

The Hindu Important News Articles & Editorial For UPSC CSE

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The article explores the differences between human and artificial intelligence, highlighting their unique strengths and weaknesses, particularly in learning, adaptability, and energy efficiency.



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. (KOR OHL/CE)

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. Colleen Kidd, associate professor of psychology at the University of California, Berkeley, said, "It is likely that [for] the types 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 [for 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 unpredictable 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 IIT Welcome 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 neural 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. AI 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



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

simply 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."

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 neural 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 had 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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AI's Rapid Advancement

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Daily News Analysis

- ▶ AI has evolved from simple data categorization to performing highly complex tasks.
- ▶ In 2024, smartphones were introduced with built-in AI models.
- ▶ Five of the seven winners of the 2024 science Nobel Prizes were recognized for AI-related contributions.

How Humans Learn

- ▶ Machines can quickly analyze large datasets and predict patterns but struggle with understanding human motives.
- ▶ Human intelligence evolved to care for offspring, requiring an understanding of intentions.
- ▶ Learning in humans involves both immediate survival needs and adapting to changing environments.
- ▶ Unlike machines, human learning is continuous and shaped by real-world interactions.

The Role of Curiosity in Human Learning

- ▶ Unlike AI, children are naturally curious and learn by exploring their surroundings.
- ▶ Human learning involves multiple senses, making it richer than AI learning.
- ▶ AI models rely on pre-fed data, whereas humans acquire knowledge through direct experiences.

Efficiency of Human Learning

- ▶ Humans require significantly less data to learn effectively.
- ▶ AlphaZero, an AI model, played 40 million chess games to achieve mastery, while humans need only tens of thousands.
- ▶ Humans quickly adapt knowledge from one area to another, a skill AI struggles with.
- ▶ Human brains process information more slowly than AI networks but make faster decisions using generalization.

Human Intelligence Vs. Artificial Intelligence

- ▶ Where Humans Excel Over AI Humans are better at learning and adapting to new situations without retraining.
- ▶ The ability to apply knowledge across different contexts (transfer learning) remains a challenge for AI.
- ▶ Humans efficiently learn motor skills, a complex task for AI due to multiple movement variables.
- ▶ The human brain is far more energy-efficient compared to AI systems.

Where AI Excels Over Humans

- ▶ AI models provide precise and consistent results without fatigue or emotional influence.
- ▶ AI's exhaustive search for solutions often leads to innovative strategies, as seen in chess.
- ▶ Unlike humans, AI models do not get distracted and can perform repetitive tasks with accuracy.

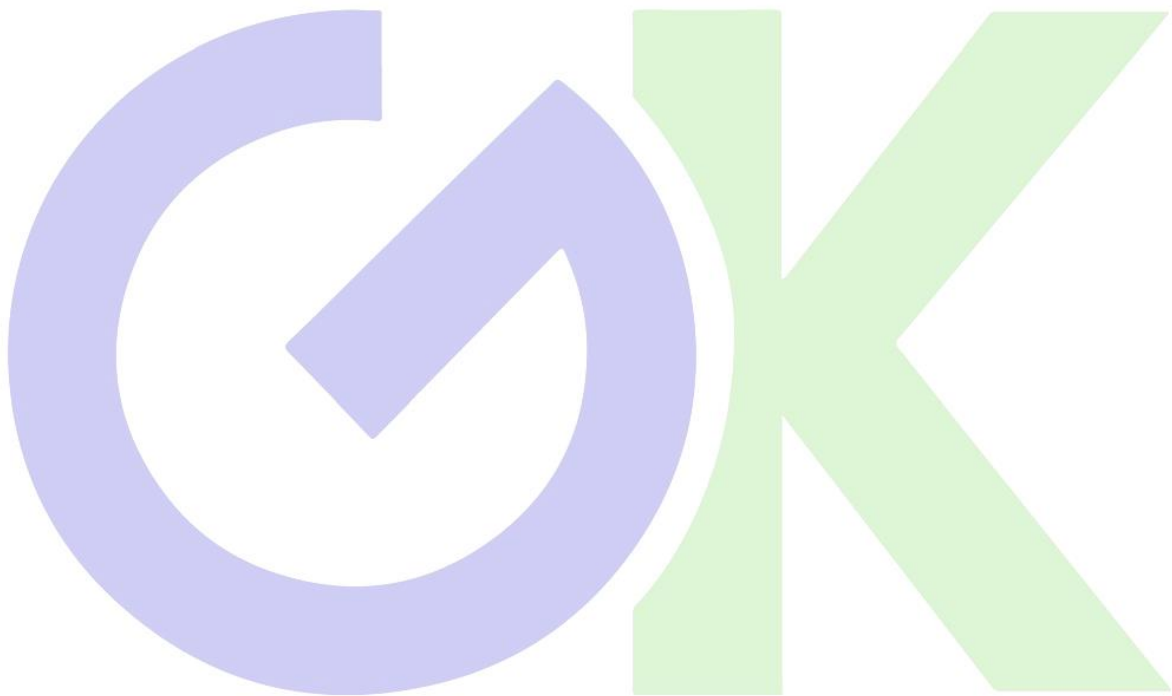
AI's Contribution to Understanding Human Learning

