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Page 01 : GS II : International Relations

The United States, under President Donald Trump, has reportedly cleared a bipartisan Russia sanctions bill designed to escalate economic pressure not only on Russia but also on countries that continue to import Russian energy supplies. Senior Republican Senator Lindsey Graham, a close ally of the President, announced that Trump has “greenlit” the legislation — officially named the Sanctioning Russia Act of 2025 — and that it could be brought to a vote in the U.S. Congress imminently. Under this bill, the U.S. could impose tariffs of up to 500 percent on nations buying Russian oil, gas, or uranium with the stated aim of cutting financial flows to Moscow’s war effort against Ukraine.

Key Provisions of the Bill

500% Tariff Authority:

- The bill would empower the U.S. President to levy tariffs of up to 500 percent on imports from countries that continue to purchase Russian energy products. These would function as secondary tariffs, aimed at punitive economic pressure rather than standard trade measures.

Targeted Nations:

- Senator Graham has publicly cited India, China, and Brazil as potential targets because of their continued importation of Russian oil, which Washington claims funds the Kremlin’s military campaign.

Broad Bipartisan Support:

- The bill reportedly has strong backing in both chambers of Congress, with dozens of co-sponsors in the Senate and House, suggesting it could pass smoothly once formally introduced to the floor.

Broader Sanctions Measures:

- Beyond tariffs, the legislation includes expanded sanctions on Russian financial institutions, sovereign debt, and trade in energy products, aligning with broader Western sanctions regimes introduced since Russia’s invasion of Ukraine in 2022.

Trump clears Bill that will slap up to 500% tariffs on nations buying Russian oil

Suhasini Haidar
NEW DELHI

Doubling down on his pressure on India to stop importing oil from Russia, U.S. President Donald Trump has “greenlit” a legislation that will empower him to levy up to 500% in tariffs on countries that buy oil or uranium from Russia, according to senior Senator Lindsey Graham.

Mr. Graham, a close associate of Mr. Trump, said the U.S. President on Wednesday has “greenlit” the Russia Sanctions Bill, which could be voted in Congress “as early as next week”.

“This Bill would give President Trump tremendous leverage against countries like China, India, and Brazil to incentivise them to stop buying the cheap Russian oil that provides the financing for [Russian President Vladimir] Putin’s bloodbath against Ukraine,” Mr. Graham said.

The bipartisan Bill has thus far got 84 co-sponsors in the Senate (out of 100 members), and 151 co-sponsors in the House of Representatives, suggesting it will be passed smoothly once brought to a vote.

“Top priority”

The move came just ahead of the arrival of U.S. Ambassador-designate Sergio Gor to New Delhi, who had said that ensuring India ends its import of Russian oil is a “top priority”.

Mr. Gor, who was confirmed and sworn in to the position months ago, will begin his tenure as Ambassador to India and “Special

Tariff target

The Bill gives the U.S. President discretion to choose tariff figures over and above the 25% penalty tariffs already imposed on India

■ The Bill, introduced in the Senate in April 2025, has enough co-sponsors from Republican and Democratic parties to suggest a smooth passage once brought to vote

■ 84 co-sponsors in Senate out of a total of 100 members

■ 151 co-sponsors in the House of Representatives

They [India] must stop buying Russian oil... The President has only imposed a 25% tariff [thus far]

SERGIO GOR

U.S. Ambassador-designate



Envoy to South and Central Asia” on Monday, and is expected to outline his mission with a public statement.

Earlier this week, Mr. Trump, who had jointly addressed the press along with Mr. Graham, announced they had a “great legislation coming”, as Mr. Graham said the Bill would give the U.S. President discretion to choose the figure of the tariffs over and above 25% penalty tariffs already imposed on India.

As a result, Mr. Gor’s first order of business in Delhi would likely be to push for a full stop to Indian oil imports from Russia, not just a reduction.

This week, Reliance announced that it has not received any cargo of Russian oil at its Jamnagar refinery through most of December, and does not expect any in January, indicating that it has stopped orders of the oil for now.

Indian PSUs increased their intake sharply in November 2025, but with Reliance stopping all such imports and Nayara Energy, the other big importer under sanctions from Western countries unable to import, it is unlikely that

India’s Russian oil purchases can recover to previous levels.

In 2018, under similar pressure from the previous Trump administration, India had “zeroed out” its oil imports from Iran and Venezuela as well.

Meanwhile in Paris, Polish Foreign Minister Radoslaw Sikorski expressed “satisfaction” that India has reduced its oil imports from Russia, during a joint press appearance with External Affairs Minister S. Jaishankar and Foreign Ministers of France and Germany.

In September, during his Senate Foreign Relations Committee confirmation hearings, Mr. Gor said that Mr. Trump had been “crystal clear” on the issue of India’s oil purchases.

“They [India] must stop buying Russian oil And I believe almost every single member of this committee has co-sponsored Senator Graham’s legislation which has proposed a 500% tariff on secondary purchase and reselling of Russian oil. The President has only imposed a 25% tariff [thus far],” he added, referring to the Russia Sanctions Act.

U.S.–India Trade and Geopolitical Tensions

Existing Tariffs and the India Case

- Even before this bill advanced, the U.S. had already imposed elevated tariffs on Indian exports. This includes a combination of a baseline tariff and additional penalty tariffs linked to India's continued purchase of Russian energy supplies. Some reports indicate Indian exports faced a tariff as high as 50 percent in 2025 as a result of these measures.
- India has insisted that its energy policies are driven by strategic autonomy and energy security, not political alignment, and has repeatedly defended its import strategy within global energy market dynamics.

Diplomatic Management

- The U.S. decision to greenlight this sanctions bill comes at a sensitive moment in U.S.–India relations. Trade negotiations have been ongoing, and both sides have expressed interest in deepening cooperation on economic and security fronts — even as disagreements over energy sourcing, trade barriers, and tariff rates persist.

Potential Implications

1. Economic and Trade Impact

India–U.S. Trade: A 500% tariff would effectively shut down Indian exports to the United States, given that such a tariff would render most Indian goods economically non-competitive in the U.S. market.

Global Supply Chains: Countries with significant trade ties with both Russia and the U.S. could face a new set of trade-off decisions — balancing energy security and market access.

Energy Markets: The threat of secondary tariffs might accelerate diplomatic negotiations aimed at reducing Russian energy reliance or reshaping supply routes.

2. Geopolitical Repercussions

Bilateral Strains: For India, which has historically prioritized strategic autonomy, acceptance of U.S. pressures on energy purchases could be politically and economically costly.

Multilateral Dynamics: China and Brazil — also cited as targets — would likely respond with their own diplomatic retaliations, potentially worsening U.S.–China trade relations.

Russia–West Conflict: Washington's strategic objective appears to be to deprive Russia of financial resources used in its Ukraine war, pushing Moscow towards negotiations.

3. Domestic Political Dimensions in the U.S.

The sanctions bill carries bipartisan support, underscoring a shared U.S. legislative interest in countering Russia's influence and cutting off economic resources sustaining its war in Ukraine.

