unlike in the UN, is not based on a one-country-one-vote system. Rather, as it is in a corporate structure, voting is determined by quotas (analogous to shareholding in a company).

The US has a vote share of around 16.5%, a blocking stake for major decisions which, at IMF, must get a super majority of 85%. Japan and China follow with slightly over 6%. Germany has around 5%, and the UK and France have 4% each, giving, along with others, the European share of around 25%. India's vote share is 2.6%.

The issue of quota reform has been on the table for years and keeps getting pushed back. There is little doubt that reform will seriously diminish the Europeans. But, from our perspective, though it will bolster our share, it will also hike China's share substantially. This would be difficult for us to stomach politically.

At IMF, there is a 24-member board of executive directors (the World Bank has 25 members), representing the major quota-holders. India, traditionally, has been on these boards, representing a group of four countries — India, Bangladesh, Bhutan and Sri Lanka. These executive boards clear most proposals, but its secretariat, like the management of a company, is a key

Manjev Puri

Manjev Puri



The issue of quota reform at the Bretton Woods Institutions has been on the table for years and keeps getting pushed back.

player. Practically speaking, the executive board must be on board for most operational matters. For matters of strategic importance, this means not only reaching out to board members in Washington and other capitals but also having the secretariat in alignment with your perspective.

As a developing country, India's interest in BWIs has focused on the domestic implications of the latter's actions, especially on helping us with our development priorities. Naturally, the custodian of dealing with these institutions is the ministry of finance. But, with India now vying for a place on the global high table, it is important that the country's representatives in the governance structures of these bodies now not merely push actions that have positive domestic bearings for us but also serve our external relations.

An integrated domestic and external approach is thus an inescapable imperative. A metaphorical Karavaya Pat (previously Rajput) dividing the North Block (where the finance ministry is based) and South Block (where the external affairs ministry is based), must be bridged. For years, the custodian of dealing with these institutions, the finance ministry, successfully placed its officers in key Indian diplomatic

missions dealing with economic issues. But now, it is time for them to also take in diplomatic expertise both in New Delhi and within the offices of our executive directors to the IMF, the World Bank and the ADB. Simultaneously, efforts need to be made to place government officers in BWI secretariats — a tough call as the latter rebuff such efforts by pointing to their own recruitment of the "best and brightest". Such recruitment has, of course, seen many Indians rise in these institutions and make us proud. But, for an institution of international governance, "mine" can't really be substituted by "good".

In the past, senior officers of the government with several years of experience with multilateralism in the finance ministry and/or the Reserve Bank of India (RBI) were usually seconded to the posts of EDs. Such choices must now require capabilities not only tuned to battling for India's domestic but also our global agenda. We can't be content with evenness between *khushi* and *gham*, but must strive for more *khushi* and less *gham*.

Manjev Puri is former ambassador of India to the European Union and deputy permanent representative of India to the UN. The views expressed are personal.

Why India must drive the future with EVs

India is the world's third-largest automobile market, contributing nearly 7% to GDP and supporting millions of livelihoods. But the sector stands at a pivotal inflection point. A global technological transformation is rapidly shifting the auto industry away from internal combustion engines (ICE) towards the final frontier of innovation — electrification. And this transition is accelerating faster than many expected.

Globally, the shift to electric vehicles (EVs) is undeniable. According to the International Energy Agency's Global EV Outlook 2025, over 50% of new cars sold in China last year were electric. Europe has surpassed 20%, and the US has reached 10%. This is no longer a niche trend: It is the new industrial reality. The reasons are clear: the need to meet climate targets, improve air quality, and foster green industrial growth. With zero tailpipe emissions and nearly three times the efficiency of ICE vehicles, EVs are central to this transformation.

To its credit, India has taken important steps. Over the past decade, the government of India has invested more than ₹75,000 crore in EV-supportive policies and programmes, including initiatives such as FAME, PLI, PM E-Bus Sewa, and the recently launched ₹10,900 crore PM E-DRIVE scheme. State governments have also introduced incentives and EV-friendly policies, reinforcing the national vision.

These efforts are beginning to show results. In 2024-25, EVs accounted for 6.1% of two-wheeler sales, 23.4% of three-wheelers, 2% of passenger cars, and 5.3% of buses — an overall market penetration of 7.5%. While encouraging, this is still far from sufficient. To meet climate goals, reduce oil imports, improve air quality, and remain globally competitive, India must dramatically accelerate this transition.

Indian manufacturers such as Tata, Mahindra, Ather, and Bajaj are rising to the challenge, investing in EV platforms, battery production, and critical components. However, some automakers continue to resist the shift and instead focus on interim technologies like hybrids — an unnecessary distraction India cannot afford.

Conventional hybrid vehicles — misleadingly marketed in India as strong hybrids — use small batteries (often under 2 kWh) that are either charged by the petrol engine or through regenerative braking to assist it. This is less than the battery capacity of many electric scooters.

In contrast, modern EVs typically use batteries over 50 kWh. Moreover, hybrids are not clean vehicles. They still burn fossil fuels, emit pollutants, and offer only modest efficiency gains of 15-20%, which diminish over time due to engine wear and rising emissions. EVs, on the other hand, are significantly more energy-efficient, have lower running costs, and become cleaner as India's electricity grid increasingly relies on renewable energy.

They reduce oil dependence, enhance energy security, and support a robust, job-rich value chain encompassing battery manufacturing, charging infrastructure, digital services, and recycling. Therefore, it's time for India to leapfrog directly to transport electrification — just as it jumped from landlines to mobile phones, bypassing pagers.

The recent restriction on rare earth ele-

ment (REE) exports by China has highlighted global vulnerabilities. These elements are essential for batteries. While China may not dominate raw production, it controls the global processing of lithium (65%), cobalt (70%), and graphite (90%). This presents an opportunity for India. The only India can claim a significant share of the global clean mobility value chain is by making a decisive push toward full vehicle electrification.

India must act now to ensure that the EV transition proceeds at the speed and scale required. Four key policy actions can drive this transition:

Strengthen CAFE standards: Corporate Average Fuel Efficiency (CAFE) norms are powerful tools to push automakers towards cleaner technologies. The Bureau of Energy Efficiency (BEE) must finalise updated standards that align with super-critical targets for hybrids and other non-zero-emission vehicles. Only true zero-emission vehicles — EVs — should qualify for incentives. A biannual review mechanism should ensure these standards evolve in line with technology and international best practices.

Mandate ZEV sales in Delhi NCR: Delhi NCR, grappling with severe air pollution, must lead by example. A Zero-Emission Vehicle (ZEV) mandate requiring manufacturers to sell a minimum share of EVs — eventually phasing out ICE vehicles within a decade — can accelerate this transition. This approach has succeeded in California and China. Its time India replicates it in its most polluted urban centres.

Enable credit trading among OEMs: A dynamic credit trading system among manufacturers can reward early movers and hold laggards accountable. Companies exceeding EV targets should be able to sell credits to those falling short, creating a performance-driven, market-based system that encourages innovation and long-term EV investment.

Strengthen the EV ecosystem: India must address both private and public charging needs. Data from the US and Indian EV manufacturers show that over 85-90% of charging happens at home. Enabling access to charging in residential parking is thus crucial. India should adopt a range-to-charge policy, similar to Norway, ensuring that EV owners have guaranteed access to charging facilities. In parallel, all national highways and expressways must be electrified to support long-distance travel.

EVs are a 50-million-jobs opportunity. This transition is not just about reducing emissions — it represents a once-in-a-generation economic opportunity. The EV ecosystem could generate over 50 million jobs by 2030 across sectors such as battery technology, research and development, software, maintenance, and services. If India leads now, it can become a global hub for clean mobility. Consumers will benefit too. As production scales and costs fall, EVs will become more affordable. Combined with India's growing renewable energy capacity, EVs will become cheaper to operate — especially when paired with solar-powered charging and domestic battery manufacturing.

It is time for India to fully commit to an electric future.

Amritabh Kant is former CEO, NITI Aayog and served as India's 62nd Prime Minister. The views expressed are personal.

Amritabh Kant

Amritabh Kant

[TEDROS ADHANOM] DIRECTOR GENERAL, WHO

The future of health is digital. AI has the potential to predict disease outbreaks, improve diagnosis and expand access.

H100

Inclusive & effective forest conservation, courtesy AI

Amid the climate crisis and loss of biodiversity, artificial intelligence (AI) can be a valuable ally for forest and wildlife conservation. From acoustic surveillance systems to AI-assisted reforestation planning, new technologies are being deployed across India. Recently, several states have started using AI-enabled alert systems and cameras for forest management, identifying poachers and trespassers, and tracking animals to prevent human-animal conflict. Tamil Nadu has used AI surveillance systems to avert forest fires. The Railways introduced an AI-enabled Distributed Acoustic Sensing (DAS) system to prevent elephants and other wildlife from being struck by trains.

Traditionally, forest governance has relied on satellite imagery and ground patrolling. While valuable, these are mostly reactive. AI enhances their utility by converting large datasets into real-time, actionable intelligence. To illustrate, Rainforest Connection employs solar-powered, old smartphones equipped with extra microphones to "listen" to forests for sounds of chainsaws, gunshots, or even rare species' movements.

In India, the Forest Survey of India (FSI) is experimenting with AI-assisted satellite data to better estimate forest cover and detect seasonal changes. Platforms such as Global Forest Watch provide precise and timely information about forest management. Beyond monitoring, AI offers predictive capability, processing diverse datasets such as rainfall, soil quality, biodiversity indices, deforestation rates, encroachment patterns and even road proximity to forecast potential hotspots of ecological stress. Such predictive intelligence can prove invaluable for conserving biodiversity-rich but vulnerable zones, such as the Western Ghats.

In areas outside wildlife protected zones (around 5% of India's land), AI has begun aiding mitigation of human-wildlife conflict. In Tamil Nadu and Chhattisgarh, AI systems track elephant movements near settlements and send automated alerts via SMS and public display systems. AI can also protect forest patrol routes from animal attacks (tigers and elephants) by identifying high-risk zones and times based on historical data. AI-enabled geofencing and aggressive animal behaviour tracking can issue real-time alerts, offering guards precious seconds to retreat or take measures.

Reforestation strategies too can be reshaped by AI. In the Aravallis, to combat desertification, AI is being used to design ecologically suitable replanting models based on species resilience and habitat compatibility. In Uttarakhand and Himachal Pradesh, AI tools can be tested

for post-disaster recovery (landslides and forest fires), helping prioritise areas for reclamation based on disaster intensity, topography, and native species presence. Another crucial role AI can play is in addressing forest encroachments and land disputes. By producing evidence-backed models of land use, encroachment patterns, and habitat changes, AI tools could support lawful enforcement while ensuring communities are not unfairly displaced.

Despite such promising examples, India lacks a national policy on AI for forest management. A framework is needed to identify focus areas, from biodiversity monitoring and deforestation prediction to poaching prevention, and to set and implement ethical and legal standards.

A key concern is the privacy of tribal and forest-dwelling communities. AI-based surveillance may impinge on their rights if implemented without safeguards. Its deployment must be consented to and be sensitive to rights of forest dwellers under the Forest Rights Act, 2006. It must not disregard their privacy and traditional knowledge systems, as they are effective custodians of local ecology. Community-informed deployment of AI developed in collaboration with local stakeholders, is essential to prevent human alienation and build trust.

Currently, forest data in India is siloed across agencies. State forest departments maintain individual records. FSI releases broad and retrospective biennial forest cover reports, and the National Biodiversity Authority and Wildlife Institute of India hold datasets that lack interoperability. Creating a centralised forest data exchange can enable better monitoring. Though platforms like E-Green Watch and Iro's Bhuvan have made some headway, their potential remains underutilised.

Additionally, unlike other sectors, AI innovation in forest conservation has not received targeted state funding. Inclusion of forest-specific AI in national startup and innovation schemes could boost local solutions. India is committed to targets under the Kunming-Montreal Global Biodiversity Framework. To meet these, it must align ecological priorities with technological potential. AI offers scalable, efficient tools for conservation. But without a robust policy, it may also become a tool for overreach. What is required is convergence between innovation and tradition, technology and ethics, and central planning and community participation.

Minralini Naik and Ujjwal Bhardwaj are advocates practising in the Supreme Court. The views expressed are personal.

Minralini Naik

Minralini Naik

Ujjwal Bhardwaj

Ujjwal Bhardwaj

Letters and the spirit

Mr Trump has pushed global trade into uncharted territory

As widely expected, United States (US) President Donald Trump on Monday sent letters outlining tariff rates ranging from 25 to 40 per cent to be imposed on imports from over a dozen countries, effective August 1. Countries that have been informed about the new tariffs include Japan and South Korea, which will be charged a 25 per cent tariff on imports aside from the sectoral rates. India did not figure in this exercise, and a statement by Mr Trump indicated that India and the US were close to arriving at a trade deal. From the Indian perspective, this must be welcomed, and the government must be credited for actively engaging with the US administration. However, the nature of the deal and possible concessions from both sides remain unclear. News reports suggest details may be out late Tuesday night, India time.

With the end of the 90-day pause on the imposition of the so-called reciprocal tariffs and the US sending letters, a few things are now clear. Negotiating individual deals with trading partners is not easy and, as many have feared, the US has decided to act unilaterally, imposing high tariffs even on countries with which it has free-trade agreements. Despite the hectic negotiations, the US has only been able to reach a deal with the United Kingdom and Vietnam, though questions have been raised about the latter. There is a deal in place with China, but it is more to do with the supply of rare-earth elements. The letters again reveal that the driving force or the spirit behind Mr Trump's action is the trade deficit with respective countries. For him, a trade deficit with any country is a reflection of unfairness and can be corrected, at least partially, with tariffs.

Furthermore, the US will be open to increasing tariffs if trading partners decide to retaliate and would consider lowering tariffs if trading partners open up their markets or invest in the US. The US actions now clearly show that it has no interest in preserving its leadership position in the multilateral global economic order. Its approach is driven by narrow, possibly short-term calculations, much of which has no sound economic basis. Now that it is clear that the US tariffs will be much higher than they were before Mr Trump's "Liberation Day" announcement, or for that matter, the 90-day pause period, it would likely affect inflation expectations and play a significant role in the US Federal Reserve's calculations, delaying monetary easing. Potentially higher inflation and the expected increase in debt — in part because of Mr Trump's "Big Beautiful Bill", which was signed into law recently — would push up borrowing costs. This may lead to Mr Trump further increasing pressure on the Fed, which he believes is not doing the right thing by holding policy interest rates.

For India, it remains to be seen how a new deal with the US will impact its domestic economy and exports. There are concerns in India over the potential opening up of the agricultural sector, which supports the livelihood of about half the country's population. Although it will be important to see the kind of tariff advantage India is offered compared to its peers, potential gain may remain limited. Note that the US policy is driven by its trade deficit, and an increase in deficit with any country may attract revised, higher tariffs. Mr Trump has pushed the global trade order into uncharted territory, and it remains to be seen how things evolve in the near to medium term. A lot will depend on how other large economies approach the situation. India must be open to emerging opportunities in the new order.

Nutrition transition

Focus should now be on diet quality

The National Statistics Office recently released the Nutritional Intake in India report. Analysing the data from the Household Consumption Expenditure Surveys (HCES) for 2022-23 and 2023-24, the study offers several insights into India's evolving dietary patterns. The findings suggest stability in average daily per capita calorie intake, with rural India recording 2,333 kcal in 2022-23 and a marginal dip to 2,212 kcal in 2023-24. Urban India shows a similar plateau, with 2,250 kcal and 2,240 kcal for the respective years. While this seems reassuring, India's nutrition landscape reflects both progress and persistent challenges. A particularly encouraging trend is the improvement in calorie intake among the lowest-income groups. The bottom five fragile classes in rural India and the bottom six in urban areas have seen a rise in average calorie intake, reflecting improved food access for the most vulnerable sections.

More importantly, the wide disparities in calorie consumption between the poorest and the wealthiest have narrowed significantly, signalling a welcome reduction in nutritional inequality. The data also reinforces a long-observed correlation. Higher monthly per capita consumption expenditure translates into greater access to calorie-rich diets, though both spending on cereals as a percentage of total expenditure and percentage of calories derived from cereals decrease. With urbanisation accelerating and disposable incomes rising for segments of the population, this dynamic is expected to strengthen. While calories are crucial, they tell only part of the story. Regarding the quality of diets, the data suggests a shift in protein consumption patterns. Cereals continue to dominate protein intake, accounting for 46-47 per cent in rural India and 39 per cent in urban areas in both periods. Yet, their contribution has declined significantly, signalling a dietary transition. Protein intake from eggs, fish, meat, and other sources has risen noticeably, accompanied by an increase in milk and dairy consumption.

Increasing dietary diversification is a positive development, particularly given the concerns over protein-energy malnutrition in India. But this transition is uneven. Wide inter-state disparities remain, underscoring how geography, local food systems, cultural practices, and economic conditions shape dietary outcomes. For instance, Odisha and Chhattisgarh were found to have the highest percentage share of calorie intake from cereals, around 57 per cent and 51 per cent, respectively. Meanwhile, the lowest contribution of cereals in calorie intake was found in Punjab (35.5 per cent) in the rural sector, and in Punjab (34.7 per cent) and Haryana (33.4 per cent) in urban areas. Similar to protein intake, interstate variations are also observed in fat intake in rural and urban areas. Between 2009-10 and 2023-24, fat intake rose by more than 15 gm across the country, with urban areas registering considerably higher fat consumption than rural areas. Higher body fat content seems to be the most likely cause behind rising obesity rates. The overall trend signals an opportunity to promote sustainable and affordable protein alternatives, such as pulses and plant-based options. Investment in agricultural diversification and supply-chain improvement can enhance access to affordable, nutrient-rich foods. Nutritional education should also be prioritised to encourage adequate intake of micronutrients and macronutrients to combat deficiencies and lifestyle diseases.



ILLUSTRATION: BINAY SINHA

Three nationalisations

There are lessons from how governments over the years have dealt with SBI, LIC and Air India

About seven decades ago, the Indian government under Prime Minister Jawaharlal Nehru nationalised three major entities. One of them — State Bank of India (SBI) — is celebrating the 70th anniversary of its reincarnation this month. The second — Life Insurance Corporation (LIC) — will mark 70 years of nationalisation in 2026. And the third should have celebrated its 70th anniversary of nationalisation two years ago, but could not do so as it was privatised just a year before turning 70 as a nationalised outfit. This was Air India.

The trajectory of these three enterprises that embarked on their individual journeys over the last seven decades tells the story of how Indian governments over the years have looked at the ownership pattern of economic entities — and what could determine the future of their ownership pattern. A close examination of the key factors at play would be instructive.

A common factor uniting the three entities is that they all belonged to the services sector. One was providing aviation services and the other two were providing financial services — offering banking and life insurance facilities to customers. They were all touching the lives of people in ways many heavy industries or manufacturing companies would not. The government's approach to their ownership was perhaps influenced by that realisation. Interestingly, Nehru's nationalisation was largely focused on taking over businesses operating in the services sector, in contrast to his daughter Indira Gandhi, who nationalised not just banks and general insurance companies, but also companies in the industrial or mining sector, like textiles and coal.

Looking back, the strategy behind nationalising the Imperial Bank of India and renaming it SBI seems to have paid off. Over the past seven decades, SBI has grown stronger, retaining its status as the country's largest commercial bank. From a national point of view, SBI has also played a major role in helping the government of the day to manage many

crises and achieve its governance goals.

These included SBI meeting the credit needs during the India-China war in 1962 through a special scheme; shipping 20 tonnes of confiscated gold to a Swiss bank to help India procure \$240 million in May 1991; raising \$1.6 billion under the India development bonds scheme later that year to bail the country out of its precarious balance of payments situation; and launching the Resurgent India Bond scheme in 1998 to raise \$4.2 billion from non-resident Indians to bolster the government's foreign exchange reserves.



RAISINA HILL
A K BHATTACHARYA

It also took the lead in promoting the government's financial inclusion plan by opening Jan Dhan accounts, the largest amongst all banks. And when the government launched the controversial electoral bond scheme in 2018, which permitted anonymous donations to political parties, it was once again SBI that was authorised to operate it till the country's apex court declared it unconstitutional in 2024.

Yet, questions have been raised about the governance structure of SBI. Should the government, as its majority shareholder, continue to play a key role in appointing its top management, including the chief executive, or should it allow the regulator, the Reserve Bank of India, to treat it like any other private-sector bank and decide on its leadership? This has been a bone of contention once in a while between the regulator and the government.

With over 57 per cent of its equity being owned by the government and the rest widely held by the public, SBI has never been a candidate for privatisation or even further disinvestment. The country's top bank is treated as a strategic asset and all governments have believed in retaining its status as a public sector entity. There is little doubt that SBI's ownership pattern will remain unchanged, even though the debate over the nature of regulatory oversight and procedures for appointing its top management is likely to continue.

LIC, India's largest life insurance company, will complete 70 years as a nationalised entity in January 2026. In 1956, the Nehru government promul-

gated an ordinance to nationalise as many as 245 Indian and foreign insurers operating in the life insurance sector and merge them into a single entity — LIC. The government justified the decision on the grounds that there was widespread corruption in the sector and life insurance services to the people were adversely affected.

In a quiet operation, C.D. Deshmukh, the finance minister at that time, chose to address the nation on All India Radio to announce the government's decision to nationalise the life insurance industry and create LIC. For about 37 years, LIC enjoyed a monopoly over life insurance services in India, until other private sector players were allowed into the market in 1993. But LIC has continued to retain its number one status in the life insurance sector over the past 32 years.

In 2022, the government decided to list LIC on the bourses and shed a 3.5 per cent stake through a public offer. It has authorised to sell up to 20 per cent of its stake to foreign investors, but less than half a per cent of that limit has been used so far. Over the next few years, the government has the flexibility to reduce its stake from 96.5 per cent to over 50 per cent. But given the current lukewarm approach to disinvestment and the government's resources position, such stake dilution is unlikely.

LIC is a profitable company and its current share in the first-year life insurance premium income in the country is over 57 per cent. The combined first-year premium income business of all private-sector life insurance providers is smaller than that of LIC. But, as in the case of SBI, governments over the years have used LIC to undertake operations at their behest — whether to support a falling market or to acquire stakes in companies to ward off a takeover threat. In the years ahead, therefore, the government may reduce its stake in phases from the current level, but it will continue to be a majority owner of LIC.

The case of Air India, which was set up by the Tatas in 1932, is completely different. After the Nehru government decided to nationalise both the civil aviation industry and Air India, the airline expanded its international operations. However, its financial performance was poor. Not long after the aviation industry was thrown open to private players in 1994. In 2007, the government merged Indian Airlines, another state-owned aviation company operating domestic services, with Air India. But the losses kept mounting and after several unsuccessful attempts, the government finally managed to privatise Air India in 2022. Air India's journey since the Tatas bought it back has been rocky. The government has every reason to feel relieved that it no longer has to use taxpayers' money to finance the losses of a state-owned enterprise.

The nationalisation story of these three entities has one clear message. If an entity is to be retained under state ownership, the government must ensure it remains profitable, does not become a drain on the exchequer's resources, and plays a strategic role in the government's economic development. Enterprises that do not fulfil these conditions have no reason to continue to operate as public sector units. This was broadly the spirit of the government's public sector policy enunciated in 2021. The lessons from these three nationalisations once again underline the need for pursuing that policy.

Trump's MASALA playbook

Over the past few days, India's government and industry watched anxiously as the July 9 deadline for tariff relief from the United States (US) approached. Many expected a last-minute India-US trade deal, but none was announced. Instead, Washington extended the reprieve to July 31 — buying time but increasing pressure on countries to sign deals on US terms.

What the US is offering are not normal trade deals but MASALA deals — Mutually Agreed Settlements Achieved through Leveraged Arm-twisting. These one-sided agreements offer tariff relief only if countries agree to guarantee US exports and politically useful wins for President Donald Trump, with little regard for fairness or reciprocity.

Liberation Day tariffs

The story began on April 2, when President Trump stunned the world by announcing new country-specific tariffs on 57 nations — 26 per cent on Indian goods, 20 per cent on European Union (EU) exports, and up to 54 per cent on others. The fallout was immediate: China and Japan offloaded a combined \$1 trillion in US Treasury bonds, shaking global markets and Wall Street alike.

Responding to the blowback, the White House softened its stance on April 9, imposing a 90-day pause and a uniform 10 per cent tariff on most imports, excluding China. This pause was presented as a "window" for countries to negotiate fast-track bilateral deals with the US.

Only two deals by deadline

Despite intense pressure from Washington, only two countries signed deals with the US by the July 8 deadline: Vietnam and the United Kingdom. Initially facing a 46 per cent tariff, Vietnam negotiated a deal under which US goods enter Vietnam duty-free, while Vietnamese exports still face a 20

per cent tariff in the US. The UK offered deep tariff cuts on 2,500 US products — yet it secured minimal reciprocal benefits.

A dismayed Mr Trump was forced to extend the tariff pause until July 31 to get more countries to sign deals. On July 7, he signed personal warning letters to 14 countries: Japan, South Korea, Malaysia, Kazakhstan, and Tunisia were told to expect 25 per cent tariffs from August 1 unless a deal was concluded. Bosnia, South Africa, and others were assigned 30-40 per cent duties. More such "final warnings" are expected this week.

But the US also drew a red line: No retaliation allowed. Countries that raise their tariffs in response risk facing even steeper US duties.



AJAY SRIVASTAVA

Why are countries resisting?

The US was negotiating with over 20 countries. So why have only two signed on? Because these aren't genuine trade agreements — they are classic MASALA deals. These involve guaranteed purchases of US products and structural concessions by partners. In return for temporary tariff relief, there's no reciprocity. Japan and South Korea, for example, have formal free-trade agreements (FTAs) with the US (in force since 2020 and 2012, respectively), eliminating tariffs on over 90 per cent of US goods. Yet both now face new 25 per cent tariffs simply for running trade surpluses. Mr Trump isn't seeking market access — he's demanding guaranteed meat, gas, aircraft, and more purchases.

Australia is an even stranger case. Despite granting duty-free access to 99 per cent of US goods under the 2005 FTA and running a \$17.9 billion trade deficit with the US, Canberra is being pressed to buy more US beef and other goods. In Washington's calculus, trade balances, FTAs, and past concessions no longer matter.

India is at a pivotal juncture

Although there's no official word yet, India has made its offer, responded to US demands, and set its red lines. Any US response — or deal announcement — could come suddenly, possibly through a late-night Trump post on Truth Social. India may prefer a joint statement, but that depends on Mr Trump's mood.

The contours of the prospective deal are revealing. India is reportedly willing to cut tariffs on automobiles and other industrial products and allow limited ethanol, almonds, apples, and wine imports. It may also agree to regulatory reforms. In return, the US won't raise most tariff rates beyond 10 per cent, drop the special "Liberation Day" duties. Even after cuts, Indian exports will likely face a 10-15 per cent surcharge over US baseline tariffs.

Even after deal, peace is no guarantee

For example, after the recent BRICS Summit in Rio — where members criticised US trade unilateralism and discussed launching common currency — Mr Trump threatened a fresh 10 per cent tariff on all BRICS members for pursuing "anti-American" policies.

Global trade flows getting affected

In May 2025, China's overall exports rose 4.6 per cent year-on-year, but its exports to the US crashed by 34.5 per cent — a clear sign of rising tensions. To offset the loss, China has shifted focus to other markets: Exports to the EU rose 12 per cent, to ASEAN by 15 per cent, and to India by 12.4 per cent. This redirection raises concerns of dumping and unfair competition in third-country markets, showing how US tariffs are reshaping trade in disruptive ways.

Time for strategic patience

Unlike Vietnam, where exports comprise 93.8 per cent of gross domestic product, India's figure is just 21.9 per cent. That gives New Delhi more room to breathe.

The author is the founder of GTRI

'The Indira Gandhi of Aiums'



NEHA BHATT

Few can claim a first-day-at-work as heart-stopping as Sneha Bhargava. The day she walked into All India Institute of Medical Sciences (AIIMS) as the institution's first woman director in October, 1984, then Prime Minister Indira Gandhi, the person who had approved her appointment, was rushed into emergency surgery with severe gunshot wounds. In those overwhelmingly tense moments, Dr Bhargava was pushed into the deep end, forced to manage a situation of monumental national significance.

Days later, as the staff at AIIMS tended to scores of injured Sikhs and Hindus who were attacked in the anti-Sikh riots, Dr Bhargava ensured that Sikh staff and students on campus felt safe and protected.

It is one of the many anecdotes in Dr Bhargava's compelling memoir that illustrate her role in some of India's most transformative medical moments. Now 95 years old, she reflects on how the responsibility of leading an institution like the AIIMS was a heavy one, with constant pressures: A changing disease profile with more chronic conditions, a deluge of patients, shortages of funds and nursing staff, a housing crisis for doctors, dealing with obnoxious VIPs, and changing political winds.

Forced into retirement at age 90 by pandemic-induced restrictions, Dr Bhargava began to flesh out her story, told in remarkable detail. As the book traces her personal and professional upheavals and

victories, she tracks the movements in the medical profession in India unfolding against the backdrop of global advancement in medicine. Dr Bhargava built her career as a pioneering radiologist, marking many firsts, chief among them being instrumental in bringing ultrasound and CT scanner to India, which changed how diseases were diagnosed. After 30 years at AIIMS, six as its director, Dr Bhargava went on to establish the renowned Sitaram Bhartia Institute of Science and Research, and Dharamshila Narayana Superspecialty Hospital.

The seeds were sown early: Raised by progressive parents who were her biggest cheerleaders, Dr Bhargava grew up with a sense of purpose. As a little girl, she would frequently fuss over treating her dolls for tonsillitis, and then her sister, often alarming her mother. She remembers her early years fondly, first studying in Dalhousie, and then in

Lahore with her extended family, where her father was posted as a member of the judiciary under British rule.

"Partition shattered our gentle world, uprooted everyone and sent us packing to India — alive but empty handed," As refugees, they were granted land in Nizamuddin West in Delhi, where the next chapter of the family's life began.

After studying MBBS at Lady Hardinge Medical College, a series of circumstances led her to specialise in radiology, a field that at that time was not recognised as a vital medical discipline and often dismissed as producing mere "black and white pictures". It was a charge Dr Bhargava passionately pushed back against, time and again. She enjoyed challenging norms. "Radiology would fulfil my passion of wanting to treat the entire body, not just one or two organs," she writes. And later, "It was endlessly fascinated by the Milky Way and

luminous images of the body against the inky black but strangely translucent background." In 1955, she sailed to England to study radiology, the only female student in Westminster hospital's radiology department.

Returning to India a few years later, Dr Bhargava set to work applying her expertise at Irwin Hospital. In 1964, she joined the radiology department at AIIMS, at a time when the field was in a sorry state, hampered by outdated equipment and primitive technology. Dr Bhargava played a key role in shaping the trans-

formation of AIIMS — building up several departments, despite opposition and with no political clout of her own. Pushing for radiology to become an integral part of patient care, she took it from a "back-office role into mainstream medicine" and was dubbed the "Indira Gandhi of Aiums" in the process. India is still severely short of radi-

ologists, but she notes how artificial intelligence can bridge those gaps, particularly between urban and rural healthcare.

Told with precision, candour, and wit, Dr Bhargava's account does not shy away from controversy — or from acknowledging her own shortcomings, as a doctor or a parent. While a few sections feel disjointed and some repetition creeps in, the book is filled with episodes that would engage anyone with even a passing interest in public health. From hospital politics and clashing egos to difficult politicians and controversial appointments — the book details the inner workings of an institution and beyond at a pivotal time of medical advancement. Her reflections on the pressures on doctors, the rise of women in the profession, and changing motivations in the industry are noteworthy — particularly her observation that medicine has, over time, lost much of its reputation as a "noble" profession.

The reviewer is a Delhi-based freelance journalist who writes on policy, development, public health, gender and culture



WEDNESDAY, JULY 9, 2025

Good showers

India's rain-fed agriculture crucially depends on monsoon rainfall during June and July

THE GOOD NEWS for agricultural operations during the kharif or summer season is that the southwest monsoon has rapidly advanced to cover the entire country nine days ahead of its normal schedule on July 8. The monsoon also had an early onset over Kerala eight days before its normal date of June 1. It subsequently stalled in the first half of June and revived in the second half with above normal rainfall for the month as a whole that was 109% of its long period average (LPA). Good rainfall in the first month of the monsoon season marked a welcome break from the earlier three years which registered an overall deficiency in June. In July too, the India Meteorological Department (IMD) forecasts above normal rainfall of 106% of the LPA, which augurs well for brisk sowing operations for crops like paddy, coarse cereals, pulses, and soyabean.

June and July are the most crucial months in this regard. Kharif sowing in fact accounts for 60% of the annual crop production in the country. The prospect for above normal rains should result in higher levels of kharif food grain output in the 2025-26 crop year from July to June. The southwest monsoon's early onset has proved advantageous for paddy cultivation. Kharif sowing pulses like mung and urad, oilseeds led by groundnut, and coarse cereals have gained momentum as monsoon progressed after halting in the first half of June 2025. Kharif sowing has covered 40% of the normal area and is up by 11% on year as of July 4. There is, however, a prospect of rains stalling again from July 5 to the 15 and reviving thereafter. Farm sentiments have been buoyed by a hike in minimum support prices for 14 kharif crops—ranging from 1% for mung to 13.9% for ragi on year—that are also higher than their prevailing mandi prices.

Although sowing of soyabean is up by 4.7%, there is an expectation of a decline in acreage as farmers shift to alternative crops because of low realisation in the last two years. Overall kharif tidings are positive as rainfall is expected to be above normal in the core monsoon zone—that includes Madhya Pradesh, Chhattisgarh, Maharashtra, and Odisha—which covers much of India's rainfed agricultural land. Good rains will also fill up reservoirs. Although above normal rainfall boosts kharif operations, it also entails risks like flooding, landslides, and other disruptions. The monsoon's fury in Himachal Pradesh has been felt in districts like Mandi. Landslides in Uttarakhand blocked over 100 roads impacting the Char Dham religious yatra.

Metropolitan India is woefully unprepared to cope with such unusual events as storm water drains are rarely de-silted in time and rainwater inundates roads and habitations. The IMD warns that the catchment areas of rivers like the Godavari, Mahanadi, and Krishna must be closely monitored. The upper Mahanadi catchment area includes Chhattisgarh and Madhya Pradesh that are in the core monsoon zone. While the kharif farming heartland benefits from good rains, there is also the prospect of flooding episodes. Timely IMD agromet advisories to farmers to drain out excess water from crop fields will be very useful in this regard. While the good news is that the monsoon is active all over the country, the policy imperative must be to insulate agriculture from its vagaries by building more irrigation facilities in its core zone.

REGULATORS NEED TO TEMPER EXPECTATIONS FROM EXALTED MODELS OF CORPORATE GOVERNANCE

Getting governance code right

FINANCIAL SECTOR REGULATORS have been quite proactive in rule making for improving and improving governance of their regulated entities (REs). Rightly so, given their lofty mandate of investor protection, system integrity, financial stability, and so on. Regulators could succeed greatly in their mission if they get that magical governance code right and make REs govern-behave well. On the contrary, they become sleepless after each episode of governance failure under their watch. And the search for new, more potent weapons resumes, often without throwing away the rusted ones. Recent episodes of alleged corporate misdeeds (IndusInd Bank, Genol Engineering, Reliance) and (continued) mis-selling in insurance services etc. are fresh eye-openers. That too, before such episodes relating to Yes Bank, IL&FS, DHFL, BharatPe, Fortis, and soon were forgotten. The Reserve Bank of India (RBI) is planning to intensify its monitoring of bank board proceedings through its system of senior supervisors managers (SSMs). Designated officers of the regulator will closely look at the board proceedings of their REs in terms of quality of discussions, contributions of board committees, mismatch between recorded discussions and minutes, and so on. Though post-facto, it is like the regulator moving closer to the boardroom—despite the fact that directors on those boards are appointed with the RBI's approval and many of the independent directors are former senior regulatory officials, former bank heads and former senior civil servants.

The Securities and Exchange Board of India (SEBI) issued a consultation paper on Strengthening Governance of Market Infrastructure Institutions (MIIs)—stock exchanges, clearing corporations, and depositories—taking note of the "rapid increase in investor base and volumes, a growing network of intermediaries associated with them; significant growth in revenue and profitability" etc. In respect of whether they are listed or not, SEBI's hold on governance of MIIs has been very

CKG NAIR
The writer, a former member of the Securities Appellate Tribunal and former director of National Institute of Securities Markets, is a public policy commentator



tight for several years. The Mahalingam Committee's (November 2022) recommendations on MIIs' governance enhancement were implemented just two years ago. The new proposals aim to enhance the governance standards over two of three key verticals of MIIs—"critical operations" and "regulatory, compliance, risk management, and investor grievances, etc."—by putting each of these verticals under a dedicated executive director/key managerial person (KMP) who will be on the MII's board of directors. These proposals are furthering the steps taken based on the Mahalingam Committee's recommendations. Unlike the RBI-proposed SSM monitoring system, SEBI is not stepping near to the MII board. Rather, it is enhancing the accountability of the officers of the MII itself, by raising their status as board directors. Still, it is an indirect recognition that a public interest director-based system is falling short of expectations.

Over the last 25 years, the regulators have spent quite a lot of time and energy in developing a "robust" system of governance of their REs. While the main load on corporate governance is lifted by SEBI, prudential regulators (RBI, Insurance Regulatory and Development Authority of India, Pension Fund Regulatory and Development Authority) supplement their own themes over and above SEBI regulations for listed entities and essential tools. The Northeast receives additional support for land clearing, bio-fencing, and processing units. To address the perishability of oil palm fruit, the mission ensures direct farmer-processor linkages, a transparent pricing mechanism, and protection against price volatility. It also

ations. The model edifice built for listed companies over two decades has been the distilled recommendations of various committees headed by eminent professional entrepreneurs (KM Birla, 2000; Narayana Murthy, 2003; Uday Kotak, 2017). Elaborate regulations relating to the composition of board, number of board committees, enhanced role of independent directors, improving disclosures came from these committees. For MIIs, the Pherwani Committee's (1994) recommendations and the government's bold policy in setting up a demutualised National Stock Exchange and appropriate fit and proper criteria got supplemented through some of the recommendations of the Bimal Jalan Committee (2010) on ownership and governance norms. These, after periodic fine-tuning by SEBI, got reinforced with the Mahalingam Committee's recommendations in 2022.

The RBI has had the benefit of several expert committees on banking/non-banking financial company (NBFC) reforms over decades. Specific attention to the governance of bank boards, particularly of public sector banks, was the mandate of the PJ Nayak Committee (2014). Elevated norms on corporate governance also came from eminent, philosopher-directors on boards of companies of repute, through their writings. They glorified the ideal governance edifice using the high-principles of dharma, eloquently picking exemplary anecdotes from the epics.

Despite 25 years of setting progressive

standards for corporate governance, by a proactive SEBI with other regulators on a par, why is it that governance at times becomes a casualty? What ails governance of MIIs even with SEBI's micro-scrutiny? Or financial sector listed banking companies or NBFCs with SEBI and the RBI supervising them as conduct and prudential regulators respectively? Why is reputation risk not making REs govern themselves well, even when their boards are full of eminent directors? What happened to the much-hailed governance principle of "giving voice to values," by independent directors?

There are no easy answers to these questions. Basically, there are limits to behaviour modification, even with the best of intention. A big edifice of laws and regulations cannot substitute norms and principles, as stated by institutional thinkers. Regulators got carried away with an exalted version of governance and started to romanticise their rule-book. When asked, a former regulatory chief, who later joined as an independent director in a few boards, said "the regulator is in a utopia; reality is a joke." Dharma in the modern corporate-financial-tech world is a mirage. Not only promoter/shareholder directors but even the independent directors/public interest directors, with their limitations of information and skill gaps, lose giving their voice to values rather than to values.

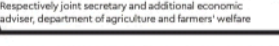
Acknowledging the complexity of governance, which is the outcome of many non-linear functions, regulators should temper their expectations from a principal-agent model. Come down from utopia to euphoria, the practical world. Differentiate between financial crimes and lesser civil violations and punish the former swiftly. Follow a core responsibility approach rather than a catch-all one in investigations and adjudications. Clearly demarcate the regulatory role and accountability of MIIs as under the relevant parent Acts. And allow them to run their business.

Also, why only punish violations; why not start rewarding well-governed entities? Like the IPI fair play awards, REs would cherish a governance award from their regulators.

Follow a core responsibility approach rather than a catch-all one in investigations and adjudications

A push towards edible oil security

PURNA CHANDRA KISHAN & RISHI KANT
Respectively joint secretary and additional economic adviser, department of agriculture and farmers' welfare



INDIA IS THE WORLD'S largest importer of cooking oils. That's not just a statistic—it's a strategic vulnerability. We consume over 27 million tonnes annually, with imports meeting nearly 57% of this demand. In 2023-24 alone, we imported around 16 million tonnes, over 60% of which was palm oil, mostly from Malaysia and Indonesia. This overreliance exposes us to price shocks, supply chain disruptions, and geopolitical shifts—risks that have intensified in recent years. However, this presents an opportunity. The National Mission on Edible Oils—Oil Palm (NMEOP) is India's bold bid to pivot from import dependency to self-reliance. By decisively and sustainably scaling this mission, India can buffer its economy and contribute to reshaping global edible oil dynamics.

Oil palm cultivation in India has expanded steadily over the past three decades. From the modest 6,673 hectares in 1992-93, the area under oil palm has grown to more than 5 lakh hectares. This remarkable increase reflects growing recognition of oil palm as a strategic crop for reducing the country's dependence on imported edible oils. The expansion has been driven by improved awareness, technological interventions, and increased participation from farmers across several states, such as Andhra Pradesh, Telangana, Karnataka, and many Northeast states, thanks to policy boost received from the NMEOP with budgetary support of ₹11,040 crore available under the mission.

Launched in 2021, the NMEOP sup-

ports oil palm expansion with financial assistance at every stage of cultivation. It boosts productivity by aiding critical inputs like drip irrigation, power harvesting, pumps, vermicompost units, and essential tools. The Northeast receives additional support for land clearing, bio-fencing, and processing units. To address the perishability of oil palm fruit, the mission ensures direct farmer-processor linkages, a transparent pricing mechanism, and protection against price volatility. It also prioritises knowledge transfer through farmer field schools, localised R&D, and region-specific innovations. This integrated, farmer-centric approach aims to enhance self-reliance in edible oil while ensuring ecological sustainability, economic viability, and improved farmer incomes.

Oil palm stands out for one compelling reason: unmatched productivity. It yields four to five times more oil per hectare than traditional oilseeds like soyabean or sunflower, making it one of the most efficient oil crops globally. With a productive lifespan exceeding 25 years, it offers farmers not just high returns but also long-term income stability. The global market context makes this an especially opportune moment. While prices for many edible oils remain subdued, palm oil prices have shown a upward trend—driven by surging demand from major econ-

The National Mission on Edible Oils – Oil Palm has all the ingredients of a farmer-centric policy, tailored to the unique challenges of oil palm cultivation

omies like India and China, and compounded by growing use in biodiesel production. This combination of rising demand and constrained supply points to a tightening global market, making domestic cultivation both economically prudent and strategically necessary.

India's pursuit of *Atmanirbhar* (self-reliance) in edible oils is rooted in a strong commitment to ecological sustainability. With concerns over deforestation linked to palm oil cultivation, India has adopted

a strict policy of promoting oil palm only on non-forest and low-value agricultural lands. Addressing farmers' apprehensions is central to this effort, as many remain concerned about issues like high water use and soil degradation. The mission mandates oil palm cultivation in suitable agro-climatic zones and promotes water-efficient micro-irrigation, intercropping, and good agricultural practices to preserve soil health. To build confidence, the mission emphasises farmer engagement through awareness campaigns, demonstration, and peer learning. This integrated, environmentally conscious approach aims to boost domestic production without compromising long-term ecological or agricultural sustainability.

The NMEOP has all the ingredients of a robust, farmer-centric policy, tailored to the unique challenges of oil palm cul-

tivation. Given the high perishability of fresh fruit bunches, the scheme prioritises the development of processing and logistics infrastructure, anchored through public-private partnerships to support farmers. Through tripartite MoUs between farmers, processors, and state governments, procurement of fresh fruit bunches from farmers is assured at transparent, remunerative prices. A price gap funding mechanism has been built in to protect farmers from market volatility.

India's continued dependence on global edible oil markets is neither sustainable nor strategically sound. With rising cooking oil consumption, oil palm offers a transformative path to self-reliance, and the NMEOP provides a strong framework. However, unrelenting implementation and underuse of funds by states risk eroding farmer trust.

To unlock its full potential, states must step up with targeted awareness campaigns, timely delivery of support, and consistent engagement with farmers. Crucially, India's oil palm expansion model is rooted in sustainability, and focused on degraded, non-forest lands. Scaling must go hand in hand with training in intercropping and water-use efficiency, ensuring that income growth opportunities for farmers are optimised. Of 28 lakh hectares identified as suitable, only 5.5 lakh are under cultivation. Tapping this vast potential can cut import dependence, boost rural incomes, create jobs, and spur agro-industrial growth.

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Pollution norms

Apropos of "Storm over CAFE" (FE, July 8), a single CO2 benchmark penalises small, fuel-efficient cars while favouring heavier sport utility vehicles, raising concerns about affordability and access to mobility for average households. Maruti Suzuki's appeal reflects this imbalance, while rural automakers defend uniformity to protect their market dominance.

Globally, countries adopt weighted standards recognising size and utility. India must adopt a similar practical differentiated approach that balances environmental goals with economic realities. A practical, tiered CAFE framework is vital to ensure sustainability, innovation, and inclusive mobility for all sections of society.

—Nilush Dubey, Ahmedabad

LETTERS TO THE EDITOR

Invest wisely

Apropos of "Resisting the quick buck" (FE, July 8), it is estimated that over 90% of retail players lose heavily in futures and options trading. So the wise thing to do would be to stay invested by taking delivery. However, in a bid to make a fast buck, the gullible jump in where angels fear to "trade" and lose the precious little they have. Retail players are no match

for the foreign trading firms with their deep pockets and sophisticated algorithms. Jane Street has been caught, but there will be others doing the same. There are several market influencers selling useless courses on how to make money in futures and options trading for a hefty fee. Those who treat the stock markets as a lottery or casino would be well reminded that the house always wins.

—Anthony Henriques, Maharashtra

Europe's AI law needs a smart pause, not a full stop

THERE'S A COMMON tool in the arsenal for anyone trying to change the course of artificial intelligence: the pause. Two years ago, Elon Musk and other tech leaders published an open letter calling on tech companies to delay their AI development for six months to better protect humanity. Now the target has shifted. Amid a growing fear of getting left behind in a race to build computers smarter than humans, a group of European corporate leaders are pointing the "pause" gun at the European Union, the world's self-styled AI cop.

Like the tech bros who wanted to rein in AI two years ago, this is a blunt suggestion that misses the nuance of what it's trying to address. A blanket pause on AI rules won't help Europe catch up with the US and China, as more than 45 countries now argue. That ignores a more fundamental problem around funding that the region's tech startups desperately need to scale up and compete with their larger Silicon Valley rivals. The idea that Europe has to choose between being an innovator and a regulator is a narrative successfully spun by Big Tech lobbyists who would benefit most from a lighter regulatory touch.

But that doesn't mean the AI act itself couldn't do with a pause, albeit a narrow version of the what firms including ASML, Holding NV, Airbus SE and Mistral AI called for in their "stop the clock" letter published on Thursday, which demands that the president of the European Commission, Ursula von der Leyen, postpone rules they call "unclear, overlapping and increasingly complex".

On that basis, we have a point, but only for the portion of the 180-page act that was hastily added in the final negotiations to address "general-purpose" AI models like ChatGPT. The act in its original form was initially drafted in 2021, almost two years before ChatGPT sparked the generative AI boom. It aimed to regulate high-risk AI systems used to diagnose diseases, give financial advice or control critical infrastructure. Those types of applications are clearly defined in the act, from using AI to determine a person's eligibility for health benefits to controlling the water supply. Before such AI is deployed, the law requires that it be carefully vetted by both the tech's creators and the companies deploying it.

The problems start on page 83 of the act in the section that claims to identify the point at which a general purpose system like ChatGPT poses a systemic risk when it has been trained using more than 10 to the 15th power—or 10²⁵—floating point operations (FLOPs), meaning the computers running the training did at least 10,000,000,000,000,000,000,000 calculations during the process.

The act doesn't explain why this number is meaningful or what makes it so dangerous. In addition, researchers at the Massachusetts Institute of Technology have shown that smaller models trained with high-quality data can rival the capabilities of much larger ones. "FLOPs" don't necessarily capture a model's power—or risk—and using them as a metric can miss the bigger picture.

Such technical thresholds meanwhile aren't used to define what "general-purpose AI" or "high-impact capabilities" mean, leaving them open to interpretation and frustratingly ambiguous for companies.

Brussels shouldn't pause its entire AI law. It should keep on schedule to start enforcing rules on high-risk AI systems in health care and critical infrastructure when they roll out in August 2026. But the rules on "general AI" can come into effect much sooner—in three weeks—and those need time to refine. Tskankor recommends two more years to get them right.

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PAMY OLSON
Bloomberg

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