- ▶ AI models help neuroscientists explore how the brain stores and retrieves memories.
- ▶ The success of AI has challenged previous beliefs about human learning processes.
- ▶ AI research is advancing symbolic and connectionist models of human cognition.
- ▶ Despite AI's progress, human learning remains unique and distinct.

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Ques : Discuss the key differences between human learning and artificial intelligence. How can understanding these differences contribute to advancements in AI and neuroscience? **(150 Words /10 marks)**



GURUKULAM IAS

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➔ The Supreme Court of India directed Rajasthan to map and classify sacred groves as community reserves, creating a conflict with the Forest Rights Act of 2006.

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:

In 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 (WLP) 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 WLP, 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 interlockery 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. THULASHI KARKAT

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

India is estimated to have 110 lakh sacred groves of this nature – the highest in the world. They are called 'devara kade' in Karnataka, 'devban' in Himachal Pradesh, 'kanu' and 'sarpu kanu' in Kerala, 'sarna' in the Chota Nagpur Plateau region, 'devbani' in Chhattisgarh, 'jaheri' or 'thakuramma' in Odisha, 'devgudi' by the Muria, the Madia, and the Gond adivasis of Maharashtra and Chhattisgarh, 'ki law lrygdoh', '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.

What are community reserves?

The WLP 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 WLP, 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 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 Committee 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.

Supreme Court's Order on Sacred Groves

➔ On December 18, 2024, the Supreme Court ordered the Forest Department of Rajasthan to map sacred groves.

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Daily News Analysis

- Sacred groves will be classied as 'forests' and notied as 'community reserves' under the Wildlife Protection Act (WLPA) 1972.
- This decision moves the control from community management to forest ofcials for conservation.
- This clashes with the Forest Rights Act (FRA) 2006, which supports community rights over forest lands.
- Rajasthan has around 25,000 sacred groves, covering six lakh hectares of land.

Background of the Case

- In the 1990s, the Supreme Court denied 'forest land' to include any land recorded as forest by the government.
- In 2004, the Rajasthan government identified some sacred groves as 'deemed forests' based on a narrow criterion.
- The Supreme Court disagreed, insisting on a broader denition of forest land.
- In 2018, the Court directed Rajasthan to follow this broader denition.

What are Sacred Groves?

- Sacred groves are patches of forest managed by local communities through traditions and beliefs.
- They are protected by customs, with no resource extraction allowed except for medicinal plants.
- Sacred groves are biodiversity hotspots and often linked to temples, shrines, or pilgrimage sites.
- India has 1 to 10 lakh sacred groves, the highest in the world.
- They help control oods, droughts, and soil erosion, and support local wildlife.

What are Community Reserves?

- The WLPA 2002 introduced 'community reserves' as a type of protected area.
- These reserves are set up by communities to conserve wildlife and habitats.
- Rules in community reserves prevent activities like poaching, re-setting, and habitat destruction.
- A management committee oversees the reserve, with local community members and ofcials.

Conict with the Forest Rights Act (FRA)

- Sacred groves are considered 'community forest resources' under the FRA.
- The FRA gives gram sabhas (village councils) the right to manage these resources.
- Under FRA, sacred groves fall under the control of local communities, not the Forest or Wildlife Department.
- By classifying them as community reserves, the Forest Department's control conicts with community rights.

