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# Trump's Gaza plan fuels anti-American sentiment, derails Saudi-Israel relations

Trump's proposal to redevelop Gaza has prompted a global backlash and enraged the Arab world, making it difficult for the Saudis to consider normalisation; plan carries real risks for Riyadh, which is throwing everything at an ambitious post-oil economic makeover that relies on stability

## NEWS ANALYSIS

Agence France-Presse  
RIYADH

U.S. President Donald Trump's plan to take over Gaza will imperil attempts to forge landmark ties between Saudi Arabia and Israel and fuel anti-American sentiment in the oil-rich kingdom, analysts said.

Trump's proposal to redevelop Gaza and oust the more than two million Palestinians living in the territory prompted a global backlash and enraged the Arab world, making it difficult for the Saudis to consider normalisation.

"If this is going to be his policy, he shut the door on Saudi recognition of Israel," James Dorsey, researcher at the Middle East Institute of the National University of Singapore, said.

Recognition of Israel by Saudi Arabia, home to Islam's holiest sites, is seen as a grand prize of West Asia diplomacy intended to calm chronic tensions in the region.

But Saudi Arabia, the world's biggest oil exporter and the West Asia's largest economy, now faces the spectre of instability on its borders if neighbouring



Strained relations: People walk past a billboard showing U.S. President Donald Trump with Saudi Crown Prince Mohammed bin Salman. AP

Jordan and Egypt suddenly house large numbers of Gaza exiles.

At the same time, Riyadh must maintain cordial relations with Washington, its long-time security guarantor and bulwark against key regional player Iran.

"When it comes to security, Saudi Arabia has nowhere to go but to Washington," Mr. Dorsey said. "There's nobody else. It's not China. They're not will-

ing and they're not able.

"And post-Ukraine, do you want to rely on Russia?"

### Quick reaction

The Saudis were engaged in tentative talks on normalisation via the United States until the outbreak of the Gaza war, when they paused the negotiations and hardened their position.

They reacted with unusual speed to Mr. Trump's

proposal, made during an appearance with Israeli Prime Minister Benjamin Netanyahu in Washington.

About an hour after his comments, at around 4:00 a.m. Saudi time, the Foreign Ministry posted a statement on X that "reaffirms its unequivocal rejection of... attempts to displace the Palestinian people from their land".

In the same statement, the Saudis rejected Mr. Netanyahu's comment that

normalisation was "going to happen", repeating their insistence there would be no ties without a Palestinian state.

Mr. Trump's plan carries real risks for Riyadh, which is throwing everything at an ambitious post-oil economic makeover that relies on stability to attract business and tourism.

If Gazans are displaced to Egypt and Jordan, it "will weaken two countries essential to regional stability and particularly to Saudi security", said Saudi researcher Aziz Alghashian.

"Trump's plan, coupled with Netanyahu's approach, poses major risks for Saudi Arabia.

"It highlights that they are not true partners for peace in Riyadh's eyes — especially Netanyahu, who appears to want all the benefits without making concessions."

### Destabilise region

Trump's declarations "will further destabilise the region and fuel anti-American sentiment, particularly in Saudi Arabia", said Anna Jacobs, of the Arab Gulf States Institute in Washington.

"He is making Saudi-Israel normalisation harder, not easier."

Andreas Krieg of King's

College London said Saudi Arabia would not agree meekly to normalisation if ordered by Washington.

Prior to the Gaza war, the Saudis were negotiating for security guarantees and help building a civilian nuclear programme in return for Israeli ties.

"They are not a U.S. vassal state and so they're not just taking a dictat from Trump," said Andreas Krieg of King's College London.

"And I think it will stand firm on their positions, willing to negotiate here and there. But the principal red lines remain.

"Nobody in Saudi Arabia has an interest in selling out Palestinian statehood. That is the last and the most important bargaining chip that the Saudis have in terms of authority and legitimacy in the Arab and Muslim world."

But the question is how Saudi Arabia and its 39-year-old de facto ruler, Crown Prince Mohammed bin Salman, will proceed.

"I don't think that the Saudis will take any major steps now," said Krieg.

"They obviously have their own levers that they can use for pressure on America, particularly in the energy sector. I don't think the Saudis will want to use it at this point."



# How has the Budget allocated funds for urban development?

Does the Union Budget focus on capital-intensive projects? What about funds for urban local bodies?

**Tikender Singh Panwar**

## The story so far:

In 2015, the NDA government positioned urban development as a key pillar of its growth strategy as cities contribute nearly 67% to the GDP. However, in the government's vision for a "Viksit Bharat," cities seem to be conspicuously absent.

## What was allocation for urban India?

The total outlay for urban development stands at ₹96,777 crore, higher than last year's Budget proposal of ₹82,576.57 crore. However, if a modest inflation rate is taken into consideration, there is actually a fall in the outlay. The Revised Estimate (RE) suggests that only ₹63,669.93 crore will be spent by March, reflecting an underutilisation rate of 22.9%. One of the biggest shortfalls is in the Pradhan Mantri Awas Yojana (Urban) [PMAY(U)], which had an allocation of

₹30,170.61 crore for FY 2024-25 but saw a drastic cut in RE to just ₹13,670 crore. This highlights a gap between policy ambitions and actual implementation.

The increase in total urban outlay is misaligned with the urgent need to bridge infrastructure gaps in cities. Instead of focusing on employment and sustainable development, the emphasis remains on capital-intensive projects.

## How has reduction happened?

Transfers to urban India primarily occur through three channels – direct transfers to Urban Local Bodies (ULBs); Centrally Sponsored Schemes (CSS); and Central Sector Schemes. There has been a reduction in direct transfers to ULBs. With the abolition of octroi – a key revenue source for cities – the expectation was that the lost revenue would be compensated through central devolution. With the introduction of GST, the source revenue of ULBs fell by over

21%. But instead of increasing support, the share for ULBs has actually declined from ₹26,653 crore last year to ₹26,158 crore this year. This shortfall will force cities to raise their own revenues, burdening citizens with additional taxes.

CSS involve cost-sharing between the Union, States, and local governments. Some major urban programs under this category include PMAY, the Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), and the Smart Cities Mission. However, the Budget allocations for these schemes fall flat. The PMAY (CSS component) saw a 30% reduction in allocation compared to last year, and while the SBM (Urban) retains the same outlay as last year at ₹5,000 crore, RE indicates that only ₹2,159 crore will be spent – 56% less than allocated amount.

Central Sector Schemes are directly controlled by the Union government and often have strong political overtones. A

major share of such urban development is directed toward capital-intensive infrastructure projects, particularly metro rail expansion. Unlike other urban initiatives, metro projects have seen increased allocations. In FY 2024-25, the budget for Mass Rapid Transit Systems and metro projects was ₹21,335.98 crore. The RE has now risen to ₹24,691.47 crore. Additionally, the 2025-26 Budget proposes ₹31,239.28 crore, reflecting a 46% increase over the previous year. Prioritising metro rails over comprehensive urban mobility raises concerns about the long-term inclusivity of urban development.

## What next?

A new Urban Challenge Fund of ₹10,000 crore has been introduced in the Budget. The government has set an ambitious target of ₹1 lakh crore to implement urban redevelopment programs. However, half of this funding is expected to come from private investments – an over-optimistic approach given the sector's negligible contribution to the Smart Cities Mission.

The Budget's approach to urban development is clear – emphasis on capital-intensive projects and less focus on employment generation, green jobs, and sustainable economic policies. While infrastructure investments are necessary, neglecting social and economic equity could widen existing disparities.

*Writer is former deputy mayor of Shimla and Member, Kerala Urban Commission.*

## THE GIST

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# India's opportunity at the AI Action Summit

In early January, India accepted France's invitation to co-chair the AI Action Summit on February 10 and 11 in Paris. This summit will be the third of its kind, following meetings focussed on AI safety in the U.K. (2023) and South Korea (2024). In addition to AI safety, the agenda at Paris is to focus on innovation, public interest AI, future of work, and AI governance issues – presenting India an opportunity to continue its global engagement on AI safety and also amplify the voice of the Global South on broader AI issues.

This article outlines how India can leverage the opportunity to advance three key priorities for the Global South. Doing this well could also strongly position India to host the next such summit, which brings together decision makers on AI policy, industry at the forefront of AI development, and civil society representatives for an inclusive dialogue on AI.

## Voice of the Global South

The first meeting in Bletchley Park focussed on the safety of 'frontier AI models', the emerging risks of AI, and launched the U.K. AI Safety Institute (AISi). The second meeting in Seoul expanded the scope of the conversation to multilateral collaboration on AI risk management through a network of AISis with countries/blocs such as the U.S., France, Singapore, Japan, and the European Union. With ministerial and high-level bureaucratic representation through the meetings, India has actively engaged in the global discourse on AI safety. As a next step, India's IT Minister recently announced plans of setting up an AI Safety Institute.

In other multilateral fora with leadership roles, India has championed the cause for the Global South, which has not leveraged the transformative potential of AI as much as more developed parts of the world have. Under India's presidency in 2023, the G20 endorsed a "pro-innovation



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As co-chair of the Paris meeting, India must leverage its position to advance the key AI priorities of the Global South

regulatory/governance approach" to balance AI innovation and the need to develop guardrails for AI. Soon after, the Global Partnership on Artificial Intelligence (GPAI) meeting hosted by India in December 2023 emphasised the need for "equitable access to critical resources for AI research and innovation" to underscore the need for enabling AI infrastructure for developing AI applications.

## Priorities in Paris

India's vision for the Global South could now benefit from the broad agenda of the Paris meeting. To maximise this opportunity, India should focus on three key strategic priorities. First, India must advocate for democratising access to AI resources across the entire AI value chain. While India's domestic initiative of establishing a common computing facility with over 18,600 GPUs and 40% government subsidy sets a compelling example, the scope must expand beyond computing hardware. This includes ensuring equitable access to data sets, data storage infrastructure, cloud computing platforms, foundation models, and application development platforms. In addition, India should promote distributed computing solutions, an alternative to traditional computing infrastructure, and access to innovative safety tools like watermarking technology.

The promotion of open-source AI models deserves particular attention. DeepSeek's success demonstrates both the potential of open-source models and the need to address export control measures that currently constrain AI model development. India must advocate for more flexible cross-border transfer of AI technologies while maintaining appropriate safety standards.

Second, India should call for developing a framework for identifying and prioritising AI use-cases relevant to the Global South's unique contexts. This approach ensures that AI applications serve local needs

rather than becoming solutions in search of problems. Instances include early disease detection systems adapted to local healthcare infrastructure, personalised learning platforms that account for diverse educational contexts, and agricultural productivity tools calibrated to regional farming practices. The establishment of an AI use-case repository following the summit could provide guidance for the Global South in determining its priorities.

Third, India must emphasise the importance of contextualising AI risks and safety measures for the Global South. The challenges faced by developing nations often differ significantly from those of the Global North. Cultural erosion through exposure to large language models trained on "western data" represents one such unique risk. The Yeshua Benjio-led expert report on International Scientific Report on the Safety of Advanced AI highlights that risk is derived from the "probability of an occurrence of harm and severity of that harm." Risks are thus future looking but grounded in already occurred harm. In Paris, India must thus call for collecting evidence of AI-related harms, grounded in Global South contexts, to inform their risk mitigation strategies. A repository of AI-related harms could also help inform any future regulatory approaches of the Global South.

## Looking ahead

As co-chair of the Paris meeting, India must leverage its position to advance the key AI priorities of the Global South. Doing so would also position India as an ideal candidate to host the next AI Action Summit, which would ensure continued focus on the Global South perspective on AI. This would, in turn, cement India's role as bridge between the AI superpowers in the Global North and developing nations catching up in the global AI sphere.

# An aerospace expo to further India's global presence

**A**ero India 2025, which is being held at the Indian Air Force station at Yelahanka in Bengaluru (February 10-14), is more than just an exhibition. It is a platform for innovation, strategic alliances, and technological advancement. The edition this year promises to redefine the standards of aerospace expositions and elevate India's global presence in the aviation sector.

As the 15th edition, the show is set to become a landmark event in India's journey towards self-reliance in defence production. Under the leadership of the Prime Minister, Narendra Modi, this premier air show has grown to become a global hub for aerospace innovation, collaboration, and strategic partnerships. The theme this year, 'The Runway to a Billion Opportunities', encapsulates India's commitment to fostering cutting-edge advancements in defence technology while opening new doors for international collaboration.

## A rapid transformation from the 1990s

As the Secretary (Defence Production), it is a matter of great pride for this writer to witness the remarkable transformation of India's aerospace and defence manufacturing capabilities. What began in 1996 as a modest aviation exposition, has, today, evolved into one of the most significant global defence events.

With an ever-increasing footprint, Aero India now attracts top-tier defence manufacturers, policymakers, industry leaders and visionaries from across the world. Past editions have witnessed extensive participation from industry players and innovators, and Aero India 2025 is poised to surpass milestones, serving as a dynamic platform to propel India's defence production and technological prowess onto the global stage.

Aero India 2025 is set to witness participation from leading global and domestic defence manufacturers, reaffirming its status as a premier defence and aerospace exhibition. A total of 106 original equipment manufacturers (OEMs), including 55 foreign OEMs from 19 countries such



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Aero India 2025 will highlight India's intent to emerge as a global leader in defence and aerospace production

as Brazil, France, Israel, Japan, Russia, South Korea, the United Kingdom and the United States have already confirmed their presence. Sixteen defence public sector undertakings (DPSUs) have also confirmed their participation. Additionally, 35 Indian OEMs, including industry giants such as Larsen & Toubro, Bharat Forge Ltd, Adani Defence & Aerospace, Mahindra Defence Systems Limited, BrahMos Aerospace, Ashok Leyland Defence, Bharat Heavy Electricals Limited (BHEL), and Electronics Corporation of India Limited (ECIL), will showcase their cutting-edge advancements, reflecting the growing synergy between the public and private sectors in bolstering India's defence manufacturing ecosystem.

## Highlights of the exposition

For the first time, the exposition will feature two of the world's most advanced fighter jets, the Russian Su-57 and the American F-35. These cutting-edge aircraft will offer aviation experts and enthusiasts a rare opportunity to analyse their capabilities and performance. The Su-57 is engineered for superior stealth and agility, and the F-35 is renowned for its technological superiority. This unprecedented participation signals India's role as a central player in global defence diplomacy and aerospace progress.

India will showcase a model of its fifth generation aircraft 'Advanced Medium Combat Aircraft' (AMCA), which is in the development stage. The indigenous design and development of this twin engine fifth generation stealth fighter aircraft, with 75% domestic content, will propel India into a select league of nations having the capacity to make their own fifth generation aircraft.

Another most anticipated segment that will be on show in Bengaluru is 'Manthan', a dedicated platform to promote start-ups and innovation in the aerospace and defence sectors. The event will showcase pioneering advancements from Indian start-ups at the IDEX (Innovations for Defence Excellence) pavilion, reinforcing the government's commitment to fostering

home-grown solutions that cater to domestic and international defence requirements. The Indian pavilion will serve as a testament to the country's firm commitment to 'Make in India' and 'Atmanirbhar Bharat', displaying an impressive array of indigenous defence manufacturing capabilities and state-of-the-art technologies.

## The visitor experience

In order to ensure a seamless experience for the over seven lakh visitors expected in this edition, significant improvements have been made in collaboration with the national and State authorities. Key enhancements include: optimised traffic flow made possible by expanded roads, designated routes, and real-time monitoring to ease congestion; enhanced transport services such as comfortable shuttle options to facilitate trouble-free access for attendees; robust security arrangements in the form of a multi-tiered security strategy with advanced surveillance, ensuring the highest safety standards; comfort-driven amenities as spacious halls, increased seating zones, improved dining facilities, and dedicated assistance booths for visitor convenience, and a specialised Aero India 2025 application for updates, schedules, and navigation assistance in real time.

Beyond the static exhibition of cutting-edge military aircraft, visitors will witness an enthralling aerial display, offering a glimpse into India's growing air combat and technological prowess. Additionally, aerospace and defence seminars, live technology demonstrations, and interactive sessions will provide industry stakeholders and enthusiasts, valuable insights into the latest advancements in these rapidly evolving sectors.

Aero India 2025 is a definitive statement of India's intent to emerge as a global leader in defence and aerospace production. As the nation strides towards achieving greater self-reliance in defence manufacturing, this event serves as a crucial catalyst in bridging technological gaps, fostering innovation, and strengthening international partnerships.





# Keeping a watch on the growing arc of violence

**T**he present period is proving to be an unpredictable one for most parts of the world. Violence is raging across parts of Europe and in West Asia, while several other regions are facing internecine conflicts to varying degrees. At the risk of repetition, it can be said that the world order after 1945 has broken down irretrievably.

The prolonged war in Ukraine, alongside the wanton targeting of innocent civilians in Gaza and West Asia by the Israeli armed forces, underscore a reality, viz., that the United Nations Security Council and the International Court of Justice have become mere bystanders, if not complicit, in most events of this nature. For political philosophers who still hark back to an earlier era, it should be evident that principles enunciated by the Dutch philosopher, Hugo Grotius (1583-1645), have today become part of the 'detritus of history'. There is no longer any "common moral community" governed by "eternal and immutable ideas of right and wrong". What is apparent today is a 'waste-land of morality'.

## Subterranean activity

It would indeed be a gross misjudgment if countries that are in the driving seat today, specially those active in West Asia, were to believe that their current actions are likely to contribute to permanent peace. The war in Gaza and Lebanon may have given Israel, and at one stage removed the United States, an impression that 'peace is at hand' in West Asia. Also, that they had effectively undermined the Iran-led 'Axis of Resistance', and considerably reduced Tehran's influence in the region. Viewed dispassionately, current events can at best be viewed as a 'pyrrhic victory', the impact of which is uncertain. A great deal of subterranean activity is meanwhile beginning to be seen, the outcome of which is unlikely to lead to a lasting peace.

First and foremost, Islamist terrorism has hardly been blunted; nor have other major concerns which have existed for decades abated. Calls for 'global jihad' and activities by 'lone wolf' attackers can still be heard. More important, today's Islamist terrorists are being radicalised online, and have not, by any means, been contained. The belief, hence, that Islamist terrorism is no longer a serious threat would be incorrect.

Most experts hew to the view that Islamist terrorism 3.0 is still alive and threatening. It is multifaceted and decentralised, and is increasingly digitally empowered, making it an evolving threat to global security – possibly more so than in earlier decades. The weakening of al-Qaeda and the Islamic State (ISIS), temporarily, should not, hence, contribute to a belief that



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Islamist terrorism had weakened irretrievably. Rather, the signs are that it is rapidly adapting to digital terrorism, spreading extremist ideologies through social media, and provisioning for an increased role through decentralised groups. In essence, it is evolving into a different avatar. Dealing with this new phase of terrorism can prove difficult. Finding the right method to deal with this problem will not be easy.

Islamist terrorism has been evolving for a long time. If 1979 is regarded as a critical turning point in the evolution of a new wave of Islamist militancy, then a quick look at its evolving dimension over the past five decades may prove useful in finding a solution. It was in 1979 that a new brand of militant Islam reared its head – in Afghanistan, it was the die-hard Sunni brand, and in Iran it was the Shia variant. Both, separately though not jointly, were seeking to bring about a general uprising throughout the Muslim world and even beyond, aimed at overthrowing infidel and pro-western regimes. Radicalisation on the Sunni side resulted in the formation of al-Qaeda and the IS (mainly in Syria), each talking of global jihad. The jihad wave waxed and waned over the years, and while al-Qaeda concentrated its activities outside of West Asia, the IS remained essentially confined to West Asia.

While jihadism has, by no means, been defeated for now, it does appear that the internal dynamics of global jihad may have altered to some extent. Sunni radicalisation has been on the upswing lately, but global jihad is no longer their clarion call. This is notwithstanding renewed calls for unity in the Arab world against the Zionist enemy. Arab states are, instead, increasingly falling back on safeguarding their national interests. This has impacted the region's political landscape, and will impact the future politics of West Asia and beyond.

## A revival of terror

Meanwhile, terrorism, per se, is witnessing a revival of sorts. Both the IS and al-Qaeda are showing signs of a resurgence. The al-Qaeda has resumed training camps in Taliban-run Afghanistan, while the IS affiliate operating in Afghanistan – the Islamic State in Khorasan Province (ISKAP) – is beginning to expand its footprint, moving further afield to hit targets beyond Afghanistan and Pakistan. Sporadic attacks in Moscow, Iran and Türkiye do reveal its newer footprints. Increasing attacks on military facilities and transport have also been reported in Pakistan, while isolated attacks have taken place in Bangladesh, Malaysia, Singapore and Thailand.

Sporadic terror attacks in different countries across the globe do not necessarily herald, at this point, a return to the kind of large-scale terror

attacks seen previously. Nevertheless, a succession of smaller scale terror attacks, including of late, in countries in the West, have given rise to concerns in security circles about a possible recrudescence of terror, and, on a wider scale, than what was seen in the past decade. As matters stand today, security agencies across the world do believe that a determined effort is still needed to effectively decapitate the 'terror apparatus' before it takes on a more serious dimension.

Two recent terror incidents have jolted security agencies in the U.S. out of their complacency about possible terror attacks. In January, a yet-to-be-detected explosion took place in a Tesla cyber truck, in Las Vegas outside the hotel in which then U.S. President-elect Donald Trump, was staying. The occupant of the cyber truck was found dead inside the vehicle. He was later identified as someone who had previously been with the U.S. elite Special Forces engaged in counter-terrorism abroad.

In another, and a separate, incident in New Orleans, on New Year's Day, Shamsuddin Jabbar, a 42-year-old American citizen and a military veteran who had worked as an IT specialist, drove a truck into a crowd in New Orleans, killing 14 people and injuring 35. His vehicle had a black IS flag attached to it. Jabbar was shot dead by the authorities before he could be interrogated, but an analysis of the incident suggests careful planning. The two incidents occurring side by side have given rise to fresh concerns of a revival and a resurgence of IS-style terror attacks. Both U.S. nationals, for instance, had a military background. Additional concerns relate to the advent of a new category of recruits into terror ranks. Meantime, U.S. intelligence services claim to have foiled a plot in Virginia.

## Warnings that need to be heeded

Counter-terrorism experts, hence, have reason to believe that there is ample cause to be concerned. The two incidents have also revived memories of similar vehicle attacks in France and other European cities during the heyday of the IS. Hence, most counter-terrorism experts believe that the world needs to be prepared for a new wave of terror attacks. The fact that more and more information is forthcoming about a fresh wave of proselytisation by IS and al-Qaeda recruiters, employing the most modern methods, including Artificial Intelligence, is again highly disconcerting. The message that comes through loud and clear is that while matters relating to new terror methods and terror attacks are possibly still at an early stage, the warnings should not be ignored and steps need to be taken at the earliest to prevent a fresh wave of terror.

While matters relating to new terror methods and terror attacks could still be evolving, the warnings should not be ignored



# A gift horse's teeth

Higher allocations are not enough to boost scientific research

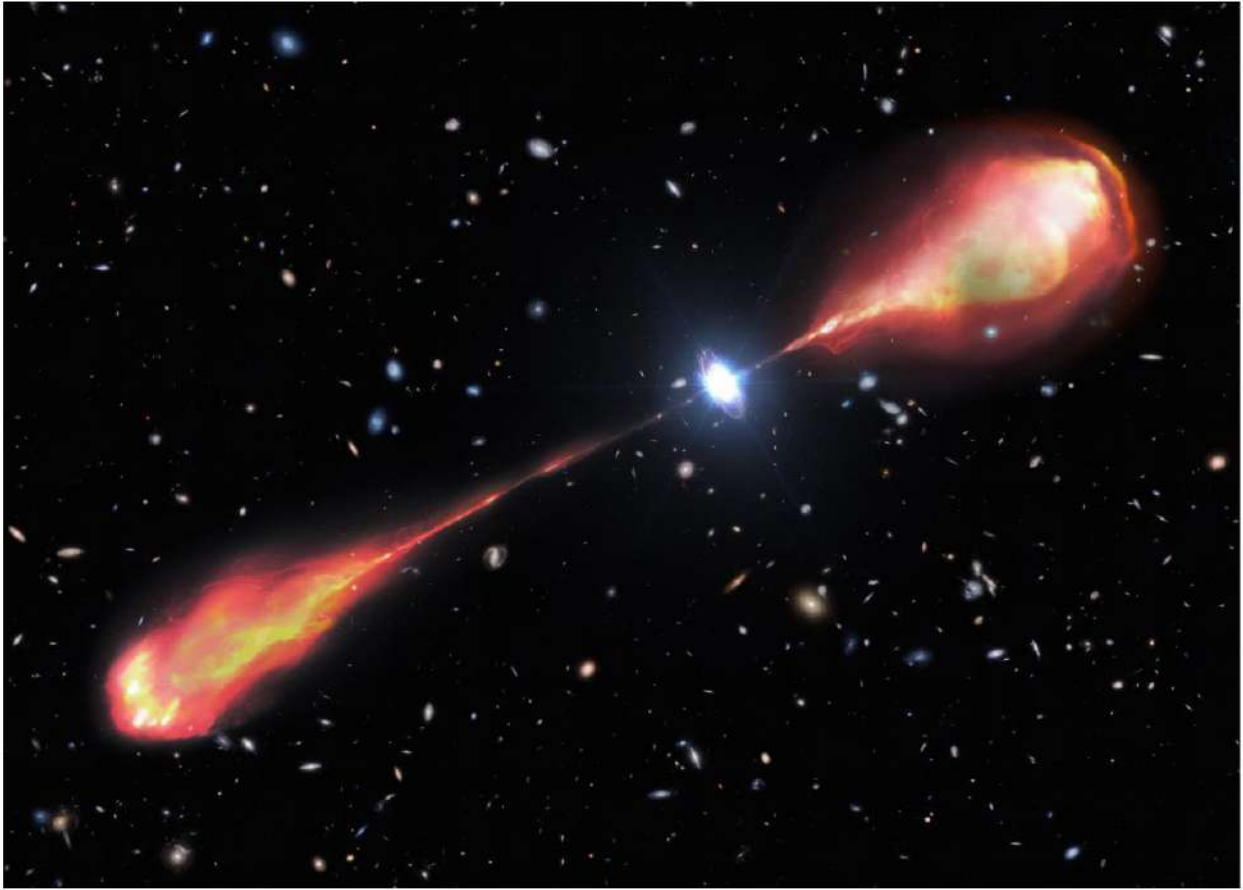
**T**he Budget 2025-26 announcements suggest a potential bonanza for scientific research and development. The Finance Minister outlined ₹20,000 crore budgetary support for developing small modular reactors, with the goal of readying five such reactors by 2033. Another major initiative is the Research, Development, and Innovation fund, included in the Department of Science and Technology (DST)'s expected expenditure. This substantial allocation is expected to benefit start-ups and sunrise sectors, though these remain undefined. The expectation is that private sector entities will receive financial support to boost R&D, a domain historically dominated by government spending. India's R&D landscape has long suffered from low private sector participation. While government funding has driven most scientific advancements, private investment in research has remained inadequate. Currently, private sector R&D contribution is only 36%; overall R&D spending in India was 0.64% of GDP in 2020, the lowest since 1995. Over the last five years, business enterprises have accounted for around 40% of government R&D expenditure. Public sector R&D units allocated only 0.30% of their sales turnover to research, compared to 1.46% by the private sector in 2020-21, according to DST estimates.

The government's ₹20,000 crore infusion hikes the DST's total budgetary allocation to around ₹28,000 crore, over three times last year's allocation and seven times the actual expenditure in 2023-24. These figures are encouraging, but a key concern is whether such massive investments can be effectively absorbed. Despite India's strengths in technology-driven sectors such as fuel, metallurgy, pharmaceuticals, textiles, IT, and biotechnology, returns from core R&D and intellectual property generation are still meagre. Though the government has launched ambitious missions in quantum computing, artificial intelligence, and other cutting-edge technologies, the supporting infrastructure remains inadequate. India still lacks the essential building blocks, chipsets, semiconductor fabs, a skilled engineering workforce, and a strong innovation ecosystem, to fully capitalise on these investments. Without these, the lofty targets set for R&D growth risk falling short. The government must present a clear road map on how private sector entities can access these funds and what tangible benefits the public can expect. Increased funding alone will not guarantee success unless structural bottlenecks are addressed. To truly transform India into a research powerhouse, the focus must shift to strengthening foundational infrastructure, incentivising private innovation, and ensuring long-term, sustainable engagement from industry leaders.





## BIG SHOT



Telescopes around the world spotted a colossal radio jet issuing from a quasar dating back to the first billion years of the universe. Twice as wide as the Milky Way galaxy, this jet of radio waves is the biggest ever detected so early in the history of the universe, astronomers reported on February 6. NOIRLAB/NSF/AURA/M. GARLICK





# Will the baby be a boy or a girl? *SRY* gene claims to have the answer

Exceptional instances of females possessing the *SRY* gene have been reported three times in medical literature. Two were in 2024 itself: one from researchers at the Renato Dulbecco University Hospital in Italy and the other from researchers at the Cincinnati Children's Hospital Medical Center, USA

D.P. Kasbekar

**W**ill the baby be a girl or a boy? What decides the outcome? These might well be among the earliest questions asked by our ancestors. We can now offer a fairly comprehensive two-line answer. The *SRY* gene, located on the Y chromosome, triggers development along the male pathway. In its absence, development proceeds along the default female pathway.

Exceptional instances of females possessing the *SRY* gene have been reported three times in the medical literature. Two were in 2024 itself: one from researchers at the Renato Dulbecco University Hospital in Italy, in the journal *Genes*, and the other from researchers at the Cincinnati Children's Hospital Medical Center, USA, in *Molecular Genetics and Genomic Medicine*.

These exceptions further strengthen the *SRY* gene's claim to the primary role in male development.

## The *SRY* gene

All eggs are alike but all sperm are not. All eggs contain one copy of each of our chromosomes (numbered 1-22) plus one copy of the sex chromosome (called X). Sperm cells also contain one copy each of chromosomes 1-22. But only half of them contain the X chromosome: the other half contain the other sex chromosome, Y.

The fusion of a sperm cell and an egg cell produces the zygote cell, from which the baby develops. Thus, the baby has two copies of chromosomes 1-22, plus either two Xs (XX) or an X and a Y (XY). Those with the Y chromosome develop into males. Those with two X chromosomes develop into females.

After a baby grows to become an adult, depending on their sex it will be their turn to make eggs/sperm. Only one chromosome of each of the 23 pairs is transmitted to the eggs and sperm. Again, the eggs and sperm contain one copy each of chromosomes 1-22. All eggs contain an X, while half of the sperm contain the X and the other half the Y.

The Y chromosome, which leads to the development of maleness, contains the *SRY* gene. An XY embryo that receives an *SRY* gene rendered non-functional by a mutation develops ovaries, which produce the female hormone oestrogen and lead to the development of other female sexual characteristics.

## *SRY* in an XX individual

Very rarely, a mutation can occur that transfers the *SRY* gene from the Y chromosome to the X. These mutations are called translocations. When a sperm bearing a translocation X chromosome



An ultrasound scan reveals a fetus. Representative image. HWPT PRODUCTION

fertilises an egg, an XX baby is born with the *SRY* gene.

In most cases, XX individuals with the *SRY* gene develop testes and become biological males. The testes produce the male hormone testosterone and initiate the development of other male sexual characteristics. However, they don't produce mature sperm because other Y chromosomal genes required for sperm formation are absent. Since these males are sterile, the translocation is not transmitted to future generations.

Consider, however, the exceptional XX biological females found to possess the *SRY* gene. The Italy group identified four healthy biological females in three generations of a family, all with the *SRY* gene. Their discovery has shown it's possible for an *SRY*-bearing translocation X chromosome to be passed through generations via fertile females. The individuals bearing the translocation showed no evidence of any abnormalities.

The researchers from the Cincinnati hospital reported the discovery of a different *SRY*-bearing X translocation in an otherwise typical female foetus. The foetus went on to develop into a healthy female baby. But after the baby's birth, the family didn't accede to follow-up studies.

What is it about these two translocation chromosomes that led to the development of healthy females instead of infertile males?

The answer seemed to lie in a detail both groups spotted: both translocations



The fusion of sperm and egg produces the zygote. Thus, the baby has two copies of chromosomes plus either two Xs or an X and a Y. Those with Y develop into males. Those with two X chromosomes develop into females

occurred in parallel to the loss of a small portion of the X chromosome, which did away with one or more genes required for viability. The translocations that produced infertile males didn't have these deletions.

## Random v. biased inactivation

During female development in mammals, one of the two X chromosomes is inactivated in all the body's cells. This makes the effective 'dosage' of X chromosome genes the same in XY males and XX females. The X chromosome's inactivation also promotes female development by lowering the levels of maleness genes located on the X chromosome.

In some cells, the inactivated X chromosome is the one inherited from the father, and in other cells it is the one received from the mother. Thus, female mammals effectively have two types of cells: those that express the paternally- or the maternally-derived X.

## THE GIST

All eggs are alike, but sperm are not. All eggs contain one copy of each of our chromosomes plus one copy of the sex chromosome X. Sperm cells also contain one copy each of chromosomes. But only half of them contain the X chromosome: the others contain the other sex chromosome, Y

The Y chromosome, which leads to maleness, contains the *SRY* gene. An XY embryo that receives an *SRY* gene rendered non-functional by a mutation develops ovaries, which produce oestrogen and lead to the development of female characteristics

In *SRY*-positive females, the translocation X chromosome is inactivated. This inactivation silences the *SRY* gene, allowing for female development. That only a silenced *SRY* can persist in a female's genome underscores its significance in triggering male development

In the exceptional *SRY*-positive females, however, the translocation X chromosome that had become inactivated. Had the inactivated chromosome been the non-translocation X, the cell wouldn't have survived because essential genes missing from the translocation X wouldn't be expressed. The 'biased' X inactivation resulted in silencing the *SRY* gene, allowing for typical female development.

That only a silenced *SRY* gene can persist in a biological female's genome underscores its significance in triggering male development.

The Cincinnati researchers expressed their concern that low-level expression of the translocated *SRY* gene in later life could lead to disorders in sex development. Surveilling this possibility would require long-term follow-up through puberty. Unfortunately, the family wasn't available for postnatal follow-up studies.

The two studies highlight the importance of examining translocation chromosomes for associated deletions that selectively inactivates the X chromosome. The genome sequences of thousands of biological females are now available. Knowing how many of them carry cryptic *SRY*-bearing translocations could in future help genetic counsellors make more informed personal and medical decisions.

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# Global confidence in India's aerospace capabilities is growing, says Rajnath Singh

Defence Minister hails participation of over 90 countries in Aero India show; Defence Secretary says government hopeful that supply of LCA Tejas from 2025-26 would be as per the original plan

**Dinakar Peri**  
BENGALURU

**T**he light combat aircraft (LCA) production line has stabilised, not only at Hindustan Aeronautics Ltd. (HAL) but also for General Electric (GE) engines, Sanjeev Kumar, Secretary, Defence Production, said on Sunday.

"We are sure from 2025-26 onwards, LCA Tejas supply will be as per the original plan," he said. He also noted that the Indian Air Force (IAF) and the Defence Ministry were discussing various approaches and that "appropriate options would be exercised" to keep the armed forces ready for all kinds of situations.

"We are committed to the advanced medium combat aircraft (AMCA)... and simultaneously we would be considering all options to make our armed forces ready and prepared," Mr. Kumar said at the curtain-raiser press conference on Aero India, scheduled to be held in Bengaluru from February 10 to 14. He said that with the production line and engine issues having stabilised by 2025-26, 16 to 24 LCA would be delivered.



**Charting progress:** Rajnath Singh speaks at a press conference ahead of Aero India 2025, in Bengaluru on Sunday. MURALI KUMAR K.

"We are working with our American partner GE so that their supply gets streamlined in 2025-26 and going forward," he added.

Earlier in the day, Union Defence Minister Rajnath Singh visited HAL and saw the LCA-Mk1A jets, the deliveries of which have been delayed due to engine delays and other issues.

Amid delays in modernisation and falling fighter squadron strength, both the Russian Su-57 and American F-35, both fifth-generation fighters, will be present at Aero India.

This year's Aero India, in its 15th edition, is spread over a total area of over 42,000 sq. m, with the confirmed participation of 931 exhibitors, including

150 foreign companies, making it the biggest till date.

Mr. Rajnath Singh termed the participation of more than 90 countries a testament to the growing global confidence in India's aerospace and defence capabilities.

## Record defence export

"Defence Ministers or representatives from about 30 countries have come to participate in this event. The presence of Air Chiefs and Secretaries from 43 countries further highlights the significance of this event – not just for India, but for the entire international defence community," the Minister said.

"When it comes to de-

fence manufacturing, I am delighted to share that our domestic defence production has surpassed a record ₹1.27 lakh crore," Mr. Rajnath Singh said. "By the end of 2025-26, we expect this figure to exceed ₹1.60 lakh crore... Additionally, our defence exports have also crossed a record ₹21,000 crore, and by the end of 2025-26, we anticipate this figure to surpass ₹30,000 crore. I am confident that this event will further accelerate our journey toward self-reliance in defence production."

The event comprises the Defence Ministers' Conclave; a CEOs' roundtable; the inauguration of the India and iDEX Pavilions; a Manthan iDEX event; a Samarthya indigenisation event; a valedictory function; seminars; breathtaking air shows; and an exhibition by aerospace companies.

Mr. Singh will host the Defence Ministers' Conclave on February 11 in hybrid mode. The theme "Building Resilience through International Defence and Global Engagement (BRIDGE)" underscores the importance of supply chain resilience and strategic collaboration in defence, officials said.



# Panel recommends 'comprehensive security assessment' of Indian posts

**Press Trust of India**  
NEW DELHI

A parliamentary panel has recommended that the Ministry of External Affairs (MEA) should conduct a "comprehensive security assessment" of all missions and posts of India, taking into account the geopolitical situation, potential threats and vulnerabilities in host countries.

In its report, the Committee on External Affairs has also noted that India currently lacks resident missions in 42 countries.

While acknowledging the challenges involved in establishing new missions, the committee recommended "accelerating efforts to bridge these gaps, particularly in countries where India has significant economic or strategic interests or a large diaspora presence".

The 'Fourth Report of the Committee on External Affairs (2024-25) on De-



The Committee on External Affairs has also noted that India currently lacks resident missions in 42 countries. ANI

mands for Grants (2024-25) of the Ministry of External Affairs' was presented in Parliament last week. The panel is headed by Congress MP Shashi Tharoor.

The committee further said in its report that it has also "taken note of the criteria" for establishing new missions, focusing on economic partnerships, strategic cooperation, diaspora engagement and multilateral diplomacy.

"The committee have also been informed about

ongoing efforts to operationalise missions in other strategic locations such as Fukuoka [Japan], Kazan [Russia] and Yekaterinburg [Russia] and future plans for opening five missions in Europe and Latin America and Caribbean regions," it said.

The parliamentary panel has made a slew of other recommendations including on the security of Indian missions abroad in view of the geopolitical situation and other factors.

The MEA has informed the panel that the safety and security of Indian missions and posts is "continuously reviewed". The committee recommended that the Ministry allocate adequate resources for the protection of both the physical and digital infrastructure of Indian missions.

On the operationalisation of new missions abroad, the panel noted that the MEA is "leveraging concurrent accreditation arrangements" effectively in countries where resident missions have not been operationalised.

The panel has emphasised in its report that India's "growing stature on global arena" requires consistent and predictable investments in diplomatic, economic and cultural engagements. It also stressed the need for consistent financial allocations to the MEA and recommended protecting key areas from budgetary cuts.



# Plan to amend nuclear liability law may enthuse American, French firms

Announcement comes ahead of Modi's visit to Paris and Washington this week; government's U-turn a decade later spells hope for Westinghouse, Electricite de France plans, deals for new-age small reactors; experts hail the decision, but call for more clarity on the amendments proposed

**Suhasini Haidar**  
NEW DELHI

Ahead of Prime Minister Narendra Modi's visit to Paris and Washington from Monday, the Union government's announcement that it would amend the Civil Liability for Nuclear Damages Act (CLNDA), 2010, and the Atomic Energy Act, 1962, is likely to enthuse American and French nuclear power companies, whose projects have been deadlocked due to legal concerns for more than 15 years. However, experts who welcomed the decision, called for more clarity on the amendments.

The announcement, which marked a sharp U-turn from the government's position in 2015, was made in the Budget speech on February 1. In particular, it is meant to help progress the Electricite de France (EDF) MoU to build six EPR1650 reactors at Jaitapur in Maharashtra that was signed in 2009 (with Areva), and American Westinghouse Electric Company's (WEC)

MoU, signed in 2012, to build six AP1000 reactors at Kovvada in Andhra Pradesh.

In addition, it is expected to help India tap into new nuclear power technologies, particularly for small modular reactors (SMR), now gaining popularity in developed economies.

"For an active partnership with the private sector towards this goal, amendments to the Atomic Energy Act and the Civil Liability for Nuclear Damage Act will be taken up," Finance Minister Nirmala Sitharaman had said in the speech, calling for "at least 100 GW" of nuclear energy by 2047, and making an outlay of ₹20,000 crore for the development of five SMRs to be operationalised in India by 2033. India has a nuclear power capacity of 6,780 MW from 22 reactors, and the only foreign operator in India is Russia's Rosatom.

#### High liability

Western nuclear power companies have, however, said clauses in the CLNDA are unacceptable as they



**Joint effort:** Rosatom, the only foreign nuclear operator in India, is involved in the Kudankulam Nuclear Power Plant in Tamil Nadu.

mandate a high degree of liability for suppliers and contradict the international Convention for Supplementary Compensation for Nuclear Damage (CSC) which focuses only on the liability of operators of the plant. The clauses were inserted in 2012, following heated debates in Parliament, where the then-in-Opposition NDA members had accused the government of letting Western companies off from liability, citing the Union Carbide-Bhopal gas leak case that killed thousands in 1984 and the Fukushima nuclear leak in Japan in 2011.

"This law was amended by the government just to satisfy the Opposition at the time, even though it was clear that the international operators legal liability clause would create problems down the road," Shyam Saran, former Foreign Secretary, who was the Prime Minister's Special Envoy for Nuclear Affairs and Climate Change at the time, told *The Hindu*, adding that the amendments now being planned must be made in consultation with international partners and ensure the liability issue was dealt with in contracts signed.

The External affairs Mi-

nistry declined to comment on what the proposed amendments would entail. Officials aware of discussions on the issue said that while the CLNDA would be amended to separate operator's liability from supplier's liability to bring it in line with the CSC, the Atomic Energy Act would liberalise investment in power projects in India.

#### Legal standard

"The pragmatic way out is to break the deadlock by amending the CLNDA to bring it on par with international conventions to which India itself is a party – so that there is a clear legal standard in our domestic legislation aligned with international standards and is applicable to international partners and domestic industry," said Venkatesh Verma, former Ambassador to Russia, who was part of negotiations for all India's civil nuclear agreements and led the External Affairs Ministry's Disarmament and International Security Affairs desk. With the Trump administration keen to en-

courage U.S. energy exports, for both oil and LNG, as well as nuclear power, and France and India negotiating deals for SMR projects, the issue will be on the agenda as Mr. Modi travels to France and the U.S. this week. It remains to be seen whether the government's plans to amend the laws will finally forge the breakthrough required, two decades after India signed civil nuclear deals with the U.S. and France.

Significantly, in a "Frequently Asked Questions" memorandum issued by the Ministry after the Republic Day visit to India by U.S. President Barack Obama in February 2015, the government had said that there was "no proposal to amend the Act or the Rules", and that U.S. officials had reached a "general understanding that India's CLND law is compatible with the [International] Convention for Supplementary Compensation for Nuclear Damage (CSC)". However, the "understanding" did not result in any serious contracts for nuclear power.