Conclusion

The Trump administration's clearance of a sanctions bill that would allow tariffs up to 500 percent on countries importing Russian energy marks a significant escalation in American economic pressure tactics tied to the Russia-Ukraine conflict. While intended to weaken Russia's financial capacity to wage war, this move carries profound implications for major global trade partners, particularly India and China. For India, the imposition of such tariffs would challenge its energy security strategy and could dramatically reshape its trade relations with the United States. As the bill moves toward potential passage in Congress, diplomatic engagement, trade negotiations, and global energy market responses will be critical to watch.

UPSC Mains Exam Practice Question

Ques: Energy security often compels states to take pragmatic decisions that may conflict with geopolitical expectations of major powers. In this context, critically examine India's purchase of Russian oil amid U.S. pressure. **(150 Words)**

Page 06 : GS III : Indian Economy / Prelims Exam

At a time of heightened global economic uncertainty driven by protectionism and geopolitical tensions, India continues to project macroeconomic resilience. The United Nations Department of Economic and Social Affairs (UN DESA), in its flagship report World Economic Situation and Prospects 2026, has estimated India's GDP growth at 7.2% in FY 2025–26, marginally lower than the Government of India's estimate of 7.4%. The assessment underscores India's relative insulation from external shocks, particularly U.S. tariffs, due to strong domestic demand and public investment.

UN body pegs India's growth at 7.2% this fiscal

The Hindu Bureau
NEW DELHI

A day after the Union government estimated the economy to grow at 7.4% in financial year 2025-26, the United Nations Department of Economic and Social Affairs (UN DESA) said consumption and public investment can “largely offset” the impact of tariffs imposed by the U.S. and enable India to grow by 7.2% this fiscal.

However, the report warned that continuing tariffs could weigh on the economy as 18% of Indian exports are U.S.-bound. It said “tax reforms and monetary easing should provide additional near-term

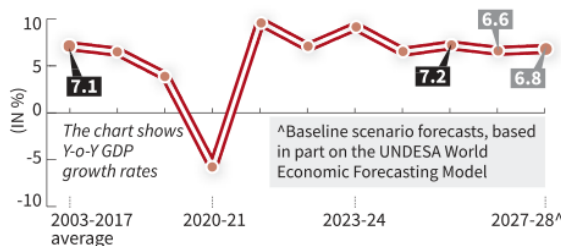
support”, adding that strong demand from other markets, including Europe and the West Asia, will limit the tariff impact.

The report predicted India's growth to be 7.4% in calendar year 2025. On a fiscal year basis, it estimated India to grow at 6.6% and 6.8% in 2026-27 and 2027-28, respectively.

“In India, growth is estimated at 7.4% for 2025 and forecast at 6.6% for 2026 and 6.7% for 2027, supported by resilient consumption and strong public investment, which should largely offset the adverse impact of higher United States tariffs,” the report, presented in the UN DESA's World Economic Situation

Varying forecasts

UNDESA estimates India to grow by 7.2% in FY26, slightly lower than the 7.4% estimated by the Indian government



and Prospects 2026, said.

On the other hand, the report added that, while the tariffs may adversely affect some product categories, key exports such as electronics and smart

phones are expected to remain exempt.

“On the supply side, continued expansion in manufacturing and services sectors will remain a key driver of growth throughout the forecast period,”

the report said.

In 2025, “India recorded strong growth in gross fixed capital formation, led by higher public spending on physical and digital infrastructure, defence, and renewable energy”, the report said.

“The Cooperation Council for the Arab States of the Gulf (GCC) countries continued to undertake large-scale capital investments aligned with long-term economic diversification strategies.” However, in contrast, the report noted that China saw a contraction in its fixed asset investment through the first three quarters of 2025, due to the ongoing weakness in the property sector.

Key Highlights of the Report

Growth Outlook

- 7.4% growth in calendar year 2025
- 7.2% in FY 2025–26
- Medium-term moderation: 6.6% (2026–27) and 6.7–6.8% (2027–28)

Drivers of Growth

- Resilient private consumption, supported by urban demand and gradual rural recovery.
- Strong public investment, especially in:
- Physical and digital infrastructure
- Defence manufacturing
- Renewable energy transition
- Continued expansion in manufacturing and services sectors.

Impact of U.S. Tariffs

- About 18% of India's exports are U.S.-bound, making tariffs a potential downside risk.
- However, the impact is expected to be partially offset due to:
- Diversification of export markets (Europe, West Asia)
- Exemptions for electronics and smartphones, key growth exports.

Policy Support

- UN DESA highlights the role of tax reforms and monetary easing in providing near-term macroeconomic support.
- Indicates policy space for India compared to many advanced economies facing inflationary constraints.

Comparative Global Context

- While India and Gulf Cooperation Council (GCC) economies continue large-scale capital investments,
- China's fixed asset investment has contracted, mainly due to prolonged stress in its property sector—highlighting India's relative structural strength.

Critical Analysis

Strengths

- Confirms India's status as the fastest-growing major economy.
- Validates the effectiveness of the public investment-led growth model.
- Reflects progress in export diversification and supply-side reforms.

Concerns

- High dependence on external markets like the U.S. still poses vulnerability.
- Medium-term growth moderation suggests the need for:
- Employment-intensive manufacturing
- MSME credit flow
- Productivity-led reforms rather than only capex push.

Conclusion

The UN DESA assessment reinforces confidence in India's macroeconomic fundamentals, highlighting the cushioning role of domestic consumption and public investment against global trade headwinds. However, sustaining high growth beyond the medium term will require deeper structural reforms, export competitiveness beyond tariff exemptions, and inclusive growth that translates macro stability into employment and income gains.

UPSC Prelims Exam Practice Question

Ques : Which of the following sectors are likely to remain exempt from higher U.S. tariffs on Indian exports, as per the report?

- (a) Textiles and garments
- (b) Electronics and smartphones
- (c) Agricultural commodities
- (d) Steel and aluminium

Ans: (b)

UPSC Mians Exam Practice Question

Ques : Analyse the role of public capital expenditure in sustaining India's economic growth. How does India's experience contrast with China's recent investment slowdown? **(150 Words)**

Page 06 : GS III : Environment & Ecology/ Prelims Exam

Topic : Voice for people-driven conservation

The passing of Madhav Gadgil marks the end of a defining phase in India's environmental thought. More than an ecologist, Gadgil fundamentally reshaped conservation discourse by foregrounding human rights, local knowledge, and democratic participation. At a time when conservation policy leaned heavily towards exclusionary wildlife protection, his work articulated an alternative—people-centric ecology—that remains directly relevant to contemporary debates on development versus environment.

Voice for people-driven conservation

Madhav Gadgil, who passed away in Pune on Wednesday, shifted the paradigm in global conservation discourse, giving primacy to human rights over exclusive wildlife protection; Western Ghats Ecology Expert Panel he headed recommended strict but people-driven protection for the ghats

Divya Gandhi
BENGALURU

Madhav Gadgil, a pioneering scholar and iconic people's conservationist, passed away in Pune on Wednesday after a brief illness. He was 83.

As someone who started off with the upper-class "urban conservationist approach to nature conservation", Mr. Gadgil metamorphosed into an ecologist who advocated the rights of the marginalised communities for whom the forest was home. He called them the "common people of India", and saw them as "constituents of the ecosystem".

Nothing sums this up better than his own admission in his autobiography, *A Walk Up the Hill: Living with People and Nature*, published in 2023. Writing about his early days as a young conservationist, Mr. Gadgil confessed: "I subscribed to the urban conservationist approach to nature conservation, namely, protection through the devices of wildlife sanctuaries and national parks... I also subscribed to the view that it was necessary to remove habitations from within

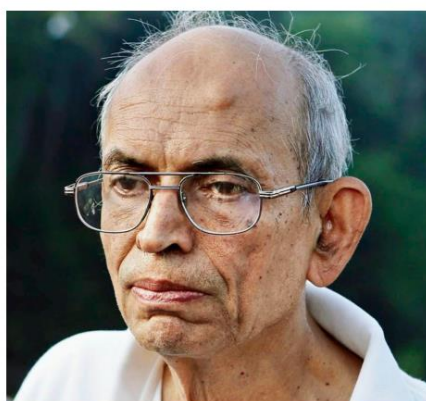
such habitats to safeguard them."

All that changed in the 1980s, when Mr. Gadgil "started thinking about alternative ways of following my passion to conserve nature, working with rather than against the common people of India".

Writing in the foreword to the book, the late M.S. Swaminathan, veteran agriculture scientist, said of Mr. Gadgil: "Madhav has had an illustrious career as one of India's leading researchers in the fields of ecology and environment, but more importantly, his thinking has been combined with action on environmental and ecological security in the service of humanity."

Paradigm shift

Mr. Gadgil would go on to shift the paradigm in the global conservation discourse, giving primacy to human rights over exclusive wildlife protection. He was distraught by the obsession of governments with commercial interests and their disregard for the rights of farmers and indigenous people. In fact, he began to view the Wildlife (Protection) Act of 1972 as weapon at the hands of the Forest departments "to



MADHAV GADGIL (1942 - 2026)

Gadgil was an ecologist who advocated for rights of the marginalised communities

subjugate the common people of India", especially by criminalising hunter-gatherer communities and farmers.

The Western Ghats, where he was born in 1942, received his particular attention. This interest acquired the sharpest clarity in his 2011 report as chair-

man of the Western Ghats Ecology Expert Panel. The Manmohan Singh government, having responded to an alarm sounded by experts and local populations on the destruction of the fragile ecosystem and people of the Western Ghats by industrialisation, climate change and commercial greed, had tasked Mr. Gadgil with rendering advice on how to save the ghats from an ecological disaster.

Mr. Gadgil scoured the region he knew so intimately, interacted with communities, both forest and village-based, panchayats and forest officials, and recommended strict but people-driven protection for the ghats. Advocating the setting up of a Western Ghats Ecology Authority, he asked for the major part of it to be declared environmentally sensitive. No new polluting industries were to be set up in the zones earmarked as particularly endangered and existing industries were to be phased out.

Vested interest groups resisted the ideas, leading, typically and predictably, to the setting up of another panel. Headed by the eminent space scientist K. Kasturirangan, the panel recommended in 2013 that a reduced area (37% of the ghats) be protected. But even that was not accepted.

Till today, the Western Ghats remains a zone of contestation between the dogma of development and the calls for conservation. Mr. Gadgil also championed the "Save the Silent Valley" movement in Kerala in the 1970s and early 1980s to protect the rainforests, as he campaigned for the forests of Bastar. A "product" of Harvard and a citizen of the world, he focused on the fragilities of

India's ecosystems and the human inhabitants.

Paying tributes on X, former Union Environment Minister Jairam Ramesh said Mr. Gadgil "was a top-notch academic scientist, a tireless field researcher, a pioneering institution-builder, a great communicator, a believer in people's networks and movements, and friend, philosopher, guide, and mentor to many..."

Historian Ramachandra Guha, who co-authored two books with Mr. Gadgil in the 1990s, described him as "an exemplary scientist and citizen, and, to me, a friend and mentor for forty years and more".

Mr. Gadgil leaves behind a rich legacy for the future generations. He had hoped that this "will be the third generation of people born in free, democratic India whose Constitution professes values of social justice, equity, equality, non-racism and non-sexism, human dignity, an open society, accountability and the rule of law." To achieve that, the ecologist must, as he said, "talk of many things, not just air and water and the bird that sings, but of men and money and economic reforms..."

(With inputs from Vinaya Deshpande Pandit)

Core Contributions and Ideas

1. Paradigm Shift in Conservation

- Gadgil's intellectual journey—from an "urban conservationist" to a champion of community-based conservation—recognised forest-dependent communities as integral to ecosystems rather than threats to them.

- He consistently critiqued the coercive implementation of the Wildlife (Protection) Act, 1972, arguing that it:
 - Criminalised indigenous and traditional livelihoods.
 - Concentrated power in bureaucratic institutions at the expense of local self-governance.
- This critique anticipated later debates around Forest Rights Act, 2006 and environmental justice.

2. Western Ghats Ecology Expert Panel (WGEEP), 2011

- As Chair of the Western Ghats Ecology Expert Panel, Gadgil proposed a science-driven and participatory conservation framework:
- Declaration of large parts of the Western Ghats as Ecologically Sensitive Zones (ESZs).
- Strict regulation and, where required, phased withdrawal of highly polluting industries.
- Establishment of a Western Ghats Ecology Authority with strong local community participation.
- The political and commercial pushback that led to dilution of these recommendations by the Kasturirangan Committee exposed structural weaknesses in India's environmental governance, especially the tension between short-term growth and long-term ecological security.

3. Landscape-Level Conservation Approach

- Gadgil rejected the idea that conservation must be confined to protected areas alone.
- His work in the Nilgiris Biosphere Reserve helped establish India's first biosphere reserve, under UNESCO's Man and Biosphere Programme, integrating:
 - Biodiversity conservation
 - Sustainable livelihoods
 - Cultural practices of local communities
- This model remains a reference point for landscape and seascape approaches to conservation.

4. Institution Building and Environmental Movements

- Founder of the Centre for Ecological Sciences at the Indian Institute of Science (IISc), shaping generations of Indian ecologists.
- A key scientific voice in the Save Silent Valley Movement, which successfully halted a hydropower project and became a landmark in science-led public mobilisation.
- Through the Western Ghats Network Programme, he fostered pan-regional collaboration and decentralised ecological research.

Conclusion

Madhav Gadgil's enduring legacy lies in redefining conservation as a people-driven, rights-based, and knowledge-inclusive enterprise. As India confronts climate change, biodiversity loss, and development pressures, his ideas offer a principled pathway forward. For policymakers and administrators, his life's work delivers a clear lesson: ecological security and human dignity are not competing objectives but mutually reinforcing foundations of sustainable development.

Topic : Madhav Gadgil's enduring legacy in the Nilgiris Biosphere Reserve

The passing of Madhav Gadgil marks a profound loss for India's ecological scholarship, particularly in the Nilgiris region of the Western Ghats. His work in what later became the Nilgiris Biosphere Reserve (NBR) laid the intellectual and institutional foundations of landscape-level, people-centric conservation in India. The tributes from ecologists underline that much of today's conservation thinking in the Western Ghats is either directly shaped by Gadgil's research or by the generations of scientists he mentored.

Gadgil and the Nilgiris: Core Contributions

1. Landscape-Level Conservation Framework

- Research by Gadgil's students on Asian elephants in the Nilgiris highlighted the limitations of fragmented protected areas.
- This led to the articulation of a landscape-level conservation approach, recognising migratory corridors, human-wildlife coexistence, and ecological continuity across administrative boundaries.
- The approach was path-breaking in shifting conservation focus from isolated sanctuaries to entire socio-ecological landscapes.

2. Nilgiris Biosphere Reserve: Conceptualisation and Significance

- As Director of the Centre for Ecological Sciences at the Indian Institute of Science, Gadgil authored the concept document for the Nilgiris Biosphere Reserve.
- The NBR became India's first biosphere reserve under the UNESCO Man and Biosphere (MAB) Programme.

Its design integrated:

- Biodiversity conservation
- Sustainable use of natural resources
- Protection of livelihoods and cultural practices of indigenous communities
- This model balanced ecological integrity with human development, distinguishing it from exclusionary conservation regimes.

Madhav Gadgil's enduring legacy in the Nilgiris Biosphere Reserve

Rohan Premkumar
UDHAGAMANDALAM

The passing of ecologist Madhav Gadgil on Wednesday has left a void in the Nilgiris, where he had done phenomenal work.

"Almost everyone working on ecology in the Nilgiris Biosphere Reserve and across the Western Ghats, directly or indirectly, is connected to, or is influenced by the work of Madhav Gadgil," said a scientist who spoke to *The Hindu* about the ecologist's lasting legacy.

Ecologists and academics who either worked directly with Gadgil or were familiar with his work say his research and that of his students in the Western Ghats, particularly in what is today known as the Nilgiris Biosphere Reserve (NBR), laid the foundation for the recognition of the region's importance to bio-



The passing of Madhav Gadgil has left a void in the Nilgiris, where he had done phenomenal work. FILE PHOTO

diversity and to its protection.

"It was during his students' work on elephants in the landscape that Gadgil understood the importance of a landscape-level conservation framework that was required to protect the Asian elephant," said a senior scientist who requested anonymity.

"He established the Centre for Ecological Science in the Indian insti-

tute of Sciences, Bangalore. And as Director of the Centre for Ecological Sciences, he authored the Nilgiris Biosphere Reserve concept document, the first Biosphere Reserve, under the Man and Biosphere Reserve (MAB) Program of UNESCO, in India," said the former member of the Western Ghats Ecology Expert Panel (WGEEP) B.J. Krishnan.

"As a member of the

WGEEP, I had the privilege of working with Professor Gadgil and contributing to the panel's report. Gadgil was a gentle colossus in the field of all-inclusive, people-centric, nature conservation regime. His demise is a huge loss for nature conservation and biodiversity dependant livelihoods, Mr. Krishnan said.

Karthick Balasubramanian, scientist at the Agharkar Research Institute in Pune, said that Mr. Gadgil's legacy extended even further than the formation of the NBR and the recommendations of the WGEEP, as it helped shape the careers of young, aspiring scientists and conservationists. "Through his Western Ghats Network Programme, he managed to connect faculties and students from across the Western Ghats, from Gujarat to Tamil Nadu," Mr. Balasubramanian said.

3. Institution Building and Knowledge Networks

- Founder of the Centre for Ecological Sciences, IISc, which became a nucleus for ecological research in India.
- Through the Western Ghats Network Programme, Gadgil connected researchers and students from Gujarat to Tamil Nadu, fostering:
 - Decentralised data generation
 - Regional collaboration
 - Capacity-building among young conservation scientists
- This networked approach strengthened scientific inputs into policy debates on the Western Ghats.

4. Influence on Environmental Governance

- Gadgil's experience in the Nilgiris shaped his later role as Chair of the Western Ghats Ecology Expert Panel (WGEEP).
- His advocacy for participatory institutions, ecological zoning, and respect for local knowledge drew heavily from lessons learned in the NBR.
- The resistance to WGEEP recommendations underscores persistent tensions between developmental politics and ecological science.

Conclusion

Madhav Gadgil's legacy in the Nilgiris Biosphere Reserve transcends institutional milestones. He redefined conservation as a democratic, knowledge-inclusive, and ethically grounded endeavour, where ecological protection and human well-being reinforce each other. As India confronts climate change, biodiversity loss, and infrastructure expansion in fragile landscapes, the Nilgiris model—shaped by Gadgil's vision—offers enduring lessons for sustainable and just environmental governance.

UPSC Prelims Exam Practice Question

Ques: The Western Ghats Ecology Expert Panel (WGEEP) is best known for recommending:

- (a) Complete ban on all economic activities in the Western Ghats
- (b) Declaring large parts of the Western Ghats as Ecologically Sensitive Zones with graded regulation
- (c) Transfer of forest governance exclusively to State governments
- (d) Replacing protected areas with biosphere reserves only

Ans : b)

UPSC Mains Exam Practice Question

Ques: Madhav Gadgil's work in the Nilgiris Biosphere Reserve marked a shift from exclusionary conservation to a landscape-level, people-centric approach. Critically examine this statement. **(150 words)**

Spina Bifida, one of the most common and debilitating birth defects in India, represents a paradox of public health: it is largely preventable, yet remains widely prevalent. Despite clear scientific evidence since the early 1990s that pre-conceptional folic acid intake can prevent over 70% of cases, India continues to report one of the highest global prevalence rates. The article highlights a critical gap between medical knowledge and public health implementation, raising questions of governance, awareness, and preventive healthcare prioritisation.

Why awareness about folic acid is the key to prevent Spina Bifida

The fact that pre-conceptional intake of folic acid can prevent more than 70% of Spina Bifida cases has been known; yet, India is one of the few countries where no meaningful efforts have been made to create awareness making it home to one of highest prevalence rates of the condition

Santosh Karmarkar
Sneha Sawant

One day, some weeks ago, a young mother of a seven-month-old baby from Jharkhand called in tears, about her child who was born with a large lump on his back and was unable to move his legs.

Local doctors did not give her any information about the problem that her newborn had, or treatment options. The infant seemed otherwise normal, and in the first six months was growing as any other child, except for paralysis of his lower limbs. He smiled, recognised his parents and was a great source of joy for the entire family. But his diagnosis and treatment had remained unknown to the parents. They were not informed that this birth defect is called Spina Bifida and is the commonest birth defect in India. Nor were they aware that this serious condition could potentially be prevented by taking a folic acid tablet preconceptionally. And most of all, they were not aware that there are several medical and surgical treatments for children born with this condition.

Understanding Spina Bifida

Spina Bifida is a birth defect of the spinal cord that causes serious childhood paralysis and occurs in more than 25,000 children in India each year, making the country home to one of the highest prevalence rates of this condition in the world. And yet, awareness about it remains poor.

The range of paralysis in Spina Bifida patients varies from mild weakness in the feet to complete paralysis from the hip downwards, resulting in many patients being wheelchair dependent right from early childhood.

Additionally, affected children may have associated problems such as excessive water in the brain (hydrocephalus), urinary and bowel incontinence (lack of control) and orthopaedic issues such as club feet, and other medical problems.

Though many children become paraplegic and incontinent, there is no intellectual impairment: they are capable of leading independent and productive lives, if they are able to access expert medical care. However, in India, medical care is not available to over 75% of children with Spina Bifida.

Spina Bifida, therefore, can be a devastating condition for those affected by it, as well as for their families.

Meaningful efforts missing

What is both tragic and unpardonable, is the fact that despite the knowledge that Spina Bifida can be largely prevented with a B complex vitamin (folic acid), awareness regarding this simple and inexpensive intervention continues to remain lacking.

Since 1991, the fact that pre-conceptional intake of folic acid by women can prevent more than 70% of Spina Bifida cases has been known, after the results of the Medical Research Council (MRC) Vitamin Study were published in *The Lancet*. Yet, 30 years later, India is one of the few countries



Preventable condition: Spina Bifida is a birth defect of the spinal cord that causes serious childhood paralysis and occurs in more than 25,000 children in India each year. The range of paralysis varies from mild weakness in the feet to complete paralysis from the hip downwards. GETTY IMAGES

where no meaningful efforts to create awareness about this intervention have been carried out – both at the level of States and the Centre. This gap has resulted in thousands of children in India being born with serious childhood paralysis, causing great socio-economic distress to a multitude of families.

While it is understood that in unplanned pregnancies awareness about pre-conceptional vitamins may not be given, the lack of any effort to educate the public about this common, devastating and preventable condition cannot be termed anything less than gross public health negligence.

Global efforts, research

Many countries across the world have conducted national awareness campaigns and initiated programmes to create awareness in order to prevent of Spina Bifida through folic acid supplementation. Additionally, 68 countries have made fortification of relevant food vehicles, with folic acid, mandatory by law. In these countries, awareness campaigns and food fortification have reduced the prevalence rates of Spina Bifida to below 1 per 1,000 births by eliminating folic acid preventable cases. In India, in contrast,

Many countries have conducted national awareness campaigns and initiated programmes to create awareness in order to prevent of Spina Bifida through folic acid supplementation

the prevalence rate remains unacceptably high, at about 4 per 1,000, primarily because no such efforts have been undertaken.

Research is ongoing to study the fortification of food vehicles such as salt and tea that are widely and uniformly consumed – especially in countries such as India. A preliminary trial for tea fortification (results of which were published in *BMJ Nutrition, Prevention & Health*) found that tea could potentially be vehicle for fortification with folate and vitamin B12 in India, in order to help eliminate haematological and neurological complications.

The message

Spina Bifida places enormous socio-economic burdens on families, societies and the healthcare system in India. Each rupee spent on prevention in

this regard can help save more than 100 rupees required for treatment and rehabilitation.

It is time for a national awareness campaign about Spina Bifida and how it can be prevented. Simultaneously, efforts must be made to explore food fortification with folic acid and vitamin B12. It is only efforts such as these that will contribute toward the primary prevention of Spina Bifida and anencephaly, averting stillbirths, and under-five deaths due to these birth defects says Vijaya Kancherla, director, Center for Spina Bifida Prevention (CSBP) at Emory University, U.S.

Until every woman in our country knows that a folic acid tablet, taken before conception and during pregnancy, can help prevent Spina Bifida and until our healthcare systems are in place to comprehensively help families with affected children, the work remains incomplete.

(Dr. Santosh Karmarkar is a paediatric surgeon based in Mumbai and founder-trustee of Spina Bifida Foundation. santoshkj@yahoo.com; Sneha Sawant is social worker and chief coordinator of Spina Bifida Foundation. sneha.ccsbf@gmail.com)

Understanding the Issue

- Nature of the condition: Spina Bifida is a neural tube defect leading to varying degrees of lower-limb paralysis, bladder and bowel incontinence, hydrocephalus, and orthopaedic deformities.
- Magnitude in India: Over 25,000 children are born annually with this condition, with a prevalence of nearly 4 per 1,000 births, far higher than countries with folic acid fortification policies.

Socio-economic impact:

- Lifelong disability and dependence
- High treatment and rehabilitation costs
- Psychological and economic distress for families
- Healthcare access gap: More than 75% of affected children in India lack access to specialised medical care, compounding preventable disability.

Scientific Evidence and Missed Opportunities

- The landmark Medical Research Council Vitamin Study (1991), published in *The Lancet*, conclusively established the preventive role of folic acid.
- Globally, 68 countries have mandated folic acid fortification of staple foods, reducing Spina Bifida prevalence to below 1 per 1,000 births.
- India, however, has:
 - No nationwide awareness campaign
 - No mandatory food fortification with folic acid
 - Limited pre-conception counselling in public health programmes
- This policy inertia has transformed a preventable condition into a persistent public health burden.

Global Best Practices and Emerging Research

- Many countries combine public awareness campaigns with mandatory food fortification.
- Ongoing research explores fortification of universally consumed items like salt and tea.
- A preliminary Indian trial published in *BMJ Nutrition, Prevention & Health* suggests tea fortification with folate and vitamin B12 could be effective and culturally acceptable.
- Experts such as Vijaya Kancharla from the Emory University emphasise prevention as a cost-effective strategy—₹1 spent on prevention saves over ₹100 in treatment and rehabilitation.

Conclusion

Spina Bifida in India is emblematic of a broader challenge in health governance—the neglect of low-cost, high-impact preventive interventions. Universal awareness about folic acid supplementation and exploration of mandatory food fortification are no longer optional but imperative. As India seeks to reduce under-five mortality, disability burden, and healthcare costs, prioritising prevention of neural tube defects offers a clear, evidence-based pathway. Until every woman is empowered with this

knowledge and the health system institutionalises prevention, the promise of inclusive and ethical public health remains unfulfilled.

UPSC Prelims Exam Practice Question

Ques : Which of the following best explains the role of folic acid in human health?

- (a) It prevents protein-energy malnutrition
- (b) It plays a key role in neural tube development during early pregnancy
- (c) It enhances calcium absorption in bones
- (d) It regulates insulin secretion

Ans: b)

UPSC Mains Exam Practice Question

Ques : Discuss the role of micronutrient fortification as a cost-effective public health intervention. How can India leverage food fortification to address neural tube defects? **(250 words)**

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Over the last decade, the Indian Space Research Organisation (ISRO) has transformed India into a credible space power, marked by routine satellite launches, deep-space missions, and global collaborations. Achievements such as Chandrayaan-3, Aditya-L1, and the joint NISAR mission have raised expectations from the national space programme. The article argues that ISRO has now entered a phase where institutional performance, governance clarity, and ecosystem depth matter more than isolated technological feats.

ISRO and the next big challenge

ISRO's past accomplishments raise the bar for future missions as it prepares in parallel for more complex programmes; the next phase depends less on individual feats and more on sustained institutional performance, clearer legal structures, and the capacity to execute ambitious missions in a routine way

FULL CONTEXT

Vandana Mahant

The record of the Indian Space Research Organisation (ISRO) over the last decade has been remarkably broad for an agency of its size and budget.

Its rockets, especially the Polar Satellite Launch Vehicle (PSLV), have sustained reliable access to orbit, rendering operations with multiple satellite classes almost a matter of routine today. And ISRO is attempting even more technically demanding missions. The soft landing of the Chandrayaan-3 lander on the moon on August 23, 2023, placed India in a circle of countries with demonstrated lunar-landing capability.

The Aditya-L1 probe reached its intended halo orbit around the first sun-earth Lagrange point on January 6, 2024, adding a dedicated solar observatory mission to ISRO's portfolio. In July 2025, ISRO executed a prominent international collaboration by launching the billion-dollar NASA-ISRO Synthetic Aperture Radar (NISAR) mission, an earth-observation platform for climate and hazard monitoring.

Preparing in parallel

The thing about succeeding in such a consistent way is that it also raises the bar for future accomplishments. It no longer matters that ISRO had humble beginnings, or that it transported parts of its first rocket on a bullock cart. From launching the Rohini or the CALS (Rohini's first down or so times is awesome, but being able to do that also changes what comes next. And it will be good for ISRO to be able to access that new opportunity space, and without taking too long to do so. Otherwise, it will have some difficult questions to answer.

Today, on the cusp of Chandrayaan-4, and the next Generation Launch Vehicle (NGLV), among others, ISRO's major challenges can be distilled to three: (i) its capacity to execute increasingly complex missions; (ii) questions about how clearly the space programme is and can be governed in a newly liberalised sector; and (iii) constraints on ISRO's competitiveness that arise as industrial and financial growth.

First, ISRO currently confronts a deeply structural problem: the organisation prepares in parallel for the human spaceflight mission, complex science missions, satellite replacement, and the development of NGLV, a more powerful launch vehicle (SLV may be 'balubali' but it's still only in the medium life category), its annual launch cadence and project timelines have become an increasingly obvious bottleneck. Experts have linked its low number of launches in 2023 – only two against the then ISRO chairman V. Somnath's projection of an also-low eight – to project delays and to the organisation shifting towards high-ticket programmes. At the same time, private launch providers still depend heavily on ISRO facilities and infrastructure, meaning the system can't yet afford work at scale. The implication is that when a mission suffers an anomaly, it has cascading effects.

To prevent this ISRO needs more integration capacity, better access to test stands, industrial supply chains for structures and avionics, and a workflow that can absorb setbacks without freezing unrelated programmes or cramping their timelines. Perhaps the first step could be an internal scheme to help scientists and



On track: The PSLV launch vehicle at Sriharikota ahead of its mission to launch the Chandrayaan-3 satellite on October 24, 2023, India

engineers determine which mission's timelines are allowed to slip and for what particular reason, together with separate resource allocations for ISRO vehicles and operational vehicles and creating new capacity in the industrial base. The ultimate aim should be for ISRO to not simultaneously be the designer, the integrator, and the homemaker for all missions.

ISRO pulled in
Second, ISRO's role in India's liberalised space and spaceflight ecosystem – since the national government's 2020 reforms is conceptually clear only on paper. The principal issue here is that India still lacks a comprehensive national space law. The Indian Space Policy framework, the Indian National Space Promotion and Authorization Centre (IN-SPACe) and New Space India Ltd. (NSIL), created in 2019-2020, were meant to separate functions. Research and advanced capability development would lie with ISRO, authorisation and promotion with IN-SPACe, and commercialisation with NSIL.

But for all of them to execute those functions efficiently, they need statutory authority and clearer legal allocation of obligations, especially those pertaining to authorisation, liability, insurance, and resolving disputes.

A national space law wouldn't merely help startups; it would also protect ISRO by reducing the ad hoc demands placed on it because it's still perceived as a

fallback regulator and technical certifier for everything. If IN-SPACe is to be the authorising body, it needs to have legal authority. If NSIL is to be the commercial arm, it shouldn't be in a situation where, if a commercial mission fails, creates third-party liabilities or whatever, nobody can say in advance who is responsible for what. Leaving ISRO to be pulled in by default because it's the most capable state actor. And if ISRO is to focus on frontier capabilities, it needs to be insulated from routine tasks, like booking and operating test stands or coordinating spectrum allocation, that actually should be performed by an industrial and regulatory ecosystem.

Finally, like most laws, a space law – and thus the activities it supports – would also survive political and administrative changes.

Sustained performance

Third, ISRO's competitiveness increasingly resembles an ecosystem problem. The world is moving towards more frequent launches by providers, partially reusable launch vehicles, and rapid satellite constellations. India needs to respond with more than by expanding its engineering ambitions. The Indian government's own framing of the NGLV, linking the space programme's future goals to its "high payload capability" and "reusability", including a reusable first stage and the ability to lift up to 30 tonnes to low earth orbit, acknowledges that economic launches

and agility are now central, rather than for everything. ISRO's status of enterprise that operates launch vehicles. And building such systems and operating them in turn requires more production depth, advanced manufacturing capabilities, higher production capacity, and much more capital.

Investment in India's space sector fell sharply in 2024, reflecting both global headwinds and the specific difficulties of financing hardware that is developed and deployed on long horizons. IN-SPACe has in response launched a technology adoption fund aimed at helping firms bridge prototypes with scalable products and at reducing import dependence among other funding instruments.

ISRO's past accomplishments have earned it political capital and public trust but the next phase depends less on individual feats and more on sustained institutional performance. The capacity to execute will determine whether the Indian space programme will also be able to deliver ambitious missions in a routine way. And within that context, governance and law will say whether the government's efforts to liberalise the sector will reduce ISRO's burden or, counterintuitively, expand it. Similarly, ISRO's ability to compete will depend on whether the programme can transition from executing a series of individually laudable missions to being an industrial system, and for this engineering, regulation, manufacturing, and finance will have to mature together.

THE GIST

ISRO's consistent success raises the bar for future accomplishments as it prepares in parallel for more complex programmes; the next phase depends less on individual feats and more on sustained institutional performance, clearer legal structures, and the capacity to execute ambitious missions in a routine way

In a newly liberalised space sector, the absence of a comprehensive national space law leaves ISRO pulled in by default, even as clearer legal allocations of authorisation, liability, and commercial responsibility are expected to insulate it from routine tasks.

The transition from individual feats to sustained institutional performance depends on competitiveness that is as much of and financial as it is technological, requiring production depth, advanced manufacturing, and an ecosystem that allows missions to become routine.

ISRO's Recent Achievements: Setting a Higher Bar

- Launch reliability: PSLV has made access to space almost routine for multiple satellite classes.
- Technological leap: Soft lunar landing (Chandrayaan-3) placed India among a small group of lunar-capable nations.
- Scientific expansion: Aditya-L1 added space-based solar observation.
- International credibility: NISAR demonstrated ISRO's capacity for billion-dollar global collaborations.
- These successes have shifted the benchmark—from can ISRO do it? to can ISRO do it repeatedly, at scale, and on schedule?

Key Challenges Identified

1. Capacity and Prioritisation Constraints

- ISRO is preparing in parallel for:
- Gaganyaan (human spaceflight)
- Chandrayaan-4 and advanced science missions
- Satellite replenishment
- Next Generation Launch Vehicle (NGLV)

However:

- Low launch cadence (5 launches in 2025) reflects integration and testing bottlenecks.
- ISRO remains simultaneously designer, integrator, and infrastructure provider, creating systemic congestion.
- Private launch providers still depend heavily on ISRO facilities, limiting offloading of work.

Analytical Insight: Without expanding industrial integration capacity and separating R&D from operational launch systems, any anomaly in one mission can cascade across the entire programme.

2. Governance and Legal Vacuum in a Liberalised Space Sector

India's space reforms (post-2020) created:

- IN-SPACe – promotion and authorisation
- New Space India Limited (NSIL) – commercialisation
- Yet, India lacks a comprehensive national space law.

Consequences:

- Ambiguity in liability, insurance, dispute resolution, and authorisation.
- ISRO is often pulled in as a default regulator and certifier, increasing its administrative burden.
- Weak statutory backing undermines institutional separation.

3. Competitiveness as an Ecosystem Problem

- The global space sector is moving towards:
- High launch frequency
- Partial and full reusability
- Rapid satellite manufacturing

India's response:

- NGLV aims for reusability and heavy-lift capability (up to ~30 tonnes to LEO).
- Recognition that economic viability and agility are as important as engineering ambition.

However:

- Space-sector investment in India fell sharply in 2024.

- Hardware-intensive space ventures face long gestation and capital risks.
- IN-SPACe's technology adoption fund is a positive but limited step.

Analytical Insight: ISRO's future competitiveness depends not only on rockets but on manufacturing depth, finance, supply chains, and regulatory predictability maturing together.

Conclusion

ISRO's past achievements have earned India global credibility and domestic trust, but they also redefine the challenge ahead. The next phase of India's space journey will be judged not by symbolic milestones but by the ability to deliver complex missions routinely, affordably, and predictably. Achieving this transition requires stronger legal frameworks, clearer institutional roles, expanded industrial capacity, and sustained investment. Only then can ISRO evolve from a mission-driven organisation into a resilient spacefaring system, capable of matching ambition with execution in a competitive global environment.

UPSC Prelims Exam Practice Question

Ques : Which of the following best explains the need for a comprehensive national space law in India?

- (a) To replace ISRO with private space companies
- (b) To define liability, authorisation, insurance, and dispute resolution in space activities
- (c) To restrict foreign collaboration in space missions
- (d) To bring space activities exclusively under the Defence Ministry

Ans: b)

UPSC Mains Exam Practice Question

Ques : Examine how the development of the Next Generation Launch Vehicle (NGLV) reflects the changing global economics of space activities. **(250 words)**

GSDP share as criterion for central-State transfers

The central government shares its gross tax revenues with States based on the recommendations of successive Finance Commissions (FCs), which determine both the overall share to States and the formula for tax devolution. The Centre also transfers resources through grants-in aid and centrally sponsored schemes (CSS). While the recommendations of 15 FCs have been implemented, those of the 16th FC have yet to be tabled in Parliament.

Central transfers have become a subject of intense debate. Key concerns include the erosion of the fiscal autonomy of States following the implementation of Goods and Services Tax (GST), revenue losses arising from GST rate cuts, the increasing dominance of CSS that constraint State-level spending flexibility, the Centre's growing cesses and surcharges that are not shared with States, and declining devolution shares of high-performing States. Moreover, most FCs have prioritised equity over efficiency, having relied heavily on debatable criteria such as income distance and population, and frequently altered the weights assigned to these variables. Significant regional disparities also persist across States in expenditure needs and fiscal capacity.

Tax collection versus tax contribution

States such as Karnataka, Maharashtra and Tamil Nadu argue that they contribute disproportionately to central tax revenues but receive relatively smaller shares through tax devolution. This claim, however, is often contested on the grounds that direct tax figures reflect the location of collections rather than the



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Sankarganesh Karuppiiah

is an IRS officer

GSDP share is a meaningful indicator of the accrual of central taxes at the State level

actual place where income is generated. Individuals and companies may pay taxes in locations different from where economic activity occurs.

For example, automobile manufacturers in Tamil Nadu may sell vehicles across India, but their tax payments are recorded in the State where their registered office is located. Similarly, plantation companies in Kerala earn profits nationwide, though taxes are paid in Kerala.

Therefore, jurisdiction based on PAN data fails to accurately capture State-wise contributions to direct taxes. This is due to the presence of multi-State firms, labour migration, temporary or multi-location work arrangements, and the absence of detailed data on inter-State transactions among associated enterprises. Therefore, an indirect and more reliable proxy is needed to estimate the accrual of central taxes at the State level.

GSDP as proxy for State-level tax accrual

Although the Centre levies direct taxes, Gross State Domestic Product (GSDP) represents the underlying tax base within each State. If tax administration efficiency is broadly uniform across States and the ratio of direct tax revenue to GSDP does not vary significantly, a State's share in national GSDP can reasonably approximate its contribution to central tax revenues. Since the GST is destination-based and the principal source of indirect taxation, its attribution across States is relatively uncontroversial.

Empirical evidence supports this approach. Using 2023-24 data, the correlation between States' GSDP and direct tax collections is 0.75,

while the correlation between GSDP and GST collections is as high as 0.91. This strong relationship suggests that GSDP share is a meaningful indicator of the accrual of central taxes at the State level.

From 2020-21 to 2024-25, the Centre devolved 41% of its gross tax revenues to States in line with the 15th FC's recommendations, along with additional transfers through grants-in-aid and CSS. According to the Ministry of Finance (Rajya Sabha Unstarred Question No. 236, dated December 2, 2025), total transfers during this five-year period amounted to ₹ 75.12 lakh crore (see Table).

Uttar Pradesh received the largest share of transfers (15.81%), followed by Bihar (8.65%), and West Bengal (6.96%). However, these States accounted for only 4.6%, 0.67% and 3.99%, respectively, of combined direct tax and GST collections. In contrast, Maharashtra contributed the highest share of tax collections (40.3%), but received only 6.64% of total transfers. Karnataka and Tamil Nadu contributed 12.65% and 7.61%, while receiving 3.9% and 4.66%, respectively. Haryana (1.1%), Himachal Pradesh (1.58%) and Uttarakhand (1.65%) received low shares of transfers, despite contributing 5.39%, 0.43% and 0.81%, respectively.

The 15th FC's devolution shares show an almost perfect correlation (0.99) with actual transfers over the five-year period, but a weak correlation (0.24) with tax collection shares. By contrast, GSDP shares display a high correlation with tax collections (0.81) and a moderate correlation with devolution shares (0.58). This suggests that GSDP strikes a balance between efficiency, by reflecting tax contributions, and equity, by allowing redistribution.

Only in Haryana, Karnataka and Maharashtra, the GSDP share is less than tax collection share, likely due to the concentrations of registered offices of multi-State firms. In Tamil Nadu, GSDP share exceeds tax collections, reflecting production activity whose tax payments are recorded elsewhere.

Gainers, losers under a GSDP-based formula

If total central transfers were distributed purely on the basis of GSDP shares, nine of the 20 major States would gain. Maharashtra, Gujarat, Karnataka and Tamil Nadu would benefit the most, while Uttar Pradesh, Bihar and Madhya Pradesh would experience the largest reductions. Importantly, these gains and losses would be moderate, as GSDP shares differ less sharply from tax collection shares than current devolution outcomes.

A higher weight for GSDP share would better reflect the accrual of central tax revenues, acknowledge the contributions of States to national income, and improve the perceived fairness and the credibility of India's inter-governmental fiscal transfer system.

The views expressed are personal

Central tax collections, transfers and GSDP

GSDP, reflecting accrual of central taxes, strikes a balance between efficiency and equity in tax devolution

State-wise direct tax and gross GST collections, central transfers and GSDP from 2020-21 to 2024-25

States	Direct tax and GST collection		Central transfers		FC devolution	GSDP		Transfers using GSDP share	Loss or gain
	(₹ lakh crore)	% share	(₹ lakh crore)	% share		(₹ lakh crore)	% share	(₹ lakh crore)	(₹ lakh crore)
Andhra Pradesh	3.32	2.97	3.23	4.30	4.07	64.35	4.97	3.74	0.51
Assam	0.75	0.67	2.93	3.90	3.13	24.48	1.89	1.42	-1.51
Bihar	0.76	0.68	6.5	8.65	10.06	38.48	2.97	2.23	-4.27
Chhattisgarh	1.68	1.50	2.36	3.14	3.41	23.03	1.78	1.34	-1.02
Gujarat	7.69	6.88	2.55	3.39	3.48	108.38	8.37	6.29	3.74
Haryana	6.02	5.39	0.83	1.10	1.09	48.82	3.77	2.83	2.00
Himachal Pradesh	0.48	0.43	1.19	1.58	0.83	9.58	0.74	0.56	-0.63
Jharkhand	1.58	1.41	2.22	2.96	3.31	20.69	1.60	1.20	-1.02
Karnataka	14.14	12.65	2.93	3.90	3.65	113.94	8.80	6.61	3.68
Kerala	1.81	1.62	2.03	2.70	1.93	51.19	3.96	2.97	0.94
Madhya Pradesh	2.17	1.94	5.56	7.40	7.85	61.26	4.73	3.56	-2.00
Maharashtra	40.3	36.06	4.99	6.64	6.32	179.83	13.90	10.44	5.45
Odisha	2.61	2.34	3.32	4.42	4.53	36.40	2.81	2.11	-1.21
Punjab	1.47	1.32	1.57	2.09	1.81	34.71	2.68	2.02	0.45
Rajasthan	2.83	2.53	4.57	6.08	6.03	67.96	5.25	3.94	-0.63
Tamil Nadu	8.5	7.61	3.5	4.66	4.08	120.41	9.30	6.99	3.49
Telangana	4.32	3.87	1.84	2.45	2.10	64.81	5.01	3.76	1.92
Uttar Pradesh	5.14	4.60	11.88	15.81	17.94	116.28	8.98	6.75	-5.13
Uttarakhand	0.9	0.81	1.24	1.65	1.12	14.84	1.15	0.86	-0.38
West Bengal	4.46	3.99	5.23	6.96	7.52	74.64	5.77	4.33	-0.90
8 small States	0.82	0.73	4.63	6.16	5.79	20.07	1.55	1.17	-3.46
Total	111.75	100.00	75.12	100.00	100.02	1294.15	100.00	75.12	0.00

GS Paper III : Indian Economy

UPSC Mains Practice Question : The use of Gross State Domestic Product (GSDP) as a criterion for Centre-State fiscal transfers can help reconcile the competing objectives of equity and efficiency in India's fiscal federalism. Critically examine this statement in the context of Finance Commission devolution and post-GST Centre-State relations. (150 words)

Context :

The debate on Centre–State fiscal relations has intensified ahead of the recommendations of the Sixteenth Finance Commission. States have increasingly questioned the fairness, efficiency, and transparency of India’s tax devolution framework, especially after the introduction of GST and the growing reliance on cesses, surcharges, and centrally sponsored schemes (CSS). Against this backdrop, the article argues for Gross State Domestic Product (GSDP) share as a more balanced and credible criterion for determining central transfers to States.

Context: Why the Debate Has Intensified**Key structural concerns in India’s fiscal federalism include:**

- Erosion of fiscal autonomy of States post-GST.
- Revenue uncertainty due to GST rate rationalisation and compensation issues.
- Rising share of cesses and surcharges, which are not devolved to States.
- Dominance of CSS, constraining State-level expenditure flexibility.
- Perceived decline in devolution to economically high-performing States.
- Traditionally, Finance Commissions have prioritised equity, relying heavily on criteria such as population and income distance, often at the cost of efficiency and contribution recognition.

Tax Collection vs Tax Contribution: The Core Problem

- High-income States like Maharashtra, Tamil Nadu, Karnataka, and Gujarat argue that they contribute disproportionately to central taxes but receive relatively smaller transfers.
- This claim is often countered by pointing out that direct tax collections reflect the place of registration, not necessarily the location of economic activity.
- Factors such as:
 - Multi-State firms
 - Migrant labour
 - Centralised corporate headquarters distort State-wise tax attribution based on PAN data.
- Inference: Direct tax collection data is an imperfect indicator of a State’s real contribution to national revenue.

GSDP as a Proxy for State-Level Tax Accrual

- The article proposes GSDP share as a pragmatic and data-consistent proxy because:
- GSDP reflects the underlying economic activity and tax base of a State.
- Assuming broadly uniform tax administration efficiency, a State’s share in national GSDP approximates its contribution to central taxes.
- GST, being destination-based, already allows relatively uncontroversial attribution.

Empirical Support:

- Correlation between GSDP and direct tax collections: 0.75
- Correlation between GSDP and GST collections: 0.91
- Correlation between current devolution shares and tax collections: only 0.24
- This indicates that GSDP captures efficiency (contribution) better than existing devolution criteria, while still allowing room for redistribution.

Winners and Losers under a GSDP-Based Formula

- Gainers: Maharashtra, Gujarat, Karnataka, Tamil Nadu
- Losers: Uttar Pradesh, Bihar, Madhya Pradesh

However, the article notes that:

- Gains and losses would be moderate, not disruptive.
- GSDP shares are less skewed than actual tax collection shares.
- Thus, GSDP offers a middle path between pure equity and pure contribution-based devolution.

Conclusion

The proposal to assign a higher weight to GSDP in Centre–State transfers addresses a fundamental credibility deficit in India’s fiscal federalism. By better reflecting the accrual of central taxes, acknowledging States’ contributions to national income, and still permitting redistribution, GSDP-based devolution can improve both efficiency and perceived fairness. As the Sixteenth Finance Commission deliberates, incorporating GSDP meaningfully into the transfer formula could strengthen cooperative federalism and ensure the long-term sustainability of India’s inter-governmental fiscal framework.