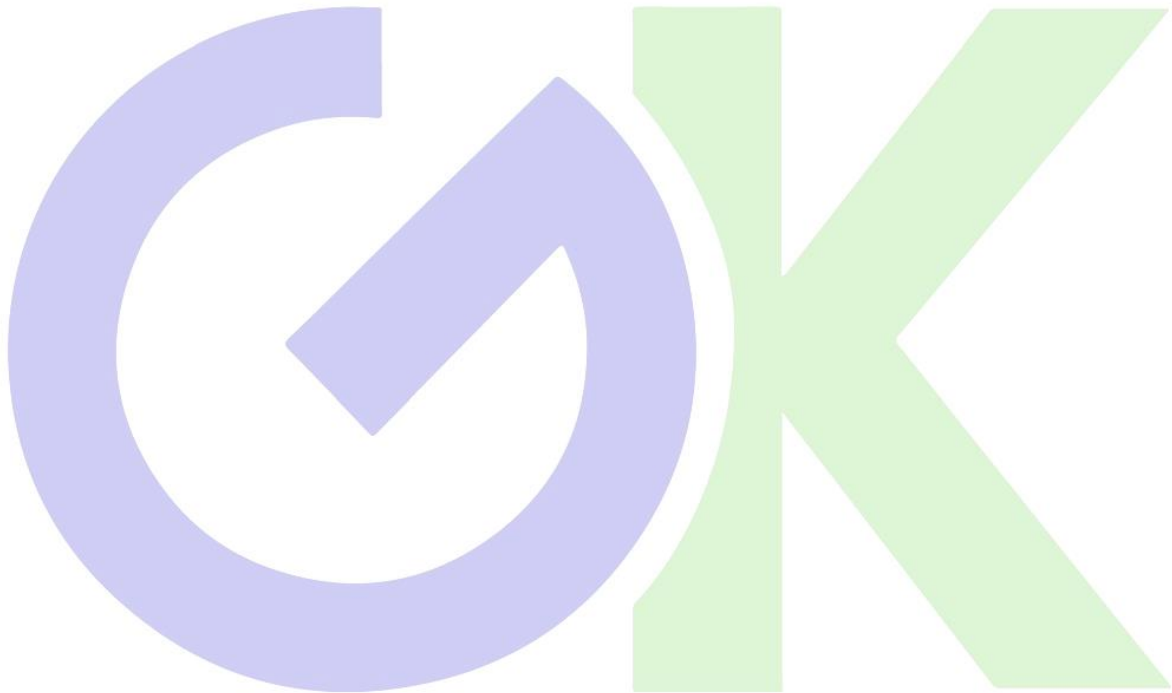
Conclusion

- The Supreme Court's decision to classify sacred groves as community reserves may clash with the FRA.
- This creates a conict between modern conservation methods and traditional community management of sacred groves.

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Ques : Examine the potential conict between the Supreme Court's directive to classify sacred groves as community reserves under the Wildlife Protection Act and the provisions of the Forest Rights Act, 2006. (150 W10 m)



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The article discusses Africa's mineral wealth, the impact of U.S. trade policies under Donald Trump, and the continent's struggle to choose between global powers for resource development.

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 lar-

gely 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 them 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,



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

50% of manganese and cobalt, 90% of platinum group metals, 36% of chromium, as well as reserves of lithium, uranium, gold and rare earths.

But developing its min-

eral resources has been often too challenging, given political instability and corruption, poor infrastructure, lack of capital and legal frameworks that make long-term invest-

ments 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)

The U.S. Trade Policies and Africa's Dilemma

- President Donald Trump's trade approach, including tariffs, creates a situation where countries must choose between supporting the U.S. or aligning with China and the BRICS nations.
- African countries, rich in minerals, face a dilemma.
- They want to develop their resources but also wish to stay neutral in this global divide.

Africa's Mineral Wealth

- Africa holds significant global mineral reserves.
- This includes 20% of the world's copper, 50% of manganese and cobalt, 90% of platinum group metals, and valuable reserves of lithium, uranium, gold, and rare earths.
- These resources will be highly important in the future, especially with the energy transition and increasing global demand for these minerals.

Challenges in Resource Development

- Despite its wealth, Africa faces many challenges in resource development.
- Issues like political instability, corruption, poor infrastructure, lack of capital, and weak legal frameworks make long-term investment difficult.
- As global demand for minerals grows, Africa will likely have more power in determining how its resources are used. However, finding the right partners remains a key challenge.

Western Investments vs. China's Approach

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Daily News Analysis

- ▶ Western countries, especially the U.S., offer capital, expertise, and experience in mining.
- ▶ But Trump's tariffs and threats to cut aid make working with the U.S. harder for African nations.
- ▶ Trump's "winner-takes-all" approach to global relations makes it more difficult for African countries to get mutually beneficial deals with the U.S.

Africa's Growing Independence in Resource Management

- ▶ South Africa's Resources Minister Gwede Mantashe suggested that Africa should withhold minerals from the U.S. if aid is reduced. He argued that Africa should not be treated as a beggar.
- ▶ This reflects a desire for Africa to take control of its resources and use them to drive industrialization and development, rather than follow the dictates of external powers.

China's Role and Its Impact on Africa

- ▶ China has been heavily investing in Africa's mining sector.
- ▶ However, China prefers to use its own workforce and processes. It also exports raw ores to process them in China, limiting the benefits for African countries.
- ▶ There is potential for African nations to introduce laws that require foreign companies to process minerals locally. This could ensure that Africa benefits more from its resources.

Conclusion

- ▶ Africa's mineral-rich resources position it as a key player in global trade.
- ▶ The continent must strategically choose between Western and China-led trade blocs to secure sustainable economic development.

UPSC Mains Practice Question

Ques : Examine the impact of global trade dynamics, particularly U.S. policies and China's involvement, on Africa's mineral resource development and its implications for the continent's future. (150 Words /10 marks)

Iran's currency, the rial, hit a record low of 850,000 rials to \$1 on Wednesday.

Analysis of the news:

- The order includes halting Iran's oil exports and pushing for UN sanctions.
- Trump also hinted at wanting to negotiate a deal with Iran rather than imposing full sanctions.
- Iranian officials are waiting for a message from Trump on nuclear talks.
- Ordinary Iranians are worried about the impact on their daily lives and freedom.
- Iranian state media have praised Trump's moves, seeing them as weakening opposition groups.
- The U.S. Agency for International Development (USAID) budget cuts could affect funding for Iranian activists and opposition groups.

What is "maximum pressure" policy?

- The "maximum pressure" policy is a strategy where a country applies heavy economic and diplomatic sanctions to force another nation to change its behavior.
- The "maximum pressure" policy against Iran involves imposing severe economic sanctions, particularly targeting its oil exports, banking, and key industries.
- The goal is to force Iran to halt its nuclear activities and curb its influence in the region.
- The policy includes withdrawing from international agreements, such as the nuclear deal, and reinstating sanctions that were previously lifted.
- The aim is to pressure Iran into negotiating a new deal that addresses broader concerns, including nuclear weapons and regional stability.
- Critics argue that it harms the Iranian population while failing to bring the desired change in Iran's policies.

Iran's currency plunges



Pressure point: Mr. Trump's order calls for halting Iran's oil exports and pursuing sanctions on Iran. AFP

Associated Press
TEHRAN

Iran's currency plunged Wednesday to a record low of 850,000 rials to \$1 after U.S. President Donald Trump ordered a restart to the "maximum pressure" campaign on Tehran.

Mr. Trump's order, signed Tuesday night, calls for halting Iran's oil exports and pursuing a "snapback" of United Nations sanctions on Iran. However, he also suggested he didn't want to impose those sanctions and wanted to reach a deal with Iran.

The move comes as Mr. Trump's moves to freeze spending on foreign aid and overhaul, or even end, the U.S. Agency for International Development have been lauded in Iranian state media. At the same time, Iranian officials appear to be signalling that they are waiting for a message from Mr. Trump on whether he wants to negotiate over Tehran's rapidly advancing nuclear program. At stake are potentially billions of dollars withheld from Iran through crushing sanctions and the future of a program on the precipice of enriching weapons-grade uranium.

Meanwhile, ordinary Iranians worry what all this could mean for them.

"It encourages hard-liners inside Iran to continue repressions because they feel the U.S. would have less capability in supporting Iranian people who seek freedom," said Maryam Faraji, a 27-year-old waitress in northern Tehran.

The state-run IRNA news agency said that "cutting the budget of foreign-based opposition" could "affect the sphere of relations" between Tehran and Washington.

Newspapers, like the conservative Hamshahri daily, described Iran's opposition as "counterrevolutionaries" who had been "celebrating" Mr. Trump's election as heralding the "last days of life of the Islamic Republic."

Even the reformist newspaper Hamshahri compared it to a "cold shower" for opponents of Iran's theocracy abroad, an idea also expressed by the Foreign Ministry.

"Those financial resources are not charity donations," Esmail Baghaei, Iran's Foreign Ministry spokesman, said during a briefing with reporters on Monday. "They are wages paid in exchange for services."

"This is a clear sign of America's interventionist policy particularly during the Biden administration, which tried to pressure Iran and meddle in its domestic affairs through financial aid," Mr. Baghaei added.

It remains unclear how funding for Iranian activists and opposition figures would be affected by the USAID decision. The lion's share of money for civil society in Iran has come through the U.S. State Department's Near East Regional Democracy fund, known by the acronym NERD.

The State Department did not respond to a request for comment. American officials for years have kept the awardees of NERD grants secret due to what they describe as the risk activists face from Iran, particularly after Iranian intelligence officers have allegedly targeted in kidnapping or assassination plots, U.S. prosecutors say.

Iran also noticed that the U.S. avoided direct criticism of the country during a review by the United Nations Human Rights Council meeting last week. For those in Iran's government, there's anticipation this could mean that Mr. Trump is willing to negotiate, something he brought up in his election campaign as a possibility.

In News : State Emblem of India

The Union Home Ministry recently asked State governments to prevent the misuse and improper depiction of the State Emblem of India, emphasising that the Lion Capital logo is incomplete without the motto—Satyamev Jayate—in Devanagari script.



About the State Emblem of India:

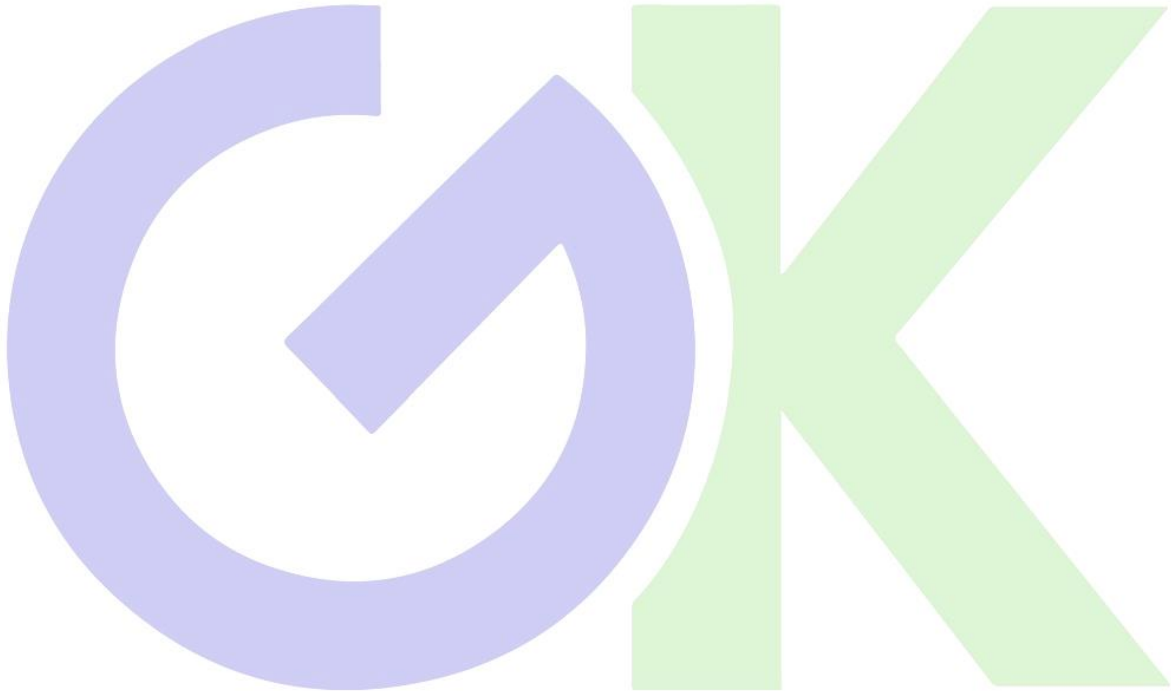
- It is an adaptation of the Lion Capital of Ashoka at Sarnath.
- In the original, there are four lions, mounted back-to-back, on a circular abacus, which itself rests on a bell-shaped lotus. The frieze of the abacus has sculptures in high relief of an elephant, a galloping horse, a bull, and a lion separated by intervening Dharmachakras.
- In the State emblem, adopted by the Government of India on 26 January 1950, only three lions are visible, the fourth being hidden from view.
- The wheel appears in relief in the centre of the abacus with a bull on the right and a horse on the left and the outlines of other wheels on the extreme right and left.
- The bell-shaped lotus has been omitted.

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Daily News Analysis

- Below the representation of the Lion Capital, Satyameva Jayate is written in Devnagari Script, which is also the National Motto of India.
- The words are a quote from the Mundaka Upanishad and is translated as "Truth alone triumphs."
- The use of the State Emblem of India is restricted to the authorities/purposes specified in the State Emblem of India (Prohibition of Improper Use) Act, 2005, and the State Emblem of India (Regulation of Use) Rules, 2007.



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A Budget that is mostly good but with one wrong move

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



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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

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.

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

GS Paper 03 : Indian Economy

PYQ (UPSC CSE (M) GS-3 2013): What are the reasons for introduction of Fiscal responsibility and Budget Management (FRBM) act, 2003? Discuss critically its salient features and their effectiveness. (200 W/10 M)

UPSC Mains Practice Question: Critically analyze the impact of the Union Budget 2025-26 on economic growth, scal consolidation, and taxation structure. How does the shift from scal decit targets to debt-GDP ratio affect transparency in scal policy? (250 W /15 M)

Context :

- The Union Budget 2025-26 aims to accelerate economic growth while ensuring scal prudence.
- It focuses on capital expenditure, tax revenue trends, and scal policy shifts, including changes in decit targets.

GDP Growth and Capital Expenditure

- The government has projected a nominal GDP growth of 10.1% for 2025-26, which is considered reasonable.
- The Economic Survey 2024-25 indicated real GDP growth between 6.3%-6.8% for 2025-26, allowing some exibility if growth increases.
- Capital expenditure for 2025-26 is projected at ₹11.2 lakh crore, an increase of ₹1.03 lakh crore over 2024-25 (RE).
- However, this is nearly the same as the ₹11.1 lakh crore estimated in the previous budget.

Need for Higher Economic Growth

- The budget aims to accelerate growth and push India towards developed country status.
- A real GDP growth rate of 8% is considered necessary to achieve this goal. While several measures introduced in the budget are benecial, some could have been implemented earlier.
- Income tax relief for the middle class is expected to boost demand, but its effect depends on household consumption behavior.

Trends in Indian Economy

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Daily News Analysis

- ➔ **Declining Revenue Growth:** The overall revenue growth has been slowing down over the past three years.
- ➔ **Tax Buoyancy Reduction:** The efficiency of tax collection in relation to economic growth has decreased.
- ➔ **Slower GST Growth:** The growth rate of GST revenue has declined compared to previous years.
- ➔ **Shift Towards Direct Taxes:** Direct taxes now form a larger share of total revenue compared to earlier years.
- ➔ **Personal Income Tax vs Corporate Tax:** Personal income tax has shown stronger performance than corporate tax but has slowed due to tax concessions.
- ➔ **Corporate Tax Recovery:** Corporate income tax is expected to grow at a better rate in the coming year.

Non-Tax Revenues

- ➔ Non-tax revenues, mainly from RBI and public sector dividends, increased to ₹3.25 lakh crore in 2025-26, up by ₹35,715 crore from 2024-25 (RE).
- ➔ Overall, non-tax revenue increased from ₹5.3 lakh crore (RE) to ₹5.8 lakh crore in 2025-26 (BE).

Government Expenditure and Fiscal Consolidation

- ➔ **Declining Government Expenditure:** The government's spending as a share of GDP is set to decrease due to efforts to manage the scal deficit.
- ➔ **Slower Expenditure Growth:** Government spending is growing at a slower pace than the overall economy.
- ➔ **Improved Spending Quality:** A greater portion of government funds is being directed toward long-term investments in infrastructure.
- ➔ **AI Investment Importance:** Strengthening AI infrastructure is crucial as global leaders like the U.S. and China are advancing rapidly in this sector.
- ➔ **Need for AI Incentives:** The government should consider tax benefits to boost AI research and development in India.

Concerns Over Fiscal Transparency

- ➔ **Shift in Fiscal Focus:** The budget moves away from using the scal deficit as the main measure of financial discipline.
- ➔ **Previous Target:** Earlier, there was a clear goal to reduce the scal deficit below 4.5% by 2025-26.

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Daily News Analysis

- ➡ **New Approach:** The focus is now on lowering the debt-to-GDP ratio instead of setting a specific fiscal deficit target.
- ➡ **Lack of Clarity:** The new strategy is unclear, as it depends on different economic growth scenarios.
- ➡ **Need for a Clear Target:** A defined fiscal deficit goal would help maintain financial discipline and prevent excessive government borrowing, which can impact private investment.

Conclusion

- ➡ The Budget 2025-26 aims to sustain economic growth while maintaining fiscal discipline.
 - ➡ Capital expenditure remains a priority, but AI infrastructure investment needs more focus.
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