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Budget 2025-26: A promising first step, but many miles to go

Despite India improving significantly in the ease of doing business ranking between 2014 to 2019, there is still a lot of scope for further simplification; in this context, not enough is being said about the proposed reforms in the Budget aimed at making Indian cities and corporates more competitive

COMMENT

Shishir Gupta and Rishita Sachdeva

Real risk: Deceleration in urban productivity growth does not augur well for overall growth. SANSAD TV

The Union Budget unveiled on February 1, 2025, has come at a timse of unprecedented global uncertainty and a flagging domestic economy. The real GDP growth is estimated at 6.4% for 2024-25 and between 6.3-6.8% for 2025-26, a far cry from greater than 8% growth required annually to make India a developed nation by 2047. While much attention has been devoted to the demand stimulus through income tax cuts, not enough is said about the proposed reforms in urban development, tariff rationalisation, and regulatory simplification aimed at making Indian cities and corporates more competitive. Since the majority of economic activity is located in cities (urban areas account for ~55% of GDP) and produced by large corporates (~40% of the national output and 55% of India's exports), the above-mentioned reforms have a pivotal role in improving India's trend growth rate. We unpack each reform.

The government has identified "urban development" as one of the key growth pillars. World over, urbanisation and economic growth go hand in hand, and India is no exception. What makes prioritising cities important now is that the urban share of GDP has remained stagnant between 52-55% from 2000-2020. Given that the urban share of the population has continued to increase during this period, this implies that per capita urban income grew slower than rural during this period. Since our cities are at least three times more productive than their rural counterparts, deceleration in their productivity growth does not augur well for overall growth.

Poor growth performance in urban areas could be directly related to the quality of life our cities offer. For example, though 95% of municipal waste is collected, only 50% is treated. Water availability is about 115 lpcd (litre per capita per day) in big cities compared to the benchmark of 135-150 lpcd. And the price-to-income ratio (PTI)—the price to buy a 950 sq. feet apartment by the median earning household—is 11 in our cities as opposed to the affordability benchmark of 5.

> The urban share of GDP has remained stagnant between 52-55% from 2000-2020, implying that per capita urban income grew slower than rural in this period

Sub-optimal service delivery is due to many factors, with lack of funds being one of them. Indian cities spend about a quarter on urban infrastructure of what needs to be spent. The Centre's proposal to set up an Urban Challenge Fund of ₹1 lakh crore is an interesting idea to push urban infrastructure build-out. The proposed Fund should incorporate elements of expenditure efficiency, transparent planning, and stable governance to move the needle on service delivery.

Unaffordable housing

Not just inadequate delivery of civic services, Indian cities also suffer from high housing prices. Globally, housing affordability moves together with the degree of transparency in the real estate industry. India is currently part of the 'semi-transparent' set of countries and its PTI of 11 is consistent with this level of transparency. One of the key reasons for the semi-transparent market is the lack of credible and rigorous land use planning and implementation. Improving house price affordability requires releasing (developable) land supply transparently. This will increase competition in the sector by enabling and encouraging the entry of new real estate developers, putting pressure on prices, and in turn, improving affordability.

This begs the next question, who will implement these reforms? Since all of the above (and more) fall under the domain of the third tier, the obvious answer is the city leadership. However, in reality, it falls through the crack given that the average tenure of a municipal commissioner is just 10 months, leaving little time or incentive for any meaningful contribution.

Together with the urban push, the Budget has also reduced the Basic Customs Duty (BCD) on imports to increase competition in the domestic economy. By reducing the BCD on a range of products like chemicals and pharmaceuticals, and capital goods used in lithium-ion battery production, the average tariff rate has gone down from more than 13% to about 10.5%. This is a welcome step. High tariffs raise costs and are counter-productive, as it increases the price for domestic consumers and producers, making it difficult for them to join the global value chain. For example, an Apple phone costs about 20% more in India due to a tariff of a similar level on imports of such phones.

However, a lot more remains to be done; the corresponding tariffs range between 1-3% for countries like Vietnam, the Philippines, and China. An equally important step would also be to consider removing the AIDC (Agriculture Infrastructure Development Cess) that is imposed on several products to keep the effective rate of protection the same as before. Finally, despite India improving significantly in the ease of doing business ranking between 2014 to 2019, there is still a lot of scope for further simplification. The proposal to constitute a High-Level Committee for Regulatory Reforms is just a step in the right direction and should be implemented in a time-bound manner.

(Shishir Gupta is a Senior Fellow and Rishita Sachdeva is a Research Associate at the Centre for Social and Economic Progress.)

What has the Budget offered scientists?

The Union Budget for 2025-26 provided an overall and possibly unprecedented thrust on research and innovation, especially in the private sector. The Budget's support for private sector research is expected to accelerate advancements in areas such as gene-editing, personalised medicine, and sustainable agriculture

FULL CONTEXT

T.V. Padma

What does India's 2025-2026 Union Budget spell for India's research ecosystem? The author asked seven scientists and science administrators. Their replies are presented below, edited for clarity.

Read the full version online here: bit.ly/scientistsbudget

Abhay Karandikar, Secretary, Department of Science & Technology: The Budget provides an overall and possibly unprecedented thrust on research and innovation by setting aside ₹20,000 crore for the Department of Science & Technology (DST), and towards research in the private sector, including corporates and startups. There is a focused attempt to bring together academia, the private sector, and startups to work on national missions.

The dedicated fund of ₹20,000 crore is part of the ₹1 lakh crore corpus fund announced in the Budget of July 2024 to boost private sector R&D, especially in the deeptech and sunrise sectors. The DST will be the nodal ministry driving this fund. This will be a major step towards creating strategic autonomy in some key technology sectors. The National Geospatial Mission has been allocated ₹100 crore for FY 2025-2026 to develop foundational geospatial infrastructure and data. The mission will help implement the National Geospatial Policy 2022, with the goal of expanding the access and use of geospatial data and making India a world leader in the geospatial sector.

The Finance Minister has announced several initiatives to boost science, and innovation in the country including the Nuclear Energy Mission, clean tech initiatives, Atal Tinkering Labs etc.

Rajesh Gokhale, Secretary, Department of Biotechnology (DBT): The Union Budget demonstrates a commitment to advancing India's biotechnology sector, which aligns closely with the DBT's objectives. The ₹3,446.64 crore allocation reflects a significant increase of 51.45% from the previous year's allocation.

Recently, the government also approved the 'Bio-RIDE' scheme to foster innovation, promote bio-entrepreneurship, and strengthen India's position as a global leader in biomanufacturing and biotechnology.

The Budget's support for private sector research is expected to accelerate advancements in areas such as gene-editing, personalised medicine, and sustainable agriculture. The proposal for a light-touch regulatory framework based on principles and trust is a progressive step. Aligned with the government's 'BioE3 Policy' for fostering high-performance biomanufacturing, the National Manufacturing Mission (NMM) announced in the Budget aims to accelerate technology development and commercialisation.

The National Mission on High Yielding Seeds will focus on strengthening the research ecosystem and developing high-yielding, pest-resistant, and climate-resilient seeds. Similarly, some of DBT's initiatives contribute to self-reliance programmes, such as the mission on minor oil seeds. Another is a mission programme on "Characterisation of Genetic Resources", to sequence/re-sequence and characterise available germplasm resources of pulses.

ISTOCKPHOTO

N. Kalaiselvi, Director-General, Council of Scientific and Industrial Research (CSIR): The Budget reinforces science, technology, and innovation (STI) as key enablers of national progress, aligning with CSIR's vision of advancing self-reliance and global competitiveness. The Budget's focus on public-private partnerships, industry collaboration, and technology-driven entrepreneurship will accelerate innovation in manufacturing, healthcare, and sustainability.

For agriculture and rural prosperity, CSIR's Aroma and Floriculture Missions align with the Agri-Districts Initiative, promoting value-added farming and boosting farmer incomes. Similarly, CSIR's Millets Mission supports self-reliance in the farming of pulses and oilseeds, ensuring nutritional security and climate-resilient farming. The CSIR Cotton Mission aligns with the National Cotton Mission, strengthening India's position in global textile markets.

The Indigenous Manufacturing and Smart Packaging Missions find synergy with the NMM, driving innovation-led industrial growth. The Green Hydrogen Mission, spearheaded by CSIR, supports the clean energy transition.

For youth-skilling, CSIR's Jigyasa Programme complements Atal Tinkering Labs, fostering STEM education and research exposure. The Seaweed Mission and Learn & Earn Program empowers women entrepreneurs, supporting economic inclusion. Additionally, CSIR's Footwear for Healthcare and India Footwear Sizing Program align with the leather sector's initiatives. This Budget cements CSIR's pivotal role in nation-building and reinforces STI as the foundation for a self-reliant, inclusive, and globally competitive India.

K.S. Parthasarathy, former Secretary, Atomic Energy Regulatory Board: The Central government's ambitious programme to enhance the share of nuclear power to 100 GWe by 2047 and to invest heavily to support associated R&D is challenging to all stakeholders. Accepting private sector participation in the nuclear sector adds a new dimension to the programme. Success in the project to develop and install Small Modular Reactors (SMRs) is essential in India's energy transition. As per the International Atomic Energy Agency (IAEA), SMRs are nuclear reactors with a power generating capacity of 300 MWe equivalent or less.

The Atomic Energy Regulatory Board (AERB) has implemented measures to regulate the safety of VVER Russian reactors, pressurised heavy water reactors of 700 MWe etc, all of which include first of its kind technologies.

AERB's reports to the IAEA Convention of Nuclear Safety reveal how openly and transparently it has been fulfilling its mandate. AERB staff updates its knowledge and expertise in safety-related disciplines associated with new technologies. It has linkages with the U.S. Nuclear Regulatory Commission and the French regulatory agency among others, and exchanges its experience regularly.

C.P. Rajendran, National Institute of Advanced Studies, Bengaluru: The Budget infuses significant funding for science and technology and for the DBT, whereas the allocation for the Department of Scientific and Industrial Research is nominal.

The importance of curiosity-driven science doesn't seem to be a major priority. Much of the funding appears directed towards mission-mode programmes such as nuclear energy, AI, private sector initiatives, etc. The government also plans to amend the Nuclear Liability and Damage Act 2010 that makes operators liable for nuclear damage. This will have serious ramifications. Many experts have raised concerns about SMRs.

The Finance Minister also announced the expansion of the Small Industries Development Bank of India Fund for Startups with an additional ₹10,000 crore corpus to enhance the "deeptech ecosystem" in startups focused on AI, biotech, and space technology. India had over 3,600 deeptech startups in 2023. In that year, they raised $850 million, reflecting a 77% decrease from 2022 due to investors' lack of confidence regarding investment returns.

Curiosity-driven research is propelled by scientists' curiosity regarding specific research questions. What I observe is a growing corporatisation of science driven solely by immediate utility. Another critical issue is the rigid bureaucracy surrounding funding, which has created significant problems over the years.

Tapasya Srivastava, University of Delhi, South Campus: The Budget meets the increasing needs of health research and biomedical devices, given that the Economic Survey recognised the physical and mental harms of ultra-processed food leading to non-communicable diseases.

The percentage increase from the Revised Estimate of 2024-2025 to Budget Estimate of 2025-2026 for Central universities (4.3%) is about half of that given to IITs (8.4%), which is disappointing given the number of students and the overhauling with respect to the National Education Policy (NEP) that universities are going through. These changes require unprecedented support from the government, which is not evident looking at these numbers.

It would have been more meaningful if the Prime Minister's Research Fellowship became an interim research fellowship of a reasonable amount that replaces the abysmally low ₹8,000 non-NET UGC. The PMRF is competitive and, therefore, ends up mostly in labs with sufficient funding.

The AI bandwagon is something that all governments seem to want to rush into. The allocation has come into the Centre of Excellence in AI education and one hopes the Centre sets benchmarks for adoption in a way that truly benefits Indian society, beyond buzzwords.

With a significant number of youth struggling with mental health issues, overall health decline, reduced attention span and consumerism, the unprecedented advantage of a steady government to implement value-based learning and life skills in school education to bring about generational change appears to have been lost.

Soumitro Banerjee, IISER, Kolkata: The scientific community of India is dismayed to see the low financial allocation to sectors crucial for scientific development. The NEP-2020, adopted by the same government, recommended the expenditure on education be 6% of the GDP, which requires at least 10% of the Union Budget to be spent on education.

But since 2020, there has been no attempt to meet this target. This year the allocation is only 2.54%. This implies that through NEP-2020, the government is trying to change the structure and content of education without improving its quality. The direction of change is clear from the five-fold increased outlay for 'Indian Knowledge Systems'.

Basic science research has taken a backseat as the funding for IISc and the IISERs has been reduced. The UGC, which funds all universities, saw a drastic reduction in its budget last year (from ₹5,360 crore to ₹2,500 crore). Despite some increase this year (33% BE to BE), it is far below the pre-2024 figure.

T.V. Padma is a science journalist.

THE GIST

- The dedicated fund of ₹20,000 crore is part of the ₹1 lakh crore corpus fund announced in the Budget of July 2024 to boost private sector R&D, especially in the deeptech and sunrise sectors.
- The importance of curiosity-driven science doesn't seem to be a major priority. Much of the funding appears directed towards mission-mode programmes such as nuclear energy, AI, private sector initiatives, etc.
- Basic science research has taken a backseat as the funding for IISc and the IISERs has been reduced.

Centre's allocations for justice-related schemes fluctuate

Allocations for modernising State police forces are severely underutilised

DATA POINT

The Hindu Data Team

The Central government has consistently reduced budget allocations to certain justice-related schemes and projects since 2019, shows the recently released India Justice Report 2025-26.

Data also show that not only have allocations reduced, but also, only a fraction of the envisaged allocations was actually spent on these schemes.

The Modernisation Fund for the State Police Forces was formed to assist special projects and schemes that would upgrade the infrastructure of States' police as well as Crime and Criminal Tracking Network and Systems. **Chart 1** shows the Budget Estimates (BE), Revised Estimates (RE), and actual expenditure of the Modernisation Fund for the State Police Forces.

The Centre estimated a budget of almost ₹900 crore for FY19. This declined to around ₹780 crore in BE for FY21. In FY26, it has come down to ₹587.97 crore (BE).

While these figures are for BE, RE show a drastic reduction in allocations. For instance, the ₹780 crore that was budgeted in FY21 was revised to ₹106 crore. Such over-estimations in BE and drastic downward revisions in RE can be seen across most years. In FY25, the allocation for the fund was estimated to be ₹520.51 crore and was revised in the following year to ₹160 crore.

More importantly, the amount actually spent was even lower than the RE in most recent years. Despite an allocation of more than ₹600 crore in FY23, only ₹34.7 crore was actually spent on the modernisation of State police forces. This is about 6% of the allocation. Similarly, only 20-25% of the budgeted amounts were spent in FY21, FY23, and FY24.

The newly introduced Modernisation of Forensic Capacities is aimed at improving forensic testing infrastructure across the country and addressing the shortage of forensic scientists. **Chart 2** shows the allocation of funds for the Modernisation of Forensic Capacities. There was a stark increase and then a decrease in allocations over the past few years for this scheme.

The Ministry of Home Affairs also introduced the Modernisation of Prisons Fund more than two decades ago, which aims to improve the living conditions of prisoners, renovate existing prisons, and build new cells. **Chart 3** shows the budgetary allocations for it. Despite an initial increase in budgetary allocations for this scheme, which peaked at ₹400 crore in FY23, allocations have come down to ₹300 crore each in the last two years. Until FY23, the allocation was wholly utilised, after which only 44% of the budgeted fund was utilised.

Alternatively, the schemes related to the judiciary have seen an optimal utilisation of funds over the past few years. **Chart 4** shows the BE and RE of allocations to the National Legal Services Authority (NALSA) from FY19 to FY25. Funds allocated to NALSA have increased since FY19, but have generally remained within the range of ₹150 crore to 200 crore, with the exception of the RE of FY24, during which it increased to ₹400 crore. NALSA has reported 100% utilisation of the budgeted amounts for all the years between 2018-19 to 2023-24.

Chart 5 shows the BE and RE of allocations for the development of infrastructure facilities for the judiciary from FY19 to FY26. This is a centrally sponsored scheme that was developed to enhance the judicial resources of State governments. Similar to NALSA, this fund has been utilised almost to its full potential across the past five financial years, but has seen a decrease in allocation from ₹1,123.40 crore (FY25) to ₹998 crore (FY26).

The paper trail

The data for the charts were sourced from the Central government's Budget documents and the India Justice Report 2025-26

Chart 1: Budget Estimates, Revised Estimates and actual expenditure of the Modernisation Fund for the State Police Forces (in ₹ crore)

Years	Budget Estimates (BE)	Revised Estimates (RE)	Actual Expenditure (AE)
2018-19	897.29	915.79	914.12
2019-20	959.8	939.79	929.58
2020-21	784.53	106.74	159.99
2021-22	668.5	240.49	170.45
2022-23	621.45	152.52	34.72
2023-24	264.12	221.16	65.28
2024-25	520.51	160.12	-
2025-26	587.97	-	-

Chart 2: The Budget Estimates of funds for the Modernisation of Forensic Capacities from FY23 to FY26. Figures in ₹

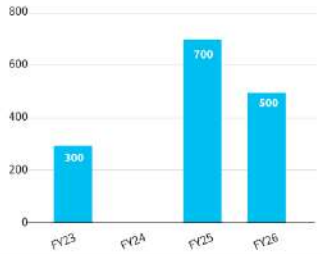


Chart 3: The allocation of funds for the modernisation of prisons from FY22 to FY26. Figures in ₹ crore

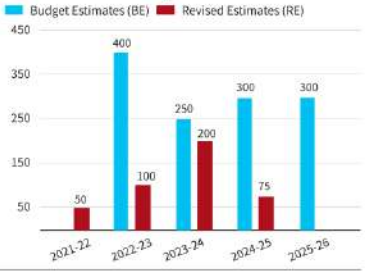


Chart 4: The BE and RE of allocations to the National Legal Services Authority (NALSA) from FY19 to FY25

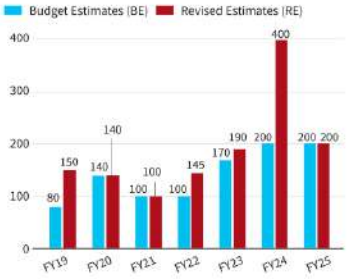
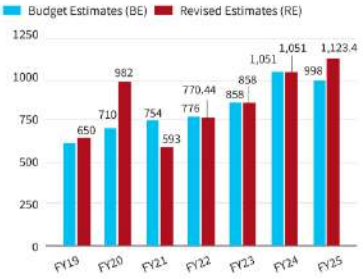


Chart 5: The BE and RE of allocations for the development of infrastructure facilities for the judiciary from FY19 to FY25



The problem of regulating live-in relationships

Shraddha Chaudhary

Assistant Professor, School of Law, BML Munjal University, Gurgaon

Uttarakhand recently implemented a Uniform Civil Code (UCC), governing various aspects of civil life. One of the novel aspects of the UCC is that it mandates compulsory registration of opposite-sex live-in relationships, and criminalises those engaged in unregistered non-marital cohabitation. While some of the provisions on live-in relationships are well intentioned, others are problematic and potentially dangerous.

Well intentioned, but...

The biggest concerns around non-marital cohabitation tend to be the protection of the interests of the party that is rendered needy (due to childcare or other household responsibilities or a lack of independent income, for example), and of the rights of any children born to the parties. The UCC goes some way towards addressing these concerns. It declares that children born in live-in relationships will be considered legitimate, which is an improvement on the existing position of law whereby only children born through void or voidable marriages (where a marriage takes place but is legally invalid) are deemed legitimate. The essential legal remedy of maintenance in the event of desertion by a live-in partner is also provided by the law, although desertion in this context remains undefined.

Two potential problems that might arise around these provisions need consideration. First, the maintenance provision might provide a legal recourse to a woman who has been deserted. However, there is no provision for maintenance upon termination (as opposed to desertion), and termination of a live-in relationship requires nothing more than a statement of termination to be submitted to the registrar by either party. This aligns with the informal and flexible nature of non-marital cohabitation but raises its own challenges. When a live-in relationship is terminated (without cause or scope for contestation), a woman may be left with no legal recourse despite needing continuing support. A related concern is that since only opposite-sex live-in relationships can be registered, the Uttarakhand government has left same-sex relationships entirely unprotected.

Second, the very definition of a 'live-in relationship' is nebulous and overbroad. Drawing from the Protection of Women from Domestic Violence Act, 2005, and case law on domestic violence, the UCC defines a 'live-in relationship' as a relationship 'in the nature of marriage'. But live-in relationships are frequently not in the nature of a marriage. Parties may not see themselves as being 'married in all but name'. Similarly, the one-month period provided for the registration of a live-in relationship appears to misunderstand the typical nature of such a relationship which does not usually have a formal date of commencement because the transformation of a casual sexual relationship, or non-cohabiting intimate sexual relationship, into a live-in relationship tends to be fluid. This legal-social mismatch is likely to compel the registration of sexual relationships that are, in fact, casual and do not require the kind of protections the UCC offers.

The right to sexual autonomy

There are graver problems with these provisions of the UCC. In *Shakti Vahini v. Union of India* (2018), the Supreme Court recognised an adult's right to positive sexual autonomy, encompassing the freedom to make one's own choices about whether and with whom to have sexual interactions. While this is not an unconditional right (being subject to the consent of the other party, laws on public decency, etc.), the essence of the right is that neither the state, nor an adult's family can interfere unreasonably with her consensual sexual choices. However, studies have demonstrated that parents and guardians, through legal (e.g., misuse of rape laws) and extra-legal (e.g., forms of social punishment including violence) means frequently undermine this right. Provisions regulating live-in relationships have the potential to enhance such parental control. The provisions in the UCC mandate that any live-in relationship be registered within one month of its commencement. While the age of sexual consent in India is 18 years, where either partner in the live-in relationship is younger than 21 years, the UCC states that information of the relationship will be sent to the person's parent/guardian. In addition to being an unjustified violation of the adult's right to privacy and sexual autonomy, this provision, by alerting disapproving parents/guardians to inter-caste or inter-religious relationships, in a context where honour-based violence is widespread, is dangerous.

The law also intensifies the control of the state over the sexual choices of individuals. The UCC requires that information of all registered live-in relationships be forwarded to the local police. Such a provision reflects a view of a live-in relationship as a potential law-and-order complication requiring state surveillance. This problematic understanding of the law is further reflected in the unsubstantiated criminalisation of the failure to register a live-in relationship for more than a month, or the refusal to register a live-in relationship after a notice to do so from the registrar – offences punishable by imprisonment and/or hefty fines.

In most jurisdictions which permit or mandate the registration of non-marital cohabitation, the purpose of the law is to extend welfare measures and safeguards available within a marriage to non-marital cohabitation. The Uttarakhand UCC, however, appears to conceptualise 'live-in relationships' as a problem to be solved through regulation. In doing so, the law erodes sexual autonomy and reinforces state and social control of sexual choices.

The Uttarakhand Uniform Civil Code erodes sexual autonomy and reinforces state and social control of individuals' sexual choices

Troubled waters

India and Sri Lanka must facilitate discussions among their fishermen

In the latest chapter of the long-standing fisheries dispute in the Palk Bay region, the Sri Lankan Navy arrested 14 fishermen from Tamil Nadu's Ramanathapuram district on February 8 for alleged poaching in waters north of Mannar. Two trawlers were also impounded. On January 27, the Navy had fired at an Indian boat near Delft Island, injuring two fishermen. With these arrests, the total number of Indian fishermen detained this year has risen to 77. Just last week, a Sri Lankan court had released nine fishermen from Karaikal, Puducherry, but one other person received a six-month prison sentence. Additionally, Sri Lankan courts have been imposing hefty fines, complicating their release. Government data over the past decade, based on responses in Parliament, show that in 2024, the number of Indian fishermen arrested in Sri Lanka crossed the 500-mark for the first time in 10 years (528). There were 787 arrests in 2014.

