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समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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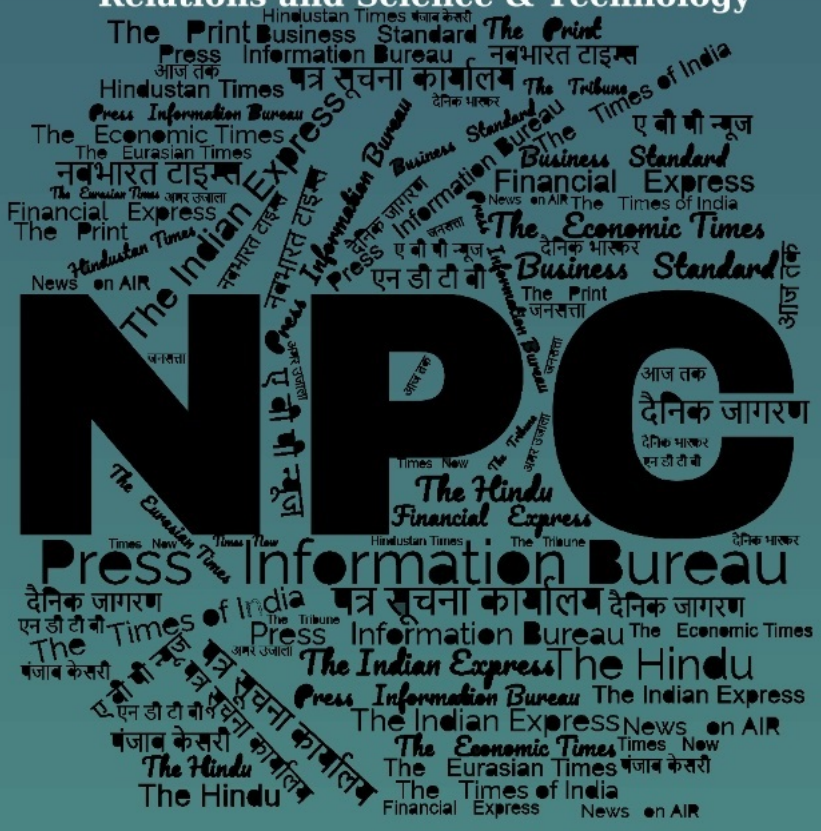

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DRDO News

IAF strengthens combat readiness, boosts fighter fleet & missile systems

Source: The Tribune, Dt. 08 May 2026

Operation Sindoor, the skirmish with Pakistan last May, has led to faster decision-making within the Indian Air Force (IAF) and the Government on the procurement of next-generation fighter jets, missiles, specialised UAVs, air defence systems and long-range strike weapons. The IAF is undergoing a significant strategic shift aimed at strengthening combat preparedness and enhancing long-range precision strike capability.

Focusing on the fighter aircraft fleet, the Ministry of Defence in February approved the purchase of 114 Rafale fighter jets from French manufacturer Dassault Aviation. India is also set to formalise the procurement of the fifth-generation stealth fighter Sukhoi Su-57 from Russia.

The immediate requirement for a fifth-generation fighter stems from China's growing fleet of advanced combat aircraft. China already operates the J-20 and J-35 stealth fighters and has reportedly promised similar platforms to Pakistan. The Russian Su-57 is being considered as a stop-gap arrangement until India's indigenous fifth-generation Advanced Medium Combat Aircraft (AMCA) becomes operational, which is expected to take around a decade.

In August last year, the procurement of 97 additional Tejas Mk-1A fighter jets worth Rs 62,370 crore was also approved. The order is in addition to the 83 aircraft already contracted, taking the total order for Tejas Mk-1A fighters to 180. The IAF is also exploring an interim arrangement to upgrade several Sukhoi-30MKI fighter jets with Russian assistance.

Following Operation Sindoor, the Ministry of Defence has focused on newer technologies for unmanned aerial vehicles (UAVs). It has approved solar-powered High-Altitude Pseudo Satellite Vehicles (HAPS), capable of operating at an altitude of 20 km in the stratosphere for prolonged surveillance and reconnaissance missions. The Centre has also cleared the procurement of 60 **Ghatak Unmanned Combat Aerial Vehicles (UCAVs)**. Developed by the **Defence Research and Development Organisation (DRDO)**, the Ghatak is a stealth-capable UCAV designed with internal weapon carriage.

A clear shift towards long-range missile capability has emerged after the success of Operation Sindoor strikes, which hit targets nearly 300 km away from stand-off distances. This has led to an aggressive push for air-to-ground and air-to-air missiles with strike ranges exceeding 300 km. The IAF has tasked the DRDO with accelerating development of the **Astra Mk-2**, a longer-range variant of the indigenous air-to-air missile. Procurement of the Russian-origin R-37 missile, which has a strike range of around 300 km, has also been expedited.

Speaking to the media in Jaipur on Thursday during a press briefing marking the anniversary of Operation Sindoor, IAF Deputy Chief Air Marshal AK Bharti said, "we need to add enablers like for intelligence gathering besides air borne radars and mid air refullers". Following the skirmish, the IAF also assessed the need for deploying drones and UAVs in larger numbers. Its Integrated Air Command and Control System (IACCS), which enables real-time sensor fusion, is currently being upgraded.

To strengthen air defence capabilities, the ministry has also approved five additional Russian-origin S-400 air defence systems, which performed creditably during Operation Sindoor. The Tribune reviewed Union Budget data, which showed that defence spending for the fiscal ending March 2026 was revised following Operation Sindoor. Within the allocated capital budget, an additional Rs 24,116 crore was provided for “aircraft and aero engines”, taking the post-Sindoor allocation under the head to Rs 72,780 crore.

https://www.tribuneindia.com/news/india/iaf-strengthens-combat-readiness-boosts-fighter-fleet-missile-systems/

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Defence News

Countering China? India offers Vietnam BrahMos missile during President To Lam's visit

Source: The Times of India, Dt. 08 May 2026

As part of India’s ‘Act East’ policy and to counter China’s growing influence in southeast Asia, PM Modi has discussed boosting defence cooperation with Vietnam’s visiting President To Lam, including the sale of BrahMos cruise missile, with New Delhi calling Hanoi “an important partner in the Indo-Pacific”.

The leaders reaffirmed that defence and security cooperation is a key pillar of India-Vietnam Comprehensive Strategic Partnership. They commended the effective implementation of the joint vision statement on the partnership, which continues to guide growing defence ties between the two countries.

Giving details, P Kumaran, secretary (East), Ministry of External Affairs (MEA), said on Wednesday, “On BrahMos, ...I want to broadly state that Vietnam is a very important partner for us in the Indo-Pacific and all these areas that we cooperate in are based on the broad premise that a strong Vietnam will serve the cause of peace and stability in the Indo-Pacific. We do talk about a number of platforms and BrahMos platform is also one of them and you know, watch this space.”

Kumaran said that the defence partnership framework covers capacity building, training of Vietnamese armed forces, UN peacekeeping cooperation, joint exercises, port calls, ship visits and hydrographic surveys.

He said several MoUs are already operational, including in submarine rescue, humanitarian assistance and disaster relief, mutual logistics support and defence industry cooperation. “We are pursuing an agreement on white shipping information sharing, cybersecurity and AI-enhanced security measures. There is also ongoing cooperation on transnational crime involving the navies and the coast guards,” he said.

“A delegation from the Society of Indian Defence Manufacturers visited Vietnam in March 2026 to explore opportunities for defence procurement by Vietnam. The PM offered help with maintenance and MRO support for platforms that Vietnam has, such as the Sukhoi-30 and the Kilo-class submarines,” Kumaran said.

He further said a 500-million-dollar credit line previously announced was also discussed, along with identified defence procurement projects worth $300 million, including 14 high-speed patrol boats and three offshore patrol vessels. “The remaining $200 million will involve the next stage of line of credits, which could involve the upgradation of ships belonging to the Vietnam Navy and the purchase of submarine batteries,” he said.

“On UNCLOS and the South China Sea, our position is well-documented. We uphold the importance of maintaining peace, stability, security, and freedom of navigation and overflight," he said. The Indian delegation thanked the Vietnamese side for inviting India to take part in its nuclear power sector.

https://timesofindia.indiatimes.com/defence/countering-china-india-offers-vietnam-brahmos-missile-during-president-to-lams-visit/articleshow/130922764.cms

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A year after Operation Sindoor, drones to standoff weapons: Armed forces take fast route to shopping

Source: The Indian Express, Dt. 08 May 2026

Reorganising itself into a more agile and functional fighting force, more so post Operation Sindoor, the Indian military has made large-scale emergency procurement of modern weapons and technology to change the way it fights future wars. The acquisitions over a year include a variety of drones, loitering munitions, counter-unmanned aerial systems, standoff weapons, including guided munitions and missiles. Several radars and electronic warfare equipment have also been procured through the fast-track route.

According to officials familiar with the developments, Operation Sindoor and ongoing conflicts abroad have provided key insights into how future wars will be fought, and the measures being discussed and implemented by the Indian armed forces are in line with the evolving realities. Defence Secretary R K Singh, speaking at a security summit organised last month by news agency ANI, said Operation Sindoor, the Russia-Ukraine war and the West Asia war have shown the importance of standoff weaponry, of a layered and strong air defence system, of sufficient stockpiles of munitions and missiles and “of ensuring that your radars are mobile and your artillery is also mobile”.

Underlining that these lessons have been applied to refine Indian defence procurement strategies, Singh said the majority of the Rs 30,000-crore emergency procurement contracts, signed after Operation Sindoor, were intended to acquire drones, counter-drone systems, loitering munitions, various types of radars, and electronic warfare equipment.

According to officials, Operation Sindoor showcased the efficiency of air defence systems — like the S-400 missile systems in providing a sky shield against incoming aerial threats and achieving the longest-ever surface-to-air kill from a distance of 300 km — and also demonstrated the criticality of standoff weapons, particularly long-range beyond visual range missiles, and precision-guided artillery rounds.

The weapons used by the Indian Air Force during the strikes on targets in PoK and Pakistan included Scalp cruise missiles which allowed fighter aircraft to attack ground targets from standoff ranges. Additionