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Trump or BRICS? The quandary for Africa's governments

Clyde Russell
CAPE TOWN

Beyond the short-term volatility and uncertainty created by U.S. President Donald Trump's tariff machinations, it's likely that the longer-term trend of the world splitting into two trading blocs is accelerating.

Stripping away Mr. Trump's bluster and often contradictory actions, the message seems to be fairly clear. Mr. Trump's view of the world is that you are either with the United States or against it.

That presents a dilemma for Africa's mineral-rich countries as they want to develop their resources to provide them with the maximum benefit, but they also want to stay largely neutral.

But it's increasingly likely that at some level African countries will have to decide whether they are more in the Trump camp, or whether they prefer to do business with the China-led BRICS group.

There are risks and rewards under both scenarios, and the circumstances of each African country may cause to lean one way or another.

The continent is already a major producer of minerals, but its untapped reserves are the major prize in coming decades, especially if the energy transition accelerates.

Africa is richly endowed, with an estimated 20% of global copper reserves, about the same for aluminium raw materials, 50% of manganese and cobalt, 90% of platinum group metals, 36% of chromium, as well as reserves of lithium, uranium, gold and rare earths.

Taking sides: The circumstances of each African country may cause them to lean either way. REUTERS

But developing its mineral resources has been often too challenging, given political instability and corruption, poor infrastructure, lack of capital and legal frameworks that make long-term investments hard to justify.

However, the increasing appetite of the world for minerals is likely to set off a new scramble for Africa, this time Africans will have more say in how it unfolds.

Finding the right partners is the challenge for African countries.

On the one hand the West still offers deep capital reserves, sophisticated equity markets and investors and skills and experience in mining.

Not beggars

But Mr. Trump is undermining these advantages with his tariffs and threats to withhold aid and other funding, as well as his habit of turning on traditional allies and flip-flopping policies. The main issue with Mr. Trump is his apparent transactional view of the world, in which there must always be a winner and a loser, and he always wants to be the winner. This means getting a mutually beneficial deal from the U.S. is going to be more difficult under Mr. Trump.

It was this frustration that boiled over in the remarks on Monday when South Africa's Resources Minister Gwede Mantashe said Africa should withhold minerals from the U.S. if Mr. Trump cuts aid.

"If they don't give us money, let's not give them minerals. We are not just beggars," Mr. Mantashe said. "We cannot continue to debate these minerals based on the dictates of some developed nations as if we have no aspirations to accelerate Africa's industrialisation," he added.

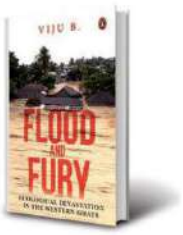
These comments may be unwise in that they may serve to antagonise Mr. Trump, but they may also sharpen some thinking in the West on how best to get access to Africa's minerals.

Should Africa be looking more toward China and the rest of the BRICS nations, as the best option to unlock its mineral wealth?

The experience here has been somewhat mixed. While China has been willing to develop mines in Africa, it generally tends to want to do it mainly using its own people and processes, and it wants to export raw ores and beneficiate them in China.

This has limited the benefits to African countries, but there may be an option to use legislation forcing companies to commit to domestic downstream operations as part of access to raw materials.

(The views expressed here are those of the author, a columnist for Reuters)



Shifting landscapes: What was once a symphony of chirping birds is now being gradually replaced by the relentless roar of heavy machinery in many places. GETTY IMAGES

Western Ghats: a living archive of culture, memory, and resilience

Through old and contemporary works, writers have sought to capture the alarming changes sweeping through the Sahyadri; they serve as a wake-up call to save the ecosystem, scarred by encroachment, displacement of tribal people, and skewed policies, from further ruin

K.S. Swati

The Western Ghats, also known as the Sahyadri, meaning benevolent mountains, stretches along the western coast of the Indian peninsula, spanning six States: Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. Known as one of the world's most biodiverse regions, the Western Ghats were once celebrated for their breathtaking natural beauty – cascading waterfalls, lush greenery, and a dazzling array of flora and fauna. Today, however, this idyllic landscape faces a stark transformation. Climate change, deforestation, the decline of traditional livelihoods, land encroachment, and the displacement of tribal communities have left the region in peril.

For years, writers in various regional languages have sought to capture and preserve the narrative of these alarming changes, believing in the transformative power of words. What was once a symphony of chirping birds is now being gradually replaced by the relentless roar of heavy machinery in many places.

The novella, *Chronicle of an Hour and a Half*, by Saharu Nusaiba Kannanari, which was shortlisted for the JCB Prize for Literature 2024, explores powerful themes such as the effects of rumours, mob mentality, social media – and nature, especially, relentless rain – hinting that something ominous awaits. Set against a fictional village in the foothills of the Western Ghats, the novella, which begins as a harmless exchange between two individuals, spirals into chaos through social media. Within an hour, the community descends into mass hysteria. In the background, nature reflects the emotions of the community, mirroring the escalating tension and chaos.

The inter-personal relationship between humans and nature is poignantly highlighted in Kuvempu's *Malegalalli Madumagalu* (1967), translated by Vanamala Viswanatha as *Bride of the Hills* (2024). Set in the Malnad region in the Western Ghats, where people are closely tied to the land, relying on its fertile soil, forests, and rivers for their livelihood, nature is revered not only for its practical role in sustenance but also for its spiritual significance, with rituals and local deities tied to agricultural cycles. Yet the novel reflects the growing tension between traditional harmony with nature and the pressures of modernisation and exploitation.

An exploitative cycle

Development, coupled with human greed, makes the lives of tribal communities difficult. In *Kocharethi: The Araya Woman* written by Narayan in Malayalam, which won the Kerala Sahitya Academy Award in 1998 and was translated into English by Catherine Thankamma in 2011, the theme of exploitation and marginalisation is vividly portrayed through the struggles of the Adivasi community. As industrial development, moneylenders, and land grabbers encroach on their ancestral territories, people are pushed into deeper poverty and displacement. The novel focuses on how outside forces often exploit the land's natural resources, disregarding the community's cultural and spiritual connection to it.

In *Ringaan*, written in Marathi by Krushnat Khot, who won the Sahitya Academy Award in Marathi in 2023, and translated into English by Maya Pandit, the protagonist, uprooted from his village, returns home to rescue a buffalo. He reminisces about his childhood and the harmonious life he once lived. The book highlights important aspects of migration, struggles of displaced victims when large-scale development projects are carried out, and the persistent man-animal conflict.

Loss of traditional occupations

Rampant quarrying, deforestation, illegal mining, and poorly planned construction projects have destabilised the fragile ecosystem. Through meticulous reporting, accounts from affected individuals, interviews, and a critical examination of policies, B. Viju's *Flood and Fury: Ecological Devastation in the Western Ghats* (2019) connects these activities to increased occurrences of landslides, floods, and soil erosion. The book delves into the historical and cultural significance of the Western Ghats while critiquing the apathy of governments, corporations, and society toward environmental conservation.

The Nilgiri Hills – A Kaleidoscope of People, Culture and Nature (2023) by Paul Hockings brings together stories and articles from writers, scholars, such as ecologists, filmmakers, local writers, etc to highlight various aspects of the Western Ghats. The book sheds light on several topics such as ancient metallurgy, music, the making of honey, and the degradation of the ecosystem.

Resistance and resilience

When livelihood, land, culture, and identity are at stake, resistance, and resilience are the only means of safeguarding them. In *Valli*, written by Sheela Tomy in Malayalam in 2019 and translated into English in 2022 by Jayashree Kalathil, we learn of a tribal community's deep connection to the forest, which sustains them both physically and spiritually. As outsiders encroach upon their land, Valli's family and others in the community resist, clinging to their heritage and traditions. At the same time, Valli grapples with her personal growth, relationships, and changing social dynamics. The novel highlights the strength and perseverance of the Adivasi people as they navigate the complexities of modern life while fighting to preserve their heritage and connection to the land.

Through old and contemporary works on the Western Ghats, authors have stressed that the Ghats are more than just a landscape – they are a living archive of culture, memory, and resilience. Yet, this fragile ecosystem is scarred by encroachment, where tribal people are uprooted, natural resources are destroyed, and policies fail to protect what matters most. To save the Ghats is to do more than preserve their beauty; it is to respect the land and the lives entwined with it, to stand against their erasure, and to recognise that in their survival lies something far greater than us.

What is the SC directive on sacred groves?

What are the implications of the December 18 order? What did *T.N. Godavarman v. Union of India* establish about the definition of 'forest land'? How are sacred groves traditionally conserved by communities?

EXPLAINER

C.R. Bijoy

The story so far:

On December 18, 2024, the Supreme Court directed the Forest Department of Rajasthan to map on the ground and via satellite every 'sacred grove' in detail. They were to be identified irrespective of their size and based "solely on their purpose and their cultural and ecological significance to the local community". After mapping, the court directed the department to classify them as 'forests' and notify them as 'community reserves' under the Wildlife Protection Act (WLPA) 1972. Effectively, the decision would transfer the sacred groves from community protection to forest officialdom for the purposes of conservation. The move defies the Forest Rights Act (FRA) 2006, which by virtue of being enacted later overrides the WLPA, and which the government had intended to do the reverse: i.e. recognise traditional and customary rights over all forest lands and transfer them back from the Forest Department to gram sabhas.

The sacred groves of Rajasthan, also known as 'orans', 'malvan', 'deo ghat', and 'baugh', number around 25,000 and cover about six lakh hectares of the State.

What was the case about?

In *T.N. Godavarman v. Union of India*, the Supreme Court ordered that 'forest land' in Section 2 of the Forest (Conservation) Act, 1980, "will not only include 'forest' as understood in the dictionary sense, but also any area recorded as forest in the government record irrespective of the ownership of the land". The court then directed State governments to constitute expert committees to identify areas that met this understanding of 'forest land'.

In 2004, the expert committee report of the Rajasthan government identified only those sacred groves that fulfilled the criteria of 'deemed forests' – that is, trees covering 5 hectares of land with at least 200 trees per hectare were classified as 'forests', while the remainder was not.

The Supreme Court's Central Empowered Committee (CEC) disagreed with this choice because it was inconsistent with the court's definition of 'forest land'. The CEC also said all such areas diverted for non-forestry purposes before 1980 could be exempted. The apex court agreed with the CEC and directed Rajasthan to implement the recommendations post-haste in 2018.

In early 2024, the Rajasthan government – responding to interlocutory applications seeking directions to implement this order – said that sacred groves were being identified and documented as 'forest lands'. Ironically, the Rajasthan Forest Policy 2023 omitted the detailed framework for the protection of sacred groves specified in its 2010 policy.

The present order came in response to a challenge to these positions at the Supreme Court.

What do sacred groves mean to communities?

Sacred groves are community-regulated and conserved patches of forest land. They are created and managed traditionally by communities in various ways deeply rooted in their identity. The groves are kept inviolate through customary laws and taboos, many of which completely prohibit the extraction of any resources in any form, except for custodians to access medicinal plants.

Sacred heritage: Sacred groves are community-regulated and conserved patches of forest land. THULASI KAKKAT

terms of the community's relationship with its spirits and gods.

India is estimated to have 1-10 lakh sacred groves of this nature – the highest in the world. They are called '*devara kadu*' in Karnataka, '*devban*' in Himachal Pradesh, '*kavu*' and '*sarpa kavu*' in Kerala, '*sarna*' in the Chota Nagpur Plateau region, '*devbani*' in Chhattisgarh, '*jahera*' or '*thakuramma*' in Odisha, '*devgudi*' by the Muria, the Madia, and the Gond adivasis of Maharashtra and Chhattisgarh, '*ki law lyngdoh*', '*ki law kyntang*' or '*ki law niam*' in Meghalaya, '*sabarkantha*', '*dahod*' or '*banaskantha*' in Gujarat, and so forth.

They are often associated with temples, monasteries, shrines, pilgrim sites, and/or burial grounds. These sites are thus also repositories of various herbal medicines and gathering points for local healers, as much as they are biodiversity hotspots. They are also, frequently, sources of perennial streams that support the growth of unique and endemic flora and fauna.

Local legends, myths, and beliefs surround sacred groves, and communities have transmitted them orally through several generations as a matter of conserving their cultural identities. Communities' relationships with their groves have also helped mitigate the effects of floods, landslides, and droughts on their lives while stabilising the soil and preventing erosion. Anthropologists have also documented the impact of sacred groves on their respective communities' mental and physical well-being.

What are community reserves?

The WLPA 2002 introduced the category of Protected Areas called 'community reserves', in addition to 'national parks' and 'sanctuaries'.

Community reserves are notified over community or private land where locals cultural conservation values and practises".

The community, or even the individual, is thus required to prevent any offences specified in the WLPA, assist the authorities in arresting any offenders, report the "death of any wild animal," and prevent or extinguish any fires. The offences include damaging the boundary marks, teasing or molesting wild animals, littering in the community reserve, setting fires or allowing a fire to burn, and using any chemical substances that endanger wildlife.

Further, a land-use pattern within a community reserve cannot be changed without the approval of the reserve management committee and the State government. The Chief Wildlife Warden, under whose jurisdiction community reserves fall, effectively has overall control of the reserve and its management plan.

The Supreme Court's directions also obligate the State government to constitute a 'Community Reserve Management Committee' to conserve, maintain, and manage the reserve and to protect wildlife and habitats. This committee is to have at least five members nominated by the gram panchayat (or members of the gram sabha if there is no gram panchayat) and a representative of the Forest or Wildlife Department in whose jurisdiction the community reserve is located. If the reserve is on private land, the committee will consist of the land owner, a representative of the Forest or Wildlife Department, and a representative of the concerned Panchayat or tribal community.

The elected chairperson of the committee will be designated the reserve's 'Honorary Wildlife Warden'.

The court also recommended that the Union Environment Ministry identify and and management.

How will the Forest Department's takeover clash with the FRA's provisions?

If sacred groves had fallen under the FRA's purview, they would have been part of 'community forest resources'. According to the FRA, a community forest resource is the "customary common forest land within the traditional or customary boundaries of the village... including reserved forests, protected forests and protected areas such as sanctuaries and national parks to which the community had traditional access".

Thus, the gram sabhas would have been the statutory authority to protect, regenerate, conserve or manage community forest resources, along with the wildlife, flora, and biodiversity within. The gram sabhas would also have been responsible for preventing activities that harm their cultural and natural heritage.

To this end, the sabha would have to constitute its own Community Forest Resource Management Committees to develop and execute the managed plan approved by the gram sabha. And State governments would be duty-bound to support these plans.

All sacred groves in forest areas are currently subsets of community forest resources, which are in turn under the jurisdiction of gram sabhas, and not the Forest or the Wildlife department. All sacred groves outside forest land, if any, also come under the FRA's purview if a proposal to notify them as 'forest land' comes into being. In sum, notifying sacred groves as community reserves controlled by the Forest Department could conflict with the customs of communities, and with the community forest resources notified by the FRA, which complies with the customs by bringing them under its governance.

THE GIST

- The Supreme Court ordered the Rajasthan Forest Department to map and classify sacred groves as 'forests' and 'community reserves' under the Wildlife Protection Act.
- This order shifts control of sacred groves from community-based management to the Forest Department.
- The decision conflicts with the Forest Rights Act, which recognises community rights over forest resources.
- The shift in control from community protection to Forest Department management could undermine the traditional governance of these areas.

The rise and rise of UPI digital payments

There has been a 10-fold increase in digital payments from 2018

DATA POINT

The Hindu Data Team

Digital payments increased more than 3.5 times in value between 2013 and 2024 – from ₹772 lakh crore to ₹2,758 lakh crore. They grew in volume from 222 crore to more than 20,787 crore in the same period. In the last five years alone, digital payments in India increased by 1.6 times in value and 6.7 times in volume, as per the RBI's Payment System Report.

The payments landscape in India is mainly driven by the Unified Payments Interface (UPI), which consolidates multiple bank accounts into one mobile interface.

Chart 1 shows the comparison of UPI and other payment methods in digital transactions over the years. UPI's contribution to the digital payments ecosystem in terms of volume rose from 34% in 2019 to 83% in 2024. While the volume of transactions through UPI increased by 46 times between 2018 and 2024, from 375 crore in to 17,221 crore, other methods of digital payments doubled to 3,566 crore. Overall, there was a 10-fold increase in digital payments to 20,787 crore from 2018.

Chart 2 shows UPI transaction volumes and values since 2019. While the volume surged from 1,078.75 crore in 2019 to 1,7220.80 crore in 2024, values increased from ₹18.37 lakh crore to ₹246.83 lakh crore in the same period.

Charts 3 and 4 show the volume and value of UPI transactions Person-to-Person (P2P) and Person-to-Merchant (P2M). P2M transactions grew at a faster rate than P2P in terms of volume.

Charts 5 and 6 show the share of various digital payment methods in the volume and value of transactions in 2024. Though UPI accounted for over 80% of all digital transactions by volume, it constituted just 30% in terms of value.

Payments revolution

Data for the charts was taken from the RBI's Payment System Report, December 2024

Digital payments increased more than 3.5 times in value between 2013 and 2024

UPI contribution to the digital payments ecosystem in terms of volume rose from 34% in 2019 to 83% in 2024

Chart 1: Comparison of UPI and other payment systems in digital transaction volume over the years (in crore)

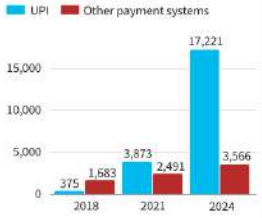


Chart 3: The chart shows the yearly total volume of UPI transactions (P2P vs P2M)

P2M transactions grew at a faster rate than P2P in terms of volume.

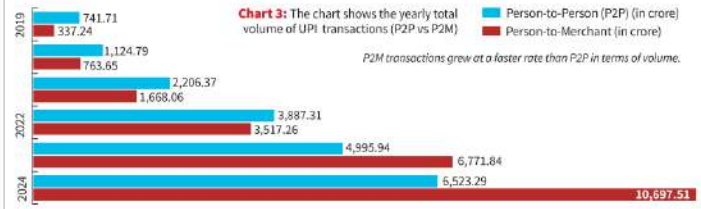


Chart 2: UPI transaction volumes and values since 2019

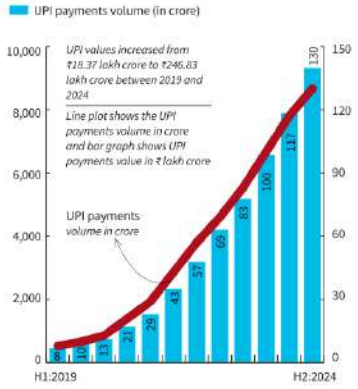


Chart 4: Yearly total value of transactions (P2P vs P2M)

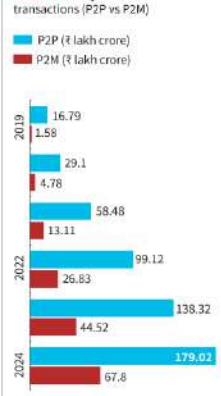


Chart 5: Share of transaction volume of various payment methods in total retail digital payments in 2024 (in %)

Payment method	Share
UPI	82.96
NEFT	4.47
Prepaid Payment Instruments	3.37
NACH	3.26
IMPS	2.86
Credit cards	2.15
Debit cards	0.84
NETC (linked to bank account)	0.08
BHIM Aadhaar Pay	0.01
AePS (Fund Transfers)	0.001

Chart 6: Share of the value of various payment methods in total retail digital payments in 2024 (in %)

Payment method	Share
NEFT	52.76
UPI	30.09
IMPS	8.62
NACH	5.14
Credit cards	2.48
Debit cards	0.63
Prepaid Payment Instruments	0.27
BHIM Aadhaar Pay	0.01
NETC (linked to bank account)	0.002
AePS (Fund Transfers)	0.0002

NACH: National Automated Clearing House, NEFT: National Electronic Fund Transfer, NETC: National Electronic Toll Collection, AePS: Aadhar enabled Payment System, IMPS: Immediate Payment Service, Prepaid Payment Instruments are issued in the form of smart cards, wallets, etc.

A tough call

The rupee's slide confounds monetary policymakers' task

The Reserve Bank of India's Monetary Policy Committee (MPC) will conclude its first policy review of 2025 on Friday, in significantly different circumstances from its December meet. For one, the key personnel have changed. The RBI has a new Governor, with former Revenue Secretary Sanjay Malhotra replacing Shaktikanta Das soon after the last review. Deputy Governor Michael Patra, an MPC member who was in charge of monetary policy, also retired last month. With the Centre yet to name his successor, navigating this review is going to be a tad tricky for the new central bank boss, with another deputy holding additional charge of monetary policy. Second, the rupee is in a free fall of sorts. After hitting 85 to the U.S. dollar on December 19, 2024, it slipped to 86 on January 13, 2025 and crossed 87 on February 3, partly due to the third factor at work. The strengthening dollar is driven by U.S. President Donald Trump's overdrive to 'Make America Great Again' with higher tariffs on major trade partners, and other disruptive economic plans such as exiting global tax accords, shutting aid flows, *et al*.

One thing has not changed – the clamour for an interest rate cut from industry and government honchos. In December, this noise was heightened after a sharp growth blip in the July-September quarter when GDP grew just 5.4%. Now, with 2024-25 GDP growth downgraded to just 6.4%, and the no marked uptick in economic metrics in the December-ending quarter, growth worries remain entrenched. In the interim, there has been some back and forth between North Block and Mint Street on the factors responsible for stumbling economic activity. The Finance Ministry sought to lay some of the blame for an urban demand slump on tight monetary policy. RBI officials, in the central bank's January bulletin, said the "one way" to spark a growth rebound and a virtuous cycle of fresh private investments, is to boost consumption through higher disposable incomes, especially for the urban middle class that has been pining for relief from food inflation. With the Budget delivering on this front with income tax cuts, the ball is back in the RBI's court. Inflation has been over 5% in the last five months, but may have eased closer to the RBI's 4% target in January. But a rate cut could also hurt the rupee further, and spur higher imported inflation. It is an unenviable situation for the new RBI chief to be in; he might be tempted to take a cue from Mr. Das who had surprised markets with a rate cut in the first review under his watch in 2019, reversing his predecessor's stance.

A Budget that is mostly good but with one wrong move

C. Rangarajan

is Chairman, Madras School of Economics and a former Governor of the Reserve Bank of India

D.K. Srivastava

is Honorary Professor, Madras School of Economics and Member, Advisory Council to the Sixteenth Finance Commission

The Union Budget has got many things right. Its projection of nominal GDP growth for 2025-26, at 10.1%, is reasonable and acceptable. The Economic Survey 2024-25 had indicated a real GDP growth in the range of 6.3%-6.8% for 2025-26. This provides some buffer if growth picks up more. The increase in the capital expenditure of the government in 2025-26 over the revised estimates of 2024-25 is estimated at ₹1.03 lakh crore. But the capital expenditures in 2025-26, at ₹11.2 lakh crore, are nearly the same as was indicated in the Budget of 2024-25 at ₹11.1 lakh crore.

The overarching aim of the Budget was to accelerate growth and push India towards a developed country status. The required rate of real growth to achieve this is estimated differently including a rate of 8% in the Economic Survey for 2024-25. In any case, the country needs a definite pickup in growth rate. The various measures indicated in the Budget are welcome. In fact, some of these could have been implemented even earlier. The concession given to the 'middle-class' in terms of income-tax is welcome as a relief. But its impact on demand depends on the marginal propensity to consume of the households who are expected to largely benefit from these concessions and their consumption basket.

Gross tax revenues

Growth in the Government of India's gross tax revenues (GTR) have trended downwards in recent years. The buoyancy of GTR has fallen for three successive years from 1.4 in 2023-24 to 1.15 in 2024-25 (RE) and then to 1.07 in 2025-26 (BE). As a result, growth in the Government of India's GTR has kept falling from 13.5% in 2023-24 to 11.2% in 2024-25 (RE), and to 10.8% in 2025-26 (BE). Within the government's tax revenues, the growth rate of Goods and Services Tax (GST) has also fallen from 12.7% in 2023-24 to 10.9% in 2025-26 (BE).

In fact, the structure of the government's taxation has moved away from indirect to direct taxes. The share of direct taxes in the government's GTR has increased from 52% in 2021-22 to 59% in 2025-26 (BE) which is a welcome development. Within direct taxes, however, it is personal income-tax which has performed better than corporate income-tax in terms of growth and buoyancy.

However, even in the case of personal income-tax there has been a fall in growth from 25.4% in 2023-24 to 20.3% in 2024-25 (RE) and 14.4% in 2025-26 (BE). This fall in growth in 2025-26 (BE) is partly due to the announced income-tax concessions. In the case of corporate income-tax, the growth in 2024-25 (RE) is quite low at 7.6%. This growth has been raised to 10.4% in 2025-26 (BE). On the whole, assumptions regarding the government's tax revenue growth in 2025-26 (BE) appear to be realistic.

In the case of non-tax revenues, the main contribution has been in the form of dividends from the Reserve Bank of India and public sector companies, which together accounted for about ₹3.25 lakh crore in 2025-26 – an increase of ₹35,715 crore over the revised estimates. Thus, the non-tax revenues have been raised from ₹5.3 lakh crore (RE) to ₹5.8 lakh crore in 2025-26 (BE).

Level of government expenditure

Tax and non-tax revenues, non-debt capital receipts and fiscal deficit together determine the size of government expenditure. As discussed, a gross tax revenue growth at a lower level of 10.8% appears to be realistic. Given the commitment to fiscal consolidation, the size of government expenditure as a percentage of GDP had to be reduced from 14.6% in 2024-25 (RE) to 14.2% in 2025-26 (BE). Growth in total expenditure, at 7.6% in 2025-26 (BE), is lower than the budgeted nominal GDP growth at 10.1%.

In fact, this was so even in 2024-25 (RE), when the government's total expenditure growth was 6.1% as against the nominal GDP growth of 9.7% as per the first advanced estimates. However, there has been a steady improvement in the quality of government expenditure as the share of capital expenditure in total expenditure has been improving. In fact, this share has improved by 10% points over the period from 2020-21 to 2025-26 (BE). Given the contemporary context, the Government of India has to build up large-scale Artificial Intelligence (AI) infrastructure in order to facilitate the adoption of emerging technologies. In this context, China has taken a clear lead. The United States has recently announced an investment of $500 billion for AI infrastructure. In the field of AI, India's technology companies have failed to anticipate developments. India should have done what China did. Perhaps, India should push these companies for research and development, by offering some tax concessions, if necessary.

Some of the measures indicated in the Budget could have been implemented even earlier; moving away from 'fiscal deficit' as an indicator is an incorrect step

A less transparent fiscal health indicator

One wrong measure introduced in the Budget is to move away from fiscal deficit as an indicator of fiscal prudence. Contrary to what is stated in the Budget document, we are moving from a transparent to a less transparent indicator. As per the glide path given in the Medium-Term Fiscal Policy Cum Fiscal Policy Strategy Statement of the 2024-25 Budget, the fiscal deficit was to be brought down to below 4.5% by 2025-26.

However, in the 2025-26 Budget, the practice of giving a glide path in terms of fiscal deficit is being discontinued. It has been stated that from now on, the focus will be on reducing the debt-GDP ratio annually. In the annexure statement titled 'Statements of Fiscal Policy as required under the Fiscal Responsibility and Budget Management (FRBM) Act, 2003', alternative paths of the debt-GDP ratio with nominal GDP growth assumptions of 10.0%, 10.5% and 11.0% are given.

The glide paths are indicated in terms of alternative growth assumptions and alternative assumptions regarding mild, moderate, and high degrees of fiscal consolidation. This makes the whole exercise vague and non-transparent. It is better for fiscal discipline to indicate specific fiscal deficit target for different years and the corresponding debt-GDP ratios for those years. It should clearly be shown by what year the FRBM Act targets are to be achieved. A larger claim on the available investible resources by the government will make it difficult for private investment to pick up.

The views expressed are personal

Not worth the risk

India must address illegal emigration with empathy and urgency

The deportation of dozens of Indians, believed to be illegal immigrants in the United States, is neither surprising nor unprecedented. Over the past few years, the U.S. government has intensified its Immigration and Customs Enforcement (ICE) operations to identify, detain, and deport individuals without proper documentation. For instance, between June and October 2024, the Department of Homeland Security reported that 1,60,000 individuals had been deported on 495 international repatriation flights to more than 145 countries, including India. However, the manner and timing should be cause for concern for New Delhi. To begin with, these deportations coincide with a major crackdown by ICE, spurred by Donald Trump's swearing-in as the U.S. President in January. He has made illegal immigration his "number one priority". India, which has one of the largest populations of illegal immigrants in the U.S., estimated at 7,25,000 undocumented individuals, will need to prepare for a significant increase in the number of returning migrants. Second, for the first time, the use of military flights signals that the U.S. does not intend to be challenged. This move drew protests from Colombian President Gustavo Petro, particularly after reports emerged of deported migrants being shackled. The U.S. Embassy in Delhi has also made it clear that this deportation is part of a broader initiative to tighten immigration laws and enforcement, reinforcing the message that illegal migration is not worth the risk. Further, the timing, just ahead of Prime Minister Narendra Modi's U.S. visit, suggests that diplomatic efforts alone may not be enough to deter the Trump administration from pursuing such measures. This has the potential to become a bilateral flashpoint in India-U.S. relations.

Accepting its citizens, provided they are verifiably Indian and have entered other countries illegally, is undoubtedly the Indian government's responsibility. However, stricter controls must be enforced to prevent Indians from embarking on perilous journeys to cross into the U.S. via Mexico and Canada. The government must ensure that young people in States with high deportation rates (Gujarat, Punjab, and Haryana), understand that working illegally abroad is not a guaranteed path to success. Educational campaigns should highlight the dangers associated with illegal immigration. Importantly, the root causes must not be ignored. The central and State governments must address the underlying economic distress, deepening agricultural crises, social tensions, and employment shortages that push people to take such risks. Attention must be paid to those who deliberately travel to conflict zones in search of opportunities. While altering U.S. immigration policies may be difficult, the Indian government must address the reasons behind this large-scale migration with empathy and urgency.

A city-sized rock hurtles towards the earth's surface, releasing shock waves. Representative illustration. GETTY IMAGES/ISTOCKPHOTO

An asteroid might hit earth. How worried should we be?

Agence France-Presse

A colossal explosion in the sky, unleashing energy hundreds of times greater than the Hiroshima bomb. A blinding flash nearly as bright as the sun. Shockwaves powerful enough to flatten everything for leagues.

It may sound apocalyptic, but a newly detected asteroid nearly the size of a football field now has a greater than 1% chance of colliding with the earth in about eight years.

Such an impact has the potential for city-level devastation, depending on where it strikes.

Scientists aren't panicking yet, but they are watching closely.

Dubbed 2024 YR4, the asteroid was first spotted on December 27, 2024, by the El Sauce Observatory in Chile. Based on its brightness, astronomers estimate it is 40-90 m wide.

By New Year's Eve, it had landed on the desk of Kelly Fast, acting planetary defense officer at US space agency NASA, as an object of concern.

The risk assessment kept climbing, and on January 29, the International Asteroid Warning Network (IAWN), a global planetary defense collaboration, issued a memo.

According to the latest calculations from NASA's Jet Propulsion Laboratory, there is a 1.6% chance the asteroid will strike the earth on December 22, 2032.

If it does hit, possible impact sites include over the eastern Pacific Ocean, northern South America, the Atlantic Ocean, Africa, the Arabian Sea, and South Asia, the IAWN memo states.

2024 YR4 follows a highly elliptical, four-year orbit, swinging through the inner planets before shooting past Mars and out toward Jupiter.

The 1908 Tunguska Event provides the most likely comparison. An asteroid or comet fragment exploded over Siberia, flattening some 80 million trees across 2,000 sq. km

For now, it's zooming away from the earth. Its next close pass will not come until 2028.

"The odds are very good that not only will this not hit earth, but at some point in the next months to few years, that probability will go to zero," said Bruce Betts, chief scientist of The Planetary Society.

A similar scenario unfolded in 2004 with Apophis, an asteroid initially projected to have a 2.7% chance of striking Earth in 2029. Further observations ruled out an impact.

The most infamous asteroid impact occurred 66 million years ago, when a nine-kilometre-wide space rock triggered a global winter, wiping out the dinosaurs and 75% of all species.

By contrast, 2024 YR4 falls into the "city killer" category.

"If you put it over Paris or London or New York, you basically wipe out the whole city and some of the environs," said Betts.

The best modern comparison is the 1908 Tunguska Event, when an asteroid or comet fragment measuring 30-50 metres exploded over Siberia, flattening 80 million trees across 2,000 sq. km.

Like that impactor, 2024 YR4 would be expected to blow up in the sky, rather than leaving a crater on the ground.

For 2024 YR4, the explosion from an airburst would exceed 500-times the power of the Hiroshima bomb.

If it explodes over the ocean, the impact would be less concerning, unless it happens near a coastline triggering a

Machines excel at things that are nearly impossible for most humans, including rapidly analysing large datasets and predicting complex patterns, yet struggle with tasks that children find easy, like understanding motives. Representative illustration. IGOR OMILAEV

Question for the AI age: do machines and humans learn the same way?

The age of artificial intelligence promises to be a time in which scientists will learn a lot about human brain. Existing AI models are inspired mostly by the brains of animals. Human brain makes decisions stunningly fast using abstractions and generalisation whereas machines struggle to do this

T.V. Padma

The dramatic surge of artificial intelligence (AI) has also made visible the machines humming underneath to make its applications possible.

From their origins in being able to separate data into different groups, AI today excels at too many tasks to count. Just in 2024, smartphones have started to be sold with AI models built into them, while five of the seven men who won the 2024 science Nobel Prizes did so for work in AI.

As it happens, the age of AI also promises to be a time in which scientists will learn a lot about the human brain as well. Existing AI models are inspired mostly by the brains of animals. Since these brains haven't been easy to study, scientists have been looking to AI models as a proxy.

How do humans learn?

Machines excel at things that are nearly impossible for most humans, including rapidly analysing large datasets, predicting complex patterns, and learning to play chess like a grandmaster within a day. Yet neuroscientists say they also struggle with tasks that human children find easy, like understanding motives.

"The paradox of today's AI stems from the fact that the human brain has an evolutionary, biological origin and AI does not," Celeste Kidd, associate professor of psychology at the University of California, Berkeley, said. "It is likely that [for] the type of intelligence that we have evolved for taking care of helpless offspring, we need to be able to read the intentions of a child that is running towards a cliff [or one] that's not yet able to feed themselves and say that they are hungry."

According to Arjun Ramakrishnan, assistant professor in the department of biological sciences and bioengineering at IIT-Kanpur, "At the heart of what drives learning in humans and animals" is a "dual focus on both meeting immediate biological needs and adapting to a constantly shifting environment."

"The need to secure resources and maintain balance in the face of an ever-changing environment," he added, "likely spurred the evolution of sophisticated neural mechanisms, driving not just simple responses to immediate needs but also complex learning and strategic decision-making abilities."

Learning is thus not just a process of acquiring static information but an ongoing, dynamic interaction between an organism and its environment.

"The brain, shaped by evolutionary pressures, must adapt not only to predictable stimuli but also to the unpredictability of environmental fluctuations," he added. "This complexity is reflected in the ability of humans and animals to sense and respond to rapid changes in the environment and social interactions, a key advantage for survival."

Learning is thus long-duration, interactive, and includes feedback loops between the organism's internal state and external challenges.

Humans' upper hand

According to biologists at the Heidelberg Laureate Forum, a meeting held in September 2024 in Germany, machines are not curious. "Unlike AI systems, children are naturally curious, exploring the world on their own while simultaneously learning within a social and cultural context," Kidd said at the forum. "Our curiosity is driven by knowing what we don't know."

According to Kidd, the information children discover when they seek it is of a different type than the data fed into AI systems.

"The single experience of a child with an apple is very different from Google Photos labelling an apple in an image. A child's experience with an apple is sensory. They're feeling the apple, they're seeing the apple, it's multi-dimensional. The data people are getting is much, much richer. And there are tonnes of correlations you can pick up on in order to leverage things like learning and generalisation."

The human brain and the body have been "trained" on such data over millennia.

Thus, human learning requires much less data to solve a problem with the same level of proficiency, according to Ashesh Dhawale, the DBT Wellcome Trust India Alliance Intermediate Fellow at the Centre for Neuroscience, Indian Institute of Science, Bengaluru.

For example, although the AlphaZero model developed by Google subsidiary DeepMind is better at chess than any human player, it reached this level of proficiency only after playing around 40 million games during its training, Dhawale said. "In contrast, it is estimated that humans need some tens of thousands of training games to reach grandmaster proficiency."

"One of the key advantages humans have over machines lies in the speed and efficiency of learning," Ramakrishnan said. "We can absorb new information rapidly, building on past experiences and knowledge in a flexible, adaptive way."

This ability to continuously improve on prior lessons without extensive reprogramming gives humans a significant edge in dynamic environments where new information and challenges emerge constantly.

Humans are also remarkably good at "transfer learning." "We can apply knowledge and skills from one context to entirely different, unfamiliar scenarios with relative ease," Ramakrishnan said. This ability to generalise is still a significant challenge for machines and artificial networks, which are typically confined to narrow domains and struggle to adapt to new or unforeseen contexts without retraining.

The communication between neurons in the human brain takes the form of biochemical processes that operate more slowly than the channels between neurons in artificial neural networks, according to Brigitte Röder, professor of biological psychology and neuropsychology at the University of Hamburg. Yet the human brain makes decisions stunningly fast using abstractions and generalisation whereas machines still struggle to do this.

Dhawale used the example of chess. "If you are proficient at chess, this ability will likely extend to other board games like checkers. This means humans can learn the structure underlying a task and generalise it to quickly solve new tasks – that is, they can learn to learn," he said.

Researchers are now attempting to bring this paradigm to machine learning, an approach called meta learning. It's not unlikely that machines will catch up here as well.

Humans also excel at motor-skill learning. "Somehow humans and animals are very efficient at learning how to move," according to Dhawale, "but we don't know exactly why this is the case."

Neural networks are great at navigating tasks involving discrete choices, but they stumble with movement. One reason is because being able to make a simple motion, such as reaching for a fruit on a table, requires a learning agent to optimise for many independent parameters varying continuously across many degrees of freedom.

Then there's energy efficiency. According to Ramakrishnan, the human brain's low power consumption becomes readily apparent when recognising patterns, making decisions, and conducting social interactions. Machines can operate very fast, but their energy consumption is also much higher, especially when they process large datasets.

Where machines excel

However, machines are more reliable.

Unlike machines, which are built for repeatability and can perform the same task again with consistent precision, humans contend with fatigue, emotional decision-making, and distractions.

"While we are designed to operate in volatile, ever-changing environments and our ability to explore and adapt is one of our greatest strengths, this flexibility often comes at the cost of consistency," Ramakrishnan said.

In contrast to the brain, neural network models are often trained to search exhaustively for solutions to complex tasks, Dhawale explained. This means they are more likely to discover new, better solutions to problems than humans can. At games like chess and Go, AI models have been known to develop moves that surprise even expert players.

"One could argue that the strategies used by humans to learn may be more efficient but can't discover the most optimal solutions because they are not designed to search exhaustively."

From artificial to human

The differences between human and machine learning could elucidate where the neural network of each brain – artificial or biological – falls short.

"Neurons are often treated simplistically as point processes that communicate via electrical impulses, essentially operating in an on/off mode," Ramakrishnan said. "This reductionist approach has nonetheless allowed us to uncover fundamental principles that underlie complex cognitive behaviours."

> A child with an apple is very different from Google Photos labelling an apple. A child's experience is sensory. They are feeling and seeing. The data people are getting is richer. There are tons of correlations you can use in order to leverage things like learning and generalisation

At its core is the idea that feedback loops drive learning. Researchers used it to develop reinforcement learning, a training algorithm that has also been remarkably successful at explaining how organisms update their knowledge and adapt based on their experiences, according to Ramakrishnan.

The development of artificial neural networks has also expanded our understanding of how memories could be stored and accessed in the brain: as dynamic processes that can be activated and adjusted over time rather than remain preserved in particular areas.

Artificial neural networks with this ability can perform better. "The development of algorithms that handle short-term and long-term memory processes in artificial networks has provided us with a deeper understanding of how the brain may operate in these domains," Ramakrishnan said.

More broadly, AI models' successes in the real world have prompted neuroscientists and cognitive scientists to revisit ideas of how the human brain learns. For some time since the mid-20th century, scientists assumed the brain represented information about the world in a symbolic manner and that its many abilities – perception, planning, reasoning, etc. – were achieved through symbolic operations.

Many early attempts at building AI models thus used approaches. One well-known application was expert systems, models capable of complex reasoning as a series of if-then problems.

On the other hand, contemporary neural networks operate connectionist models, named for the weighted connections between the nodes in a network. These models begin with a blank slate and use pattern recognition techniques to achieve their primary goals: say, to accurately predict the next word in an unfinished sentence.

"The question, therefore, is what type of AI – symbolic or connectionist – is the better model for human learning," Dhawale said. "Despite the success of neural network AI models, I still think they learn in a very different way from how humans learn."

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Army's Fort William in Kolkata set to be known as Vijay Durg

The Hindu Bureau
NEW DELHI

In the latest step toward eliminating colonial practices and mindsets within the armed forces, Fort William in Kolkata, the headquarters of the Eastern Army Command, has been renamed Vijay Durg. Additionally, Kitchener House inside Fort William has been renamed Manekshaw House, and South Gate, formerly known as St. George's Gate, is now Shivaji Gate.

Wing Commander Himanshu Tiwari, the Defence Public Relations Officer in Kolkata, has said the decision was made in mid-December and all internal communications have since ceased using "Fort William", adopting the new name instead. However, the official announcement is still pending.

Fort William, named after King William III of England, was constructed by the British in 1781.

The new name, Vijay Durg, is derived from the oldest fort along the Sindhudurg coast in Maharashtra. It served as a naval base for the Marathas under Chhatrapati Shivaji.

In recent years, there have been a series of measures aimed at removing "vestiges of the colonial era" and "Indianising" military traditions and customs – an initiative Prime Minister Narendra Modi has described as freedom from the mentality of slavery.

Army officers gather at Fort Williams in Kolkata during the Army Day celebrations. AP

In March 2022, while addressing the top military leadership at Kevadia in Gujarat, Prime Minister Narendra Modi emphasised the importance of enhancing indigenisation in national defence – not just in terms of sourcing of equipment and weapons but also in the doctrines, procedures and customs practised by the armed forces.

He urged the three services to "rid themselves of legacy systems and practices that have outlived utility and relevance".

Congress, Sikkim BJP oppose plan to rebuild Teesta dam

Threat of disaster persists at the dam site, says Jairam Ramesh; approval granted despite concerns related to environmental safety, structural integrity, and public consultation, says Sikkim BJP chief

Jacob Koshy
NEW DELHI

The Congress on Wednesday said it disapproved of a recent decision by an expert committee of the Environment Ministry to allow the reconstruction of the Teesta-3 hydropower project in Sikkim that was destroyed in October 2023.

"The Indian National Congress also opposes this thoughtless clearance. The threat of disaster persists at the dam site. There are also cascading and multiplying effects on habitations downstream," Rajya Sabha member Jairam Ramesh said in a post on X on Wednesday. He appended a letter from August 2024, in which the Congress had criticised the government for not allocating enough money for irrigation and flood control in the July 2024 Budget.

Earlier this week, D.R. Thapa, the president of the Bharatiya Janata Party's Sikkim unit, had written to Prime Minister Narendra Modi and Environment Minister Bhupender Yadav demanding withdrawal of the clearance given to the project.

BJP chief D.R. Thapa in his letter to the Centre said that the Teesta river is the lifeline of Sikkim. RITU RAJ KONWAR

"This approval was granted on January 10, 2025, despite unresolved concerns related to environmental safety, structural integrity and public consultation," the letter read.

The BJP leader demanded that the clearance accorded by the Environment Appraisal Committee (EAC) be put on hold until all pending scientific studies and a revised Probable Maximum Flood (PMF) assessment were completed and independently verified. He also demanded a fresh environmental impact assessment incorporating updated climate data, Glacial Lake Outburst Flood (GLOF) risks, and evolving hydrological conditions in the region. He also called for a fresh public hearing on the issue.

Lifeline of Sikkim

"The Sikkim BJP believed that while development and infrastructure are essential, they must be pursued with scientific integrity, environmental responsibility, and public participation. The Teesta river is the lifeline of Sikkim, and any decision regarding its future must prioritise the safety, sustainability, and ecological well-being of the region," the letter read.

"We urge the Government of India to act immediately to prevent any further environmental and human disasters in the state," the letter underlined. The devastating glacier lake outburst flood in Sikkim washed away the Chungthang dam, which powered the Teesta 3, the State's biggest hydropower project, and killed at least 100 people in the process.

In its report approving the rebuilding, the EAC said that the new dam would be entirely concrete – reportedly to increase its strength – and its spillway will be capable of managing a peak flow of 19,946 cubic metres a second (cumecs), thrice the capacity of the former dam, which was 7,000 cumecs. The older dam had a part rock and part concrete structure.

As part of their appraisal to relook the projects, the EAC assessed studies by the government where the risk from 119 glacial lakes were identified in the catchment. Out of these, 50 glacial lakes were shortlisted with area of 10 ha or more for further evaluation.

Six States resolve against UGC's new draft regulation

The Hindu Bureau
BENGALURU

On Wednesday, Ministers for Higher Education and their representatives from six States passed a joint resolution opposing the draft of the University Grants Commission Regulations, 2025, and grading of higher education institutions based on the New Education Policy, 2020.

This was the outcome of the conclave of State Higher Education Ministers, 2025, hosted by Karnataka. Representatives from Himachal Pradesh, Jharkhand, Kerala, Tamil Nadu, Telangana and Karnataka participated and came out with a 15-point resolution, urging the Centre to withdraw the new draft regulations. In their resolution, the States said that the BJP-led Union government is trying to push its ideology through the new regulations.

The Maharashtra representative, who was to virtually attend the conclave, was unable to continue due to technical glitches. The Jammu & Kashmir Minister communicated that they could not take part due to emergency meetings, said Karnataka's Higher Education Minister M.C. Sudhakar.

He claimed that even some parties which are in alliance with the BJP have expressed their objection to the UGC draft regulations, including Telugu Desam Party in Andhra Pradesh, Janata Dal United (JDU) and Lok Janshakti Party (LJP-Ram Vilas) of Bihar. West Bengal has constituted an expert committee to look into it.

Power play: The States say that the BJP-led Centre is trying to push its ideology through the new regulations.

"We have urged the Union government to immediately withdraw them and hold a collective consultation with states. We will wait for UGC's decision and take a call on the next course of action," said Mr. Sudhakar.

He said that the UGC is only the regulatory body and it cannot override the State. "In this regulation, the States have no power in the appointment of Vice-Chancellors and the Governor has been given complete power. However, all the functions including development of infrastructure of the universities, recruitment, salary and other rules are carried out by the State governments. We are confident that UGC and the Union Education Ministry will reconsider and invite all the States for a detailed deliberation," the Minister added.

Govi Chezhiaan, Minister for Higher Education, Tamil Nadu, pointed out that theirs was the first State to pass a resolution in the Assembly against the new regulations, followed Kerala. "This is the Centre's move to undermine elected state governments and take over state universities. Tamil Nadu has always prioritised education and social justice, but these rules go against the interests of students."

UGC chairman reply

Meanwhile, UGC Chairman M. Jagadesh Kumar, said the regulations "aim to ensure the highest standards by introducing a more inclusive and transparent selection process".

He said they "seek to uphold the autonomy and accountability of higher education institutions."

Mr. Kumar added that they welcome constructive feedback and would work collaboratively.