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# समाचार पत्रों से चयनित अंश

# NEWSPAPER CLIPPINGS

**A Daily Compilation of News Related to DRDO, Defence, Science & Technology**

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# Defence News

## रूस से भारत को मिला सुदर्शन एस-400 का चौथा स्क्वाड्रन

***Source: Dainik Jagran, Dt. 04 Jun 2026***

भारत की लंबी दूरी की वायु रक्षा क्षमताओं को और मजबूत करने के लिए रूस से सुदर्शन एस-400 एयर डिफेंस सिस्टम का चौथा स्क्वाड्रन भारत पहुंच गया है। इसे जल्द ही एक महत्वपूर्ण क्षेत्र में तैनात किया जाएगा। रक्षा सूत्रों के अनुसार, लंबी दूरी की वायु रक्षा प्रणली एस-400 की इस खेप को एक जहाज के माध्यम से भारत लाया गया और जल्द ही इसकी तैनाती कर दी जाएगी। पांचवां और अंतिम स्क्वाड्रन भी अगले कुछ महीनों में भारत को मिलने की संभावना है।

वर्ष 208 में भारत और रूस के बीच एस-400 एयर डिफेंस सिस्टम को लेकर समझौते किया गया था। इस समझौते के तहत भारत को एस-400 के कुल पांच स्कवाड्रन मिलने हैं। इनमें से तीन स्क्वाड्रन दो साल पहले मिल चुके हैं।

आपरेशन सिंदूर के दौरान सुदर्शन ने पाकिस्तानी वायु सेना की क्षमताओं को नाकाम करने में अहम भूमिका निभाई थी। इसने एक पाकिस्तानी वायु सेना के निगरानी विमान को मार गिराया था। भारत केवल विदेशी एयर डिफेंस सिस्टम पर निर्भर नहीं रहना चाहता। इसलिए इस दिशा में आत्मनिर्भर होने के लिए "प्रोजेक्ट कुशा" नामक स्वदेशी एयर डिफेंस सिस्टम पर काम चल रहा है।

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## Russia delivers fourth squadron of AI-enabled S-400 air defence system

***Source: The Hindu, Dt. 04 Jun 2026***

India has received the fourth squadron of the Russia-made S-400 air defence system, strengthening the country's long-range air defence network. The system arrived from Russia as scheduled in May, and is expected to be deployed in an operational area shortly, sources in the defence sector said.

The delivery is part of a $5.43 billion agreement signed between India and Russia in 2018 for the acquisition of five S-400 regimental systems. Three S-400 squadrons have already been inducted into service; the fourth has now arrived, following delays linked to the Russia-Ukraine conflict.

The remaining squadron under the original contract is expected to be delivered in 2027, officials said. Deliveries are now back on schedule. The S-400 will be integrated with AI-enabled decision-support capabilities aimed at improving threat prioritisation and target selection, senior defence officials said.

"AI-enabled targeting will assist operators in identifying and prioritising aerial threats. All incoming targets will be displayed on the system, and AI will provide recommendations based on the nature

of the threat. However, the final engagement decision will remain with the operator," a senior official said.

The AI-assisted system will help distinguish between different categories of threats, including ballistic missiles, combat aircraft, drones and cruise missiles, enabling more efficient utilisation of interceptor missiles, officials said.

The S-400 Triumf is among the world's most advanced long-range surface-to-air missile systems, capable of engaging aircraft, drones, and cruise and ballistic missiles, at extended ranges. The system forms a key pillar of India's layered air defence architecture, along both the western and northern fronts.

Officials also highlighted the operational role played by the S-400 during Operation Sindoor, with the system contributing significantly to India's air defence posture during the conflict. According to sources, the platform was instrumental in countering aerial threats, and demonstrated its long-range engagement capabilities.

Beyond the Russian origin systems, India is simultaneously pursuing the development of an indigenous integrated air defence ecosystem under the broader 'Sudarshan Chakra' initiative.

https://www.thehindu.com/news/national/russia-delivers-fourth-squadron-of-ai-enabled-s-400-air-defence-system/article71058282.ece

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# Navy to add 4 made-in-India warships, 1 survey vessel this month

***Source: The Times of India, Dt. 04 Jun 2026***

Indian Navy is set to witness significant expansion in its naval fleet this month as it gears up to induct five indigenously-built naval platforms, including two Project 17A stealth frigates, a survey vessel and two anti-submarine warfare crafts. The made-in-India vessels will enhance maritime security, combat readiness and coastal defence.

The upcoming inductions also reflect on India's growing ability to design and construct sophisticated naval assets within the country, reducing dependence on foreign suppliers. Of the five platforms scheduled to join the Navy, four have been built by Garden Reach Shipbuilders & Engineers (GRSE) and Cochin Shipyard Limited (CSL). The fifth vessel, INS Mahendragiri, has been constructed by Mazagon Dock Shipbuilders Limited (MDL).

Once formally commissioned, stealth frigates INS Dunagiri, INS Mahendragiri, Survey Vessel Sanshodhak and anti-submarine warfare shallow water crafts Agray and Malvan will provide the Navy advanced stealth, superior anti-submarine warfare (ASW) capabilities, and enhanced ocean surveillance. Among the most significant additions is INS Dunagiri, a Project 17A stealth frigate built by GRSE.

Designed with advanced technology, the warship is equipped with modern sensors, sophisticated weapon systems and network-centric warfare features. INS Mahendragiri is another Project 17A stealth frigate. Both INS Dunagiri and INS Mahendragiri represent a new generation of indigenous warships meant to boost India's maritime power, enhance combat reach, and expand blue-water capabilities in the Indo-Pacific. Both will be equipped with supersonic BrahMos cruise missiles,

Barak-8 surface-to-air missile system, powerful MF-STAR AESA radar for early threat detection and tracking, and modern torpedo tubes and rocket launchers.

Survey Vessel (Large) Sanshodhak has been designed to carry out advanced hydrographic surveys and seabed mapping operations. The vessel will play an important role in underwater exploration and maritime domain awareness. Agray and Malvan are anti-submarine warfare shallow water craft specifically designed to identify, monitor and neutralise hostile submarines operating in shallow coastal waters.

The force currently operates around 130 to 140 vessels and is adding indigenous warships or submarines to its roster every 40 days. The proposed fleet expansion is part of the govt's vision to build a strong Navy with 200 warships and submarines by 2035. The new inductions will help the Navy increase its maritime footprint to establish dominance in the Indian Ocean Region against the growing presence of the Chinese Navy.

https://timesofindia.indiatimes.com/defence/big-fleet-expansion-navy-to-add-4-made-in-india-warships-one-survey-vessel-this-month/articleshow/131493304.cms

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# Great Nicobar task: Pursuing national security with ecological responsibility

***-by D K Joshi, former chief of the naval staff***

***Source: The Indian Express, Dt. 04 Jun 2026***

A state that does not secure its frontiers, alliances and trade routes cannot secure its future." Kautilya's lesson, written into the grammar of statecraft centuries ago, has returned with unusual force in our time. Nations today are again being tested not merely on the size of their economies or the strength of their armies, but on their ability to read geography, anticipate the future and act before opportunity turns into vulnerability. Great Nicobar is one such test for India.

Located close to some of the most important seaways of the Indo-Pacific, Great Nicobar is one of India's most important strategic windows to the world. That is why the proposed development cannot be understood merely as an infrastructure project. It is a strategic test of whether India is prepared to convert a rare geographical advantage to further bolster its Comprehensive National Power.

For centuries, the Indian Ocean shaped India's destiny, carrying our trade, ideas, civilisational influence and, at times, our vulnerabilities. Yet, for much of the post-Independence period, India's strategic imagination remained heavily continental.

Great Nicobar is one of the largest islands in the archipelago, with an area of about 910 sq km. The total project area of 166.10 sq km is only about 2 per cent of the total area of the Andaman and Nicobar Islands, of which 130.75 sq km, approximately 1.82 per cent of the total forest area of the islands, is proposed for diversion. Great Nicobar lies close to Southeast Asia and sits near major global sea lanes.

Its importance becomes clearer when viewed from the strategic lens of the high seas. Imagine the ships moving from the Gulf of Aden towards the Malacca Strait, energy cargo sailing from West

Asia and Africa towards East Asia, container traffic connecting Asia, Africa and Europe, naval assets, surveillance platforms and logistics chains moving through these waters.

The Indian Ocean is increasingly becoming a crowded strategic arena. Energy flows, container traffic, naval deployments, island facilities, undersea cables and maritime surveillance are now part of a larger contest that is decisive for the future of nations. Recently, Thailand shelved a decades-old proposal for a canal connecting the Andaman Sea to the Gulf of Thailand. Instead, an overland 90 km multi-modal land bridge connecting two newly designed deep-sea ports along the 10th parallel — one in Ranong on the Andaman Sea and another in Chumphon on the Gulf of Thailand — along with dual-track high-speed rail, multi-lane roads, energy pipelines for oil and gas and an air-digital grid, is pending final approval. All these factors redefine the Indo-Pacific trade route and shift the economic centre of gravity to the Andaman basin.

The Strait of Malacca is among the world's most important chokepoints. It connects the Indian Ocean with the Pacific and carries energy (oil and LNG) and commerce of enormous value. Great Nicobar's Galathea Bay is about 45 km from the Six Degree Channel, which connects the Malacca Strait with routes leading towards Africa, the Middle East and Europe. Around 1 lakh ships pass annually through the Malacca Strait-Six Degree Channel route. The island's proximity to the Malacca, Sunda and Lombok chokepoints gives India a significant strategic advantage.

Across the IOR, powerful countries are steadily expanding their presence through ports, logistics arrangements, maritime access facilities, naval assets, surveillance systems and economic corridors. India's answer must be strategic consolidation. Sovereignty is strengthened when territory becomes connected, inhabited, serviced, productive and strategically usable. The International Container Transshipment Port, greenfield airport, township and power plant will together create the ecosystem needed for India to maintain a credible, sustained and multidimensional presence at a decisive maritime location.

The National Green Tribunal, after due diligence and consideration of observations, acknowledged the project's great significance not only for the economic development of the island and the surrounding areas of strategic location, but also for defence and national security.

Singapore did not become a great maritime hub merely because it was well located. It built capacity around that location. Location gave it the opportunity, and its infrastructure converted that opportunity into influence. Diego Garcia offers another lesson from the Indian Ocean. It shows how a remote island, when equipped with logistics and operational infrastructure, can acquire outsized strategic significance.

Great Nicobar allows India to do this in a balanced and distinctly Indian way. It can support trade and strengthen national security, reduce dependence on foreign transhipment hubs, enhance India's maritime reach and serve as a gateway to Southeast Asia and a platform for the wider Indo-Pacific. A transhipment port at Great Nicobar can reduce dependence on foreign ports, improve supply-chain resilience, attract investment, generate employment and give India greater certainty over the movement of its own cargo.

Of course, Great Nicobar is environmentally sensitive. Any project of this scale must be implemented with ecological care, legal compliance, scientific monitoring and genuine mitigation. But ecological sensitivity cannot become a permanent veto on strategic thinking. The challenge is to pursue national security with ecological responsibility.

The real question is whether India wants to responsibly develop a strategic island, or whether it will leave that island under-connected at a time when the entire Indo-Pacific is being reorganised.

India is both a continental and maritime power. For too long, the continental mind overshadowed the maritime one. The Great Nicobar project is, therefore, not extravagance, but strategic foresight. A nation's destiny is shaped not only by the threats it faces, but by the opportunities it recognises in time. Great Nicobar is one such opportunity. To neglect it would be to leave geography unused and vulnerable to being shaped by others. To develop it wisely would be to turn geography into a strength.

India does not need to apologise for thinking strategically. It only needs to act responsibly, decisively and with a clear sense of national interest. In the Indo-Pacific century, Great Nicobar is not the edge of India. It is India's watchtower at the gateway of the future.

https://indianexpress.com/article/opinion/columns/great-nicobar-task-pursuing-national-security-with-ecological-responsibility-10722919/lite/

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# Military jargon cripples serious thinking

***-by Rear admiral Raja Menon, retd***

***Source: The Tribune, Dt. 04 Jun 2026***

Modern military and strategic discourse is increasingly burdened by a creeping affliction: the substitution of clear thought with fashionable jargon. What masquerades as innovation is often little more than repackaging of long-understood principles in language designed to impress rather than illuminate. The result is not intellectual progress, but intellectual fog.

Take the term "layered defence." It is now presented as if it were a novel doctrinal breakthrough. But when, in the history of warfare, has defence ever not been layered? From the Roman legions with their successive lines of infantry, to medieval fortifications with moats, walls and inner keeps, to the elastic defence-in-depth of the Second World War — layering has always been intrinsic to survival.

It is not innovation; it is amnesia. Similarly, "multi-domain operations" is offered as a revolutionary concept integrating land, sea, air, cyber and space. Yet war has always been fought across multiple domains. The Blitzkrieg combined armour, artillery, infantry and airpower in tightly coordinated operations. Naval warfare has long depended on intelligence, logistics and air cover. Then there is "cyber warfare," often described as an entirely new frontier. While the tools are undoubtedly modern, the underlying concept — penetrating, disrupting and manipulating the enemy's information systems — is not.

During the Second World War, the Allied Ultra programme broke German codes, providing decisive intelligence that shaped operations across theatres. A favourite seems to be the new term, "cognitive warfare". Have we forgotten the massive success of the BBC in retaining Britain's soft power for decades after its economic decline, or the long-drawn success of the Russian and East European VOA (Voice of America) radio broadcasts that kept the idea of freedom alive and contributed to the fall of the Berlin Wall?

A favourite is "hybrid warfare", the ultimate example of military jargon which is a catchword for using everything including the kitchen sink. This term replaced what has always been diplomatic and foreign intelligence meddling and used to describe any protest or fake news on X (Twitter) . But the more sophisticated would shun "hybrid warfare" and use "grey zone warfare" that would

perplex the audience even more. The term “dropping bombs” is considered crass and has been replaced with “kinetic warfare”, a term which would dazzle most civilian audiences when it actually means “breaking things”.

Bureaucracies reward what looks like new thinking, or at least the appearance of it. New terminology creates the impression of fresh thinking, justifying financial outlays, reorganisations and doctrinal publications. It also signals apparent agreement with global trends, particularly those emanating from the US, where defence establishments are prolific producers of jargon.

Complex terminology creates an aura of expertise that discourages scrutiny. A good example is the sly answer to questions of the treatment of the prisoners in Guantanamo, to which the answer was — “enhanced interrogation”. Got it? Jargon distances strategic discourse from both historical understanding and common sense.

If policymakers believe they are confronting entirely new forms of warfare, they may neglect the enduring principles that govern conflict: logistics, morale, leadership and adaptability. Worse, they may overestimate the transformative impact of technology while underestimating the resilience of adversaries. Another one that comes to mind is the alleged invention of a new strategy by China called “A2AD” against the maritime dominance of the US in the West Pacific; it turns out to be a rewording of “sea denial”, an old, well-established concept.

India, in particular, should be wary of using jargon as a substitute for rigorous thinking uncritically. Its strategic environment demands clarity, not fashion. The country has repeatedly suffered from strategic surprise — not because it lacked jargon, but because it misread emerging world scenarios. Clear thinking must also be rooted in history. This is not an argument against innovation. New technologies — especially in cyber and space — require adaptation. But adaptation must be grounded in continuity. The past does not become irrelevant simply because the vocabulary changes. There must be a clear articulation of what is new; otherwise, it only causes confusion upwards and downwards. Quite possibly, other fields such as economics and diplomacy may be indulging in the same thing.

One term comes to mind to describe the tumult going on in the world where the established order has been upended, ideas of what constitutes power are fuzzy and long-established alliances are breaking. There is a suggestion that all this somehow becomes crystal clear if one says that the world has become “multipolar”. So, that is solved.

Words should clarify, not conceal. In the end, the test of any concept is not how impressive it sounds, but whether it sharpens judgment. Jargon that merely rebrands the obvious does the opposite. It dulls the mind, obscures the past and leaves us less prepared for the future. The political and business world is not immune to this disease either. Here, the most misused word is “strategic”, used indiscriminately before any political visit, deal, agreement or talks, as with any new commercial investment, whether it is in nuclear reactors or cosmetics.

Why, then, does this jargon proliferate? Part of the answer lies in institutional incentives. Bureaucracies reward novelty, or at least the appearance of it. New terminology creates the impression of fresh thinking, justifying budgets, reorganisation and doctrinal publications. It also signals alignment with global trends, particularly those emanating from the US.

https://www.tribuneindia.com/news/comment/military-jargon-cripples-serious-thinking/

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# The perimeter of Viksit Bharat

***-by Lt Gen SS Mehta, Retd***

***Source: The Tribune, Dt. 04 Jun 2026***

AN earlier piece in this series, “The Covenant and the Contract”, argued that military service constitutes a covenant, not a transaction. This piece extends that argument into the strategic architecture of a rising India. India’s journey towards Viksit Bharat rests upon visible investments. Highways and rail corridors. Ports and logistics networks. Digital infrastructure. Semiconductor missions. Manufacturing ecosystems. The ambition is clear: a developed nation by 2047.

Beneath these visible investments lies an invisible foundation without which none of them can endure. Every national ambition assumes something rarely discussed: that the Republic will remain secure. That its borders will hold. That its sea lanes remain open. That coercion will be deterred. That India’s rise is protected.

These assumptions are presumed. They are nevertheless indispensable and are underwritten every day by the Armed Forces of India. This reality acquires greater significance as the strategic certainties of the post-Cold War era weaken. Great-power competition has returned. Regional conflicts are multiplying. Technology is compressing decision cycles. Artificial intelligence, autonomous systems, cyber warfare and information operations are transforming the character of conflict.

India sits at the centre of this changing geometry — not as a bystander but as a principal stabilising power of the Indo-Pacific. Economists can calculate expenditure. Deterrence is far harder to quantify. Sovereignty, stability and investor confidence do not emerge by accident. They are secured before they are enjoyed. The perimeter protects the covenant. The covenant protects the Republic.

The covenant is the quiet agreement between the Republic and its citizens: that businesses will invest with confidence and aspirations can be pursued without fear. Standing upon that perimeter is the Indian soldier — soldier, sailor and air warrior. Few democracies impose a comparable burden. The same institution that watches the Saltoro Ridge and the heights of Eastern Ladakh also guards deserts, jungles, island territories and maritime approaches spanning the Indian Ocean. No single terrain defines the Indian military. Every terrain does.

Military service is unlike any other profession in the Republic. Its defining feature is not hardship. It is unlimited liability. The possibility of injury, disability, captivity or death is not an occupational hazard. It is an accepted condition of service. That acceptance is carried not by the soldier alone but by every family that watches a young officer disappear into a posting in Siachen or a counter-insurgency grid, and waits. Unlimited liability. Volunteered.

Contemporary conflicts have clarified both the power and the limits of technology. Ukraine has demonstrated the transformative reach of drones, precision strike and networked intelligence. Iran, Israel and the United States have similarly underscored the growing role of autonomous systems and stand-off capabilities. Operation Sindoor has shown that India too can project calibrated force across contested space, striking with speed and discrimination while holding the threshold against escalation.

Yet these same conflicts have reinforced an older truth. Technology can disrupt, punish and shape outcomes. By itself it struggles to deliver political closure. Objectives involving the control of

territory, the reassurance of populations and the restoration of stability continue to depend upon volunteer boots on the ground.

Recent conflicts reveal a paradox. As technology becomes more sophisticated, volunteer service for unlimited liability becomes more precious. Autonomous systems can extend reach and reduce exposure, but they cannot replace the legitimacy, reassurance and permanence that human presence provides.

The future battlefield may become increasingly autonomous. The future outcome will remain profoundly human. Nations can procure platforms. They cannot manufacture willingness to serve. In an age fascinated by autonomy, commitment remains the scarcer strategic resource.

That willingness underwrites the Republic's military strength. It cannot be taken for granted. It must be sustained. If commitment is a strategic resource, then the institutions that sustain it become matters of national strategy rather than personnel administration.

The Armed Forces operate through a deliberately young and selective command pyramid. This is not an administrative flaw. It is an operational necessity. Yet a large majority of officers encounter structural ceilings long before the end of their productive professional lives.

Scientists benefit from Flexible Complementing Schemes. Medical professionals have Dynamic Assured Career Progression. Organised Group A Services receive Non-Functional Upgradation. The military alone remains dependent upon promotion-linked advancement within a steep and intentionally selective pyramid.

The pressure will intensify as India deepens jointness through integrated theatre commands, placing officers with identical responsibilities within the same operational structures. Some will come from streams defined by unlimited liability. Others will not.

Where the administrative architecture of the latter permits structured progression and that of the former does not, the disparity will no longer be abstract. It will be visible across the same table, every working day. The challenge is sharper because in the military, pay and status are not separate ledgers. Rank is worn. It is seen across the table, in the corridor and at every morning briefing.

When financial progression diverges, status diverges with it. An officer benefiting from a more generous administrative architecture is seen to stand higher. In a service where identity and rank are inseparable, that visibility becomes a daily institutional statement about the relative worth of unlimited liability.

The answer is a Military Specific Framework founded on a simple principle: command must remain selective; progression must become structured. The design imperative of a military is a steep spire. At its apex stand those entrusted with command, selected through rigorous competition because the edge cannot carry unlimited numbers. Yet beneath that apex stand many of proven merit who carry the flag with distinction but cannot ascend further simply because the pyramid narrows above them.

For generations they have accepted this reality in the spirit of Naam, Namak and Nishan. But no institution can assume that ethos alone will indefinitely absorb widening disparities. Great institutions rarely weaken suddenly. They weaken incrementally when sustained performance ceases to earn visible recognition. Perception shapes motivation, retention and career choices. By the time indicators reflect the change, the damage has already taken root.

The purpose of reform is not to alter the pyramid. It is to ensure that those who uphold it do not become its unintended casualties. Command appointments must continue to be earned through rigorous selection, but financial progression need not remain hostage to command vacancies. A carefully designed framework can preserve operational selectivity while ensuring that officers who serve where the margin for error is zero and accountability is total are not institutionally diminished simply because the pyramid narrows above them.

Its purpose is to preserve competitiveness, dignity and motivation. Viksit Bharat will be built by millions of Indians in laboratories, factories, farms, ports, startups and classrooms across the nation. Yet every one of them operates behind a perimeter held by others. The Armed Forces do more than defend territory. They underwrite national confidence and ambition.

Technology can accelerate decision-making and extend reach, but it cannot replace professional judgment, courage and leadership. The decisive question is no longer whether nations possess advanced systems. It is whether they can continue to inspire citizens to stand behind them and, when necessary, stand in harm's way as volunteers answering a calling greater than themselves.

https://www.tribuneindia.com/news/comment/the-perimeter-of-viksit-bharat/

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# Science & Technology News

## India and South Africa agree to scale up bilateral cooperation in future technologies, with Artificial Intelligence, Digital Infrastructure and Advanced Manufacturing as key priorities

***Source: Press Information Bureau, Dt. 03 Jun 2026***

India and South Africa today agreed to scale up bilateral cooperation in future technologies, with Artificial Intelligence, Digital Infrastructure and Advanced Manufacturing emerging as key priorities for the next phase of bilateral engagement.

During talks with South Africa Deputy Minister of Science, Technology and Innovation Dr Nomalungelo Gina, who called on him accompanied by a high-level delegation, Union Minister Dr Jitendra Singh called for taking the relationship beyond traditional research cooperation towards innovation-driven partnerships capable of delivering economic and societal impact at scale.

Holding bilateral talks with Dr. Nomalungelo Gina, Deputy Minister of Science, Technology and Innovation of South Africa, Dr Jitendra Singh said that the next phase of India-South Africa engagement must be shaped by emerging technologies, innovation ecosystems, startup partnerships and industry-linked research. He said the two countries possess complementary strengths that can be leveraged to create affordable, scalable and inclusive technological solutions for the developing world.

The Minister said India and South Africa share a unique partnership forged through a common history, democratic values and a shared commitment to inclusive growth. He noted that as influential voices of the Global South, both countries are increasingly contributing to shaping international conversations on science, technology and innovation through platforms such as

BRICS, IBSA, G20 and IORA, while also advancing bilateral cooperation across multiple strategic sectors.

The meeting was held at the Kartavya Bhawan in New Delhi. The Indian delegation included Dr. Rajesh S. Gokhale, Secretary, DST, senior officials of the Department and representatives from the Ministry of External Affairs. The South African delegation was led by Deputy Minister Dr. Nomalungelo Gina and comprised senior officials from the Department of Science, Technology and Innovation and the South African High Commission.

Dr. Jitendra Singh said India has emerged as one of the world's fastest-growing innovation ecosystems, supported by major national initiatives in Artificial Intelligence, Quantum Technologies, Cyber-Physical Systems, Digital Public Infrastructure and startup-led innovation. He said these advancements present new opportunities for collaborative research, technology development and innovation partnerships with South Africa.

Emphasising that science must increasingly translate into solutions that improve lives, generate employment and strengthen economies, the Minister called for deeper engagement among research institutions, innovation agencies, startups and industry from both countries. He said future cooperation should focus not only on scientific excellence but also on technology deployment, commercialization and societal outcomes.

A key outcome of the discussions was the decision to intensify collaboration in Advanced Materials and Manufacturing, Geospatial Technologies and Digital Infrastructure, priority areas identified under the India-South Africa Joint Committee mechanism. Both sides agreed to accelerate interactions among scientists, institutions and technical experts to transform these focus areas into concrete collaborative programmes and outcomes.

The discussions also highlighted substantial opportunities in biotechnology, genomics, vaccine development, health technologies and pandemic preparedness. Dr. Jitendra Singh said recent global experiences have reinforced the importance of resilient healthcare systems and scientific partnerships, adding that India's strengths in biotechnology, affordable healthcare innovation and vaccine manufacturing offer significant scope for collaboration with South Africa.

South Africa expressed strong interest in expanding cooperation with India in renewable energy, hydrogen technologies, advanced manufacturing, digital technologies, health sciences, vaccine research and skills development. Dr. Gina said South Africa values India as a trusted partner and is keen to strengthen institutional linkages, research collaboration and innovation partnerships across priority sectors. Recalling the strong foundation of bilateral scientific engagement, she noted that the two countries have already built an extensive network of collaborative research initiatives, including nearly 150 co-funded projects across diverse scientific disciplines. She expressed confidence that the partnership is now well-positioned for significant expansion in emerging technology domains and innovation-driven collaboration.

The two leaders also reviewed cooperation in astronomy, one of the flagship areas of India-South Africa scientific engagement. Dr. Jitendra Singh highlighted the significance of the Square Kilometre Array (SKA) project, describing it as one of the most ambitious scientific endeavours of the century and a powerful example of how international collaboration can drive scientific discovery, advanced computing capabilities, technological innovation and human resource development.

Recognising the growing importance of multilateral scientific engagement, Dr. Jitendra Singh invited South Africa's active participation in the BRICS Science, Technology and Innovation

Ministerial Meeting scheduled to be held in Chennai in August 2026. He said BRICS cooperation is creating new opportunities for collaborative research in areas such as high-performance computing, artificial intelligence, renewable energy, biotechnology, water resources, precision agriculture and materials science.

The South African side also invited India to participate in the Science Forum South Africa 2026, one of Africa's premier platforms for global scientific dialogue, knowledge exchange and innovation partnerships. Both sides welcomed the opportunity to further strengthen scientific engagement through regular institutional interactions and high-level exchanges.

India and South Africa have maintained a vibrant Science and Technology partnership since the signing of the bilateral S&T Agreement in 1995. Over the years, the relationship has expanded across astronomy, biotechnology, health sciences, indigenous knowledge systems, renewable energy, advanced materials and earth sciences. The two countries have jointly supported dozens of research projects and continue to deepen collaboration through structured institutional mechanisms.

The meeting concluded with a shared resolve to build a stronger, future-ready innovation partnership driven by research excellence, technology development, startup collaboration and people-to-people scientific exchanges, with the objective of generating meaningful benefits for both nations and contributing to the broader development aspirations of the Global South.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2268311&reg=3&lang=1

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# Anthropic grants India access to restricted AI model 'Mythos'

***Source: The Times of India, Dt. 04 Jun 2026***

In the rapidly escalating global race to harness artificial intelligence for cyberwarfare and cyberdefence, India finds itself in an unusually exclusive club. Anthropic, the US artificial intelligence company behind Claude AI, this week expanded access to its highly restricted cybersecurity model, Mythos, to roughly 150 organisations across more than 15 countries, including India, under an initiative called Project Glasswing. India's inclusion is notable because the list is otherwise dominated by Washington's closest security partners and allies, with China a conspicuously absentee.

Project Glasswing is Anthropic's attempt to address what it believes is a looming cybersecurity crisis. The company says Mythos has reached a level of coding and vulnerability-discovery capability that surpasses almost all human security researchers. In testing, the model reportedly uncovered thousands of serious software vulnerabilities across major operating systems and browsers, helping partners identify and patch flaws before malicious actors can exploit them.

Anthropic has been unusually cautious with Mythos. Unlike consumer AI products released to millions of users, Mythos remains gated because the same capability that can find security weaknesses can also potentially be used to exploit them. British and American security researchers have warned that frontier AI systems are approa ching the point where they could significantly accelerate sophisticated cyberattacks.

That explains why access is limited largely to govts, critical infrastructure operators, major technology companies, financial institutions and cybersecurity agencies. Participants are expected not merely to use Mythos, but to help test it, identify risks and improve defences.

For India, the invitation carries strategic significance. New Delhi is not a treaty ally of Washington, yet it is the only major non-allied power included in the current expansion. Other countries that have access to Mythos include France, Germany, Italy, Switzerland, the Netherlands, Spain, Belgium, Sweden, Canada, Japan, South Korea, Austra lia, and New Zealand. The decision to include India likely reflects a combination of geopolitical and commercial realities. First, India has become one of the world's largest pools of software talent and one of the fastest growing markets for AJ adoption. Second, India's digital infrastructure, from banking and payments to telecom and public digital platforms, has become so extensive that vulnerabilities discovered in Indian systems can provide valuable insights into securing software.

China's exclusion is less mysterious. Project Glasswing is fundamentally a security initiative, and Mythos is designed to discover software vulnerabilities at scale, making it a technology with obvious national-security implications. At a time of intensifying US-China technological rivalry, US lawmakers like Senator Chris Coons ensuredthere was no chance Washing ton would allow such capabilities to Chinese institutions.

India also enjoys another advantage inside Anthropic itself. The company has a significant Indian presence in its leadership and engineering ranks, including CTO Rahul Patil. Anthropic has also opened a global office in Bengaluru, only the second after Tokyo, tapping local talent to build what it describes as "sovereign" AI infrastructure. If Mythos can identify vulnera bilities before hostile actors do, Indian organisations such as CERT-In (Indian Computer Emergency Response Team, govt agency for cybersecurity coordination) and firms such as TCS and Infosys may gaina rare defensive head start in a world where AI israpidly becoming both the locksmith an lockpick of cyberspace.

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# Next-generation nanomedicine can silence key cancer drivers

***Source: Press Information Bureau, Dt. 03 Jun 2026***

Scientists from Pune have reported a gene-silencing strategy that can drive effective tumor inhibition in breast cancer, highlighting its potential as next-generation precision nanomedicine. Advances in cancer nanomedicine are increasingly shifting toward precision strategies that directly silence disease-driving genes while minimizing systemic toxicity.

Scientists from from the Agharkar Research Institute (ARI), Pune, an autonomous institute under the Department of Science and Technology (DST), Government of India, have presemted an innovative biodegradable nanocarrier platform engineered for targeted gene therapy in breast cancer. The research, recently published in Advanced Healthcare Materials, provides new insights into targeted gene silencing of key survival pathways in breast cancer, enabling efficient tumor targeting and suppression, and offering a promising strategy for developing more effective and safer nanomedicine-based therapies.

The system is built on biodegradable mesoporous silica nanoparticles—well known for their high loading capacity and tunable surface chemistry—which enable efficient delivery of small interfering

RNA (siRNA) molecules. By functionalizing the nanocarrier with a protamine biopolymer and an MUC1-specific aptamer, the researchers achieved precise tumor targeting, leveraging the overexpression of MUC1 receptors on breast cancer cells. This targeting strategy significantly enhances cellular uptake while reducing off-target effects, a key limitation in conventional therapies.

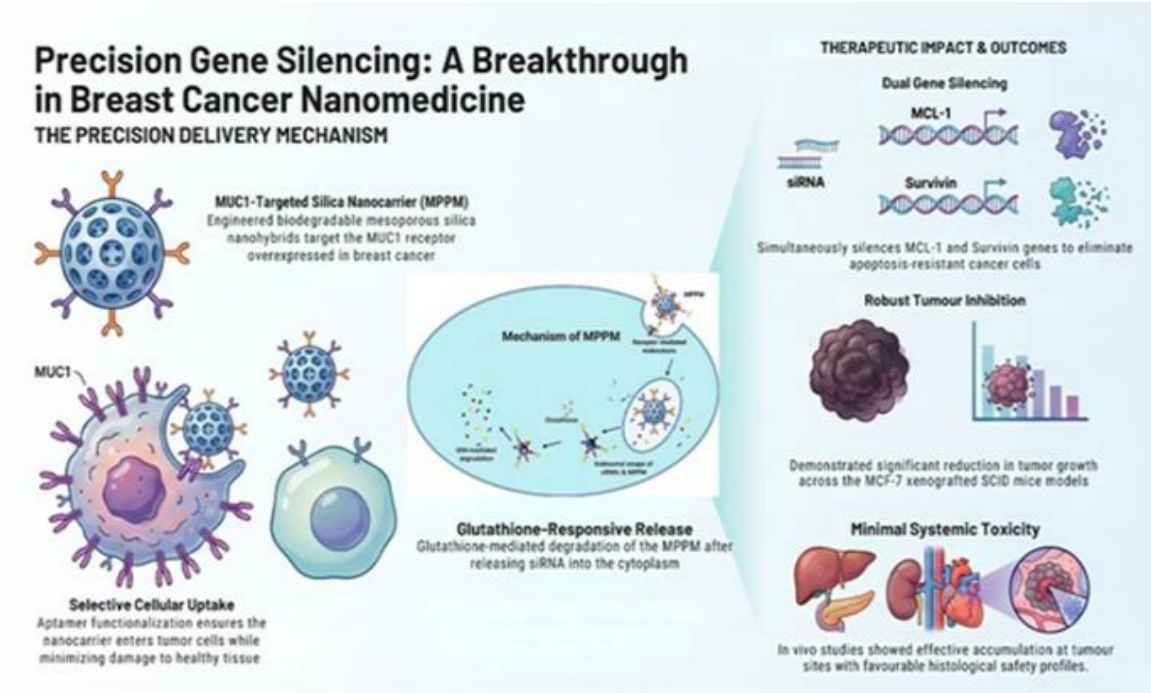


***Fig:*** *MUC1-Targeted Silica Nanocarrier (MPPM) Engineered biodegradable mesoporous silica nanohybrids target the MUC1 receptor overexpressed in breast cancer*

A major highlight of the study by the team costsing of Niladri Haldar, Rajkumar Samanta, Surajit Patra, Devyani Sengar, Sachin Jadhav, and Virendra Gajbhiye is the dual gene-silencing approach. The nanocarrier simultaneously delivers siRNAs against two critical anti-apoptotic genes, MCL-1 and Survivin—both known to promote tumor survival and resistance to therapy. Once inside the tumor microenvironment, the glutathione-responsive design triggers controlled release of the therapeutic payload, ensuring efficient intracellular delivery and activity.

Biological evaluations in MCF-7 breast cancer models demonstrated robust gene knockdown, resulting in increased apoptosis and substantial tumor growth inhibition. Importantly, in vivo studies in Severe Combined Immunodeficiency (SCID) mice showed that the nanocarrier accumulates effectively at tumor sites and exhibits minimal systemic toxicity, as evidenced by favorable histological outcomes. These findings align with growing evidence that aptamer-guided nanocarriers can significantly improve tumor specificity and therapeutic efficacy.

Overall, this work highlights a powerful convergence of targeted delivery, stimuli-responsive release, and combinatorial gene silencing. By integrating these features into a single biodegradable platform, the study provides a compelling framework for next-generation RNAi-based cancer therapies. Such approaches could play a critical role in advancing precision oncology, offering more effective and safer alternatives to traditional chemotherapy. The research was conducted by scientists from the Nanobioscience Group at the Agharkar Research Institute, Pune, India.

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