In a letter to External Affairs Minister S. Jaishankar on February 3, Tamil Nadu Chief Minister M.K. Stalin said that 97 fishermen and 216 fishing boats were still under the custody of Sri Lanka. Unlike in the past, when they were quickly released, recent years have seen rising convictions for violations of the International Maritime Boundary Line (IMBL) and unlawful fishing. While Tamil Nadu and Puducherry fishermen often cross the IMBL, their counterparts in Sri Lanka's Tamil-speaking Northern Province, who are still recovering from the civil war, oppose their fishing methods, particularly ecologically destructive bottom trawling. Northern Sri Lankan fishermen are seeking a sustainable solution that protects their waters from over-exploitative fishing. Indian fishermen have repeatedly sought a fresh round of talks with their Sri Lankan counterparts, with the last such meeting having taken place in November 2016. The issue was also raised in the most recent Joint Working Group meeting in Colombo last October. However, the Anura Kumara Dissanayake-led Sri Lankan government appears reluctant to negotiate. New Delhi and Colombo must recognise that a fresh approach is required to break the deadlock rather than continuing with a business-as-usual mindset. Unlike the cases of Indian fishermen detained in Pakistan, Bangladesh, Saudi Arabia, and Qatar, the arrests in Sri Lanka are significantly higher. New Delhi must introduce incentives to encourage Palk Bay fishermen to move away from trawling. While this shift will take time, both governments must facilitate immediate discussions between their fishing communities to find interim solutions. It is only through proactive diplomacy and sustainable fishing policies that this ongoing conflict can be addressed effectively.

India as a bridge between the Global North and South

In his address in January 2025, in Bhubaneswar, Odisha, while addressing the 18th Pravasi Bharatiya Divas convention, the Prime Minister, Narendra Modi, said, 'Today's India not only firmly asserts its own point but also strongly amplifies the voice of the Global South'. Similarly, when India held the 3rd Voice of Global South Summit 2024, last August, Mr. Modi said that India aspires to lead the required reforms to take developing countries into a new, more inclusive structure of global governance.

What has influenced India's renewed enthusiasm to champion the cause of the developing world? And, how can the country influence change to become an effective global development partner?

Unlike the Non-Alignment Movement (NAM), India's motivation does not appear to be based on decolonisation or strong criticism of the West. Rather, as India attempts to increase its presence in the Global South, it is simultaneously deepening its relationships with traditional partners such as the United States and Europe. The high-level visit of Jake Sullivan, the former U.S. National Security Adviser, in January, reflects this. Mr. Modi's visit to Poland, in August 2024, also shows India's attempt to create new alliances.

The China factor argument

The cynical answer often circles back to India trying to counter China's growing global dominance. Trends of foreign direct investments in Africa indicate that India appears to be in a race with China, mainly focusing on countries which already have a significant Chinese presence. Further, industrialised countries are thought to be strategically partnering with India to contain China's rising international footprint. The Quad partnership, an on-going dialogue between Japan, India, Australia and the U.S., for a free and fair Indo-Pacific, is seen as one such attempt. However, the India-China competition does not give the full picture.

India is trying to create an individual identity as an emerging power in its own right to forward its own strategic trade, defence, and geopolitical interests. Global South countries are disillusioned with present economic paradigms, burdened with debt and conditionalities. They are not looking for another China or a new western institution. India can fill this gap while being a bridge between the Global North and Global South. To be successful, India needs to back up its rhetoric with the right strategies.

Pooja Ramamurthi

is an Associate Fellow at the Centre for Social and Economic Progress (CSEP), New Delhi

New Delhi's aspiration to be the 'voice' of the Global South can take shape if it also learns to listen

Steps that India must take

The first is for India to double-down on its call for an alternate paradigm of development cooperation that is not solely top-down, dictated by the Global North. India often lays emphasis on equal partnerships with other developing countries, trying to set itself apart from traditional powers. In practice, it signals otherwise by putting forward strategies with an India-first approach.

The newly announced 'Global Development Compact' aimed at facilitating growth in the Global South, was described as rooted in Indian experiences and strategies. India's development story as an emerging power and being the world's largest democracy makes it unique. However, it does not hold all the policy answers. It would merit India to not only assert itself as a provider of knowledge but also be open to learning from other Global South countries to address its domestic challenges. Countries are bound to be more receptive toward a country that views them as partners. Otherwise, India may also be perceived as a big brother imposing traditional donor and recipient relationships.

Second, New Delhi has laid stress on a more human-centric approach to tackle developmental challenges. This has been defined at international fora towards promoting behavioural change via Mission LiFE ('Lifestyle For Environment'), which encourages low consumption lifestyles. While important, the need is to rebrand human-centric development in order to focus on building human resource and capacity, especially to tackle future sustainability challenges. Skill India or schemes that mainstream women into entrepreneurship, will be attractive for countries in the Global South which are also seeking to grow their domestic industry. India's capacity building strategy has tended to revolve around the Indian Technical and Economic Cooperation (ITEC) programme, which implements sector-specific short-term activities. It would be more effective for longer term engagement to assist countries in creating their own institutional capacity to create a better workforce. India can leverage its experiences with micro, small and medium enterprises to foster exchanges. A focus on digital infrastructure, climate and energy solutions as well as water and food security are key areas for cooperation.

The goal ahead

Lastly, India has called for more inclusive global governance. The nation demonstrated this intent by championing the addition of the African Union into the G-20 (in 2023) during India's presidency. India should not be content with facilitating changes in established international institutions but also learn to build domestic capacity. As India aspires to become a stronger global development player, it must establish norms, standards and systems to work with partner countries. Initially, it is beneficial to use existing institutional channels of partners such as the United Nations or Germany and France that are more experienced in development cooperation. However, the long-term goal should be for India to create its own robust domestic systems for international cooperation. Trilateral partnerships and increased engagement with new partners need to be seen as a learning by doing process, where India imbibes its experiences to scale up India-led global initiatives.

India aspires to be the 'Voice' of the Global South, but it also must 'listen' to be a good leader. When India spearheaded NAM, the country showed the world that there is a new, third option for developing countries. India should not miss out on an opportunity to do the same thing now.

The views expressed are personal

The Palisades Fire burns through a beach front property, in California on January 8, 2025. AP

Is global warming accelerating?

Associated Press

The world warmed to yet another monthly heat record in January, despite an abnormally chilly US, a cooling La Nina, and predictions of a slightly less hot 2025, according to the European climate service Copernicus.

The surprising January heat record coincides with a new study by a climate science heavyweight, former top NASA scientist James Hansen, and others arguing that global warming is accelerating. It's a claim that's dividing the research community.

January 2025 globally was 0.09 degrees C warmer than January 2024, the previous hottest January, and was 1.75 C warmer than it was before industrial times, Copernicus calculated. It was the 18th month of the last 19 that the world hit or passed 1.5 C above pre-industrial times. Scientists won't regard the limit as breached until global temperatures stay above it for 20 years.

By far the biggest driver of record heat is greenhouse gas buildup from the burning of coal, oil, and natural gas, but the natural contributions to temperature change have not been acting as expected, said Samantha Burgess, strategic lead for climate for the European weather agency.

The big natural factor in global temperatures is usually the natural cycle of changes in the equatorial Pacific Ocean waters. When the central Pacific is especially warm, it's an El Nino and global temperatures tend to spike. Last year was a substantial El Nino, though it ended last June, and the year was the hottest on record.

El Nino's cooler flip side, a La Nina, tends to dampen the effects of global warming, making record temperatures less likely. A La Nina started in January after brewing for months. Just last month,

It was the 18th month of the last 19 that the world hit 1.5 C above pre-industrial times. Scientists won't regard the limit as breached until temperatures stay above it for 20 years

climate scientists were predicting that 2025 wouldn't be as hot as 2024 or 2023, with the La Nina a major reason.

But Hansen, the former NASA scientist now at Columbia University, said 2025 could break 2024's records. In a study in the journal *Environment: Science and Policy for Sustainable Development*, Hansen and colleagues said the last 15 years have warmed at about twice the rate of the previous 40 years.

"I'm confident that this higher rate will continue for at least several years," Hansen said in an interview.

There's been a noticeable temperature rise even when taking out El Nino variations and expected climate change since 2020, Hansen said. He noted recent shipping regulations that have resulted in reduced sulphur pollution, which reflects some sunlight away from the earth and effectively reduces warming. And that will continue, he said.

University of Michigan environment dean Jonathan Overpeck, who wasn't part of the Hansen study, "There seems little doubt that global warming and the impacts of climate change are accelerating."

But Princeton's Gabe Vecchi and University of Pennsylvania's Michael Mann said they disagree. Vecchi said there's not enough data to show that this isn't random chance. Mann said that temperature increases are still within what climate models forecast.

Cross-blood transplant performed on a patient with Bombay blood

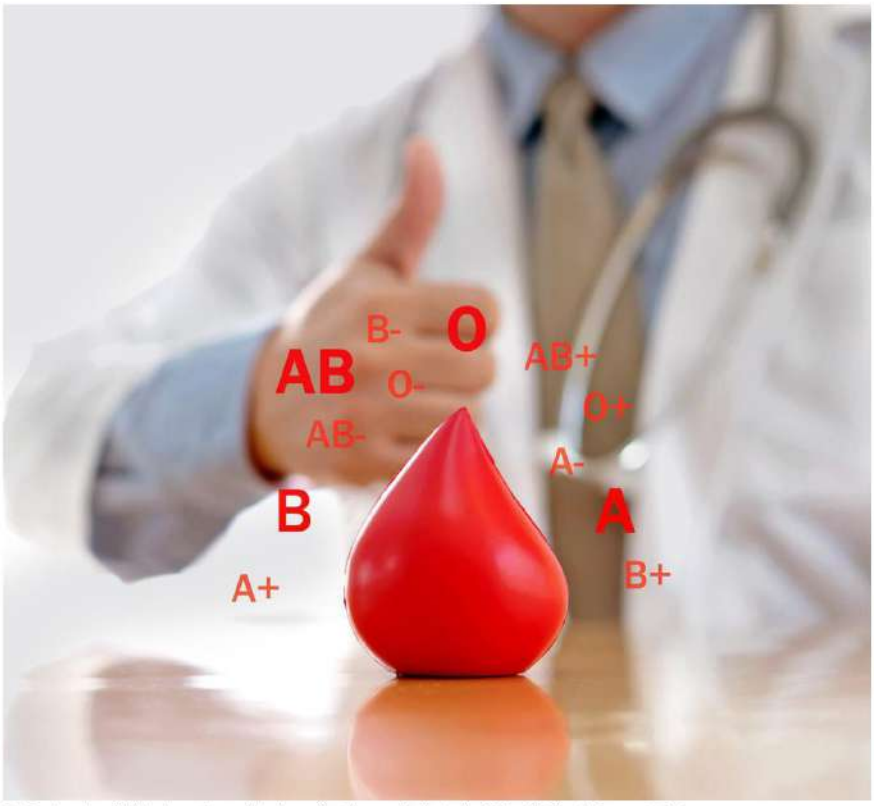
His mother donated her kidney, though she did not have the Bombay blood group. And doctors in Chennai, who had performed cross-blood transplants for close to two decades, were willing to cross the Rubicon and pulled off what not long ago might have looked like a sheer miracle

Ramya Kannan

It was in his blood that the 30-year-old male should create history. Literally.

In mid-2024, the patient underwent a kidney transplant. Though he was relatively young for a transplant, that's not where he stands unique. He had the extremely rare Bombay blood group, which prevented him from receiving organs or even blood transfusions from anyone who didn't have the same blood group running through their veins.

But then that's exactly what he did: his mother donated her kidney, though she did not have the Bombay blood group. Doctors at MIOT International in Chennai, who had performed cross-blood transplants for close to two decades, were willing to cross the Rubicon into a sector with no precedence whatsoever: no one had attempted a cross-blood match on a Bombay group patient ever before.



The Bombay, a.k.a. HH, blood group is a rare blood group first discovered in Mumbai in 1952 by Y.M. Bhende. Representative image. GETTY IMAGES/ISTOCKPHOTO

A sheer miracle

In a recent paper published in the peer-reviewed journal *Kidney International Reports*, the team that worked on the transplant – Rajan Ravichandran, Yashwanth Raj T., and Kanakaraj Arumugam – chronicled for posterity how a team of doctors in Chennai pulled off what not long ago might have been put down as a sheer miracle. "It was impossible for Bombay blood group patients to receive blood or organs from another blood group, until it was not," senior nephrologist Dr. Ravichandran explained.

The story he believes begins nearly two decades ago, when he was trained in Japan to perform cross-blood transplants, referring to the transplantation performed when donors and recipients have different blood types. In 2010, he and his team at MIOT Hospitals used a kidney from a donor with B blood group on a recipient with O blood group, successfully. Using a special procedure called double filtration plasmapheresis (DFPP) developed by the Japanese, the team had the patient discharged in a week and back at his software job in three months' time.

"The most essential requirement in transplantation is a blood group match – ideally, the patient's own blood group, or in the event it is not available, any group for which his blood does not carry antibodies," Dr. Ravichandran explained.

Antibodies are used by the body to detect and neutralise foreign bodies, while antigens are proteins or carbohydrates found on the surface of red blood cells, white blood cells, and platelets, and they determine blood type.

The Bombay blood group

The Bombay, a.k.a. HH, blood group is a rare blood group first discovered in Mumbai in 1952 by Y.M. Bhende. The key differences between the Bombay blood group and the common ABO blood groups lie in the presence (or absence) of the H antigen, which is the fundamental building block for the ABO blood group system.

In normal individuals, the H antigen serves as the base structure for building A and B antigens. In Bombay blood group individuals, the gene responsible for producing the H antigen is mutated or absent, so neither A nor B antigens can be formed.

Therefore, these people cannot receive blood transfusions from any ABO group, including type O, which has the H antigen. They can only receive blood from another Bombay blood group donor. Its prevalence is about 0.0004% (one in 4 million) of the total human population. While it drops to one in a million in the European population and one in 10,000 in Mumbai, the act of finding a donor is still daunting.

In normal individuals, the H antigen serves as the base structure for building A and B antigens. In Bombay blood group individuals, the gene responsible for producing the H antigen is mutated or absent, so neither A nor B antigens can be formed. Therefore they cannot receive transfusions from any ABO group

Clinical challenges

It was daunting for this index patient as well. The issue was not to find a donor for a kidney; his mother was eager to donate hers; the nub was that his body would reject it outright because they had differing blood groups. "We decided that it was time to use the principles of cross-blood matching that we use for the ABO type here as well. We assumed it was a similar situation and decided to use the Japanese technique of DFPP," Dr. Ravichandran said.

"Once you identify the Bombay blood group, you know he has anti-H antibodies. Firstly, we measure anti-A and anti-B antibodies in the blood as we do in the case of ABO cross-blood matches. Here, additionally, you have to measure the levels for anti-H antibodies too, and titrate the levels. The next step is to give a monoclonal antibody injection to the patient to deplete B cells that produce antibodies," he said.

As the authors detailed in the paper, the clinical challenges in such a scenario, even among those with rich cross-blood transplant experience in ABO, include determining a safe anti-H antibody titre cut-off, sufficient enough to stop the body from rejecting the organ from the donor.

Notably, there is no precedence for this, so one had to, again, assume a safe level of antibody concentration. There is a high risk of hyper-acute rejection as anti-H antibodies are more potent than anti-A or anti-B antibodies.

"After determining the titre (levels) of antibodies, we started plasmapheresis, which again removes the antibodies in the blood, lowering the chances of rejection. This was combined with immunosuppressive IVIG [intravenous immunoglobulin] to further suppress antibodies, thereby preventing hyperacute rejection of the organ."

Every alternate day, the team measured the level of antibodies in the patient. "Normally for anti-A and anti-B, we consider a 1-in-16 concentration of antibody to be an ideal safe point to start transplant. It starts at 1-in-256, we then bring it down, lower the antibodies present. In anti-H there just is no cut off, so we made a few assumptions," he said.

A new hope

At what was assumed to be a safe, no-rejection antibody titre, the transplant surgery was performed. The team scoured the State for units of Bombay blood group units, just in case the patient might need it during transplant surgery, since cross-blood transfusion is not possible. However, he did not need it. The surgery was a breeze, and there were no complications during or after surgery, the team said.

While there is no published literature regarding accommodation of anti-H antibodies by the graft, as it had not been tested before, in this patient the doctors seemed to have achieved a no-rejection antibody titre status, and there was no rejection. The first two weeks, which are also crucial to decide if the organ will be rejected, also passed without incident, the doctors said.

Six months later, the patient is well and able to resume his pre-transplant activities, grateful at how the impossible became possible for him – and hopefully, for others in the Bombay blood group as well, if they are ever to require a transplant.

(ramya.kannan@thehindu.co.in)

India, U.K. sign several agreements to strengthen defence cooperation

The Hindu Bureau
BENGALURU

The U.K. announces a dedicated cell for deepening bilateral defence cooperation with India

The United Kingdom on Monday announced the formal launch of the "Defence Partnership-India", or DP-I, a dedicated cell within the U.K. Ministry of Defence for deepening cooperation with India.

The Aero India also saw several defence cooperation agreements between India and the U.K., which covered production of Man Portable Air Defence Systems (MANPADS) and Lightweight Multirole Missiles (LMM), as well as establishment of an Advanced Short-Range Air to Air Missile (ASRAAM) assembly and test facility in India. A Statement of Intent (SoI) was also signed to design and develop an Integrated Full Electric Propulsion (IFEP) system for Indian Navy ships.

U.K. Defence Minister Lord Vernon Coaker announced the DP-I while opening the U.K.-India Defence Partnership pavilion at Aero India, and the dedicated programme office within the U.K.'s Ministry of Defence will serve as a one-stop shop for strengthening bilateral defence collaboration, the U.K. High Commission said.

Thales U.K. and Bharat Dynamics Limited (BDL) signed a contract that will deliver Laser Beam-Riding MANPADs (LBRMs), with an initial supply of STARStreak high-velocity missiles and launchers set for delivery this year.

In another development, following the signing of this initial LBRM contract, both Thales and BDL will further collaborate to produce LMMs, the statement said. This "develops and expands the partnership between Indian and British industry, laying the foundation for BDL and Indian industry to form an integral part of Thales' global supply chain", it stated.

"It will address mutual security concerns, create jobs in both countries and enable interoperability by both armies."

The statement added that MBDA U.K. and BDL were working on the installation of a first-of-its-kind ASRAAM assembly and test facility in Hyderabad, for missiles that would be carried by Jaguar and Light Combat Aircraft-Mk1A.

Modi arrives in France for AI summit, talks with Macron

Kallol Bhattacherjee
NEW DELHI

Prime Minister Narendra Modi arrived in France on a three-day visit during which he will co-chair an AI Action Summit with French President Emmanuel Macron and hold bilateral talks with him.

Representing the Global South in the Paris AI Action Summit, broadening consular and diplomatic ties, and nuclear research are some of the items on the agenda of Mr. Modi's visit to France, an official statement said on Monday.

The official statement issued ahead of his departure for the two-nation tour covering France and the U.S. informed that he will be co-chairing the AI Action Summit, which will be held in Paris on Tuesday and Wednesday.

Warm welcome: Prime Minister Narendra Modi with members of the Indian diaspora in France on Monday. PTI

The AI summit is the third in a series of global initiatives on artificial intelligence after the AI Safety meet in the U.K. in 2023 and South Korea in 2024. The summit in Paris will focus on innovation, public interest, future of work and issues in AI governance. India is expected to represent the voice of the Global South on AI-related issues.

Economic cooperation

The bilateral component of the visit will begin after the AI summit and will include interaction with the India-France CEOs Forum where Mr. Modi and Mr. Macron will lay down respective visions of economic cooperation. On Tuesday evening, Mr. Macron will host a dinner in honour of Mr. Modi.

During the visit, the two sides will review the progress on the 2047 Horizon Road map for India-France strategic partnership. A new Indian consulate at Marseille will also be opened. Mr. Modi will visit the International Thermonuclear Experimental Reactor (ITER) project which is a major international project on energy generation and nuclear research.

"I will also pay tribute to the Indian soldiers who laid down their lives during World War I and II at the Mazargues War Cemetery," Mr. Modi said in a statement. The cemetery is maintained by the Commonwealth War Graves Commission which looks after similar graves across Europe where Indian soldiers sacrificed themselves during the two World Wars.

Following the visit to France, Mr. Modi is scheduled to take off for the United States.

"In Washington DC, I look forward to meeting President Donald Trump, This visit will further cement India-USA friendship and boost ties in diverse sectors. I warmly recall working with President Trump during his first term and I am sure our talks will build on the ground covered then," Mr. Modi said in a post on X.

(With PTI inputs)

‘Self-reliance push drives Indian defence industry’

Rajnath says global companies must utilise opportunities offered by domestic defence ecosystem; overall ease of doing business has improved ‘tremendously’, he adds at the CEO roundtable

The Hindu Bureau
BENGALURU

Stating that the Indian defence ecosystem is driven by policies of self-reliance in defence production, facilitated by a conducive policy regime, Defence Minister Rajnath Singh on Monday asked chief executive officers (CEOs) of global defence companies to utilise the opportunities offered by the domestic defence ecosystem.

Listing out measures taken in this regard, he said the portal, Defence Exim, had made the export authorisation process seamless and 46 joint ventures and companies were given foreign investment approval in the defence sector till date.

Mr. Singh was addressing a “CEO Roundtable” at Aero India 2025 with the theme “Enabling Defence Cooperation through Global Engagement” (EDGE), which saw Original Equipment Manufacturers from 19 countries, including 35 Indian private companies and 16 defence public sector undertakings.

Highlighting advances: Defence Minister Rajnath Singh at the inauguration of Aero India in Bengaluru on Monday. K. MURALI KUMAR

Elaborating on steps taken to “make the domestic defence industry an important component” of the national economy in order to facilitate India’s transition from a developing to a developed country by 2047, he said, “We have allowed FDI up to 75% through the Automatic Route for companies seeking new defence licence, while 100% is allowed under government approval route.”

Defence corridors

Mr. Singh told the audience that more than 250 MoUs were signed for the establishment of industrial units in the Defence Industrial Corridors set up in Uttar Pradesh and Tamil Nadu.

The Defence Testing Infrastructure Scheme was introduced to provide financial assistance to the aerospace and defence sector for setting up six-eight greenfield testing and certification facilities. As a testimony to the emergence of India as a defence export nucleus, the country has seen 31-fold growth “in the export of products in the last 10 years as compared to Financial Year 2013-14”, he said.

He further said over 500 start-ups and micro, small and medium enterprises (MSMEs) were working under the aegis of Innovations for Defence Excellence (iDEX), with focus on innovative projects in defence sector.

“Our overall ease-of-doing-business environment has improved tremendously. This is showing great results as India has the third largest start-up ecosystem in the world today. This is expected to witness year-on-year growth of 10-12%. We possess a young generation of highly-skilled workforce, which constantly updates itself in the face of the fast-changing ecosystem of the world. You must not miss the opportunity to leverage the advantages of this ecosystem,” Mr. Singh added.

“The use of drones in recent conflicts indicates that the future would depend on the integrated efforts of manned, unmanned and autonomous warfare systems. Hence, our defence manufacturing has to focus on creating counter measures for these emerging challenges,” he stated.

Niti Aayog report seeks more public funding for higher education

The Hindu Bureau
NEW DELHI

Among all States and Union Territories, Jammu and Kashmir spends most for education as a percentage of GDP at 8.11%, followed by Manipur (7.25%), Meghalaya (6.64%), and Tripura (6.19%) according to a policy report prepared by the NITI Aayog titled "Expanding Quality Higher Education through States and State Public Universities".

The report, released here on Monday, said in contrast, Delhi (1.67%), Telangana (2%), and Karnataka (2.01%) allocate significantly less towards higher education.

The report found that there are States with negative growth rates in spending on higher education. "Mean per youth expenditure on higher education rose from ₹ 2,174 to ₹ 4,921 between 2005-06 and 2019-20. However, within this increase, the divergence between States has risen significantly," it noted. Kerala, Tamil Nadu, Maharashtra, Andhra Pradesh, and Telangana continue to be the top spenders on per youth spending on higher education, with States like Rajasthan, Punjab and Chhattisgarh lagging, the report added.

The report said Delhi, Telangana, and Karnataka allocate significantly less towards higher education.

Maharashtra leads in higher education funding with a budget of ₹ 11,421 crore, followed by Bihar (₹ 9,666 crore) and Tamil Nadu (₹ 7,237 crore), the report found. "States like Sikkim (₹142 crore), Arunachal Pradesh (₹155 crore), and Nagaland (₹167 crore) have the lowest higher education budgets," it said.

When considering higher education expenditure as a percentage of Gross State Domestic Product (GSDP), Bihar ranks highest at 1.56%, followed by Jammu & Kashmir at 1.53% and Manipur at 1.45%. "Telangana has the lowest percentage at 0.18%, while Gujarat and Rajasthan allocate 0.23% each," the report noted.

The report, the Niti Aayog said in a statement, is a first-of-its kind policy document in the higher education sector focused specifically on States and State Public Universities (SPUs). Releasing the report, NITI Aayog Vice-Chairman Suman Bery said in many global education systems, public universities set the benchmark for excellence. "While India has institutions like IITs, State Public Universities must also strive for high standards," he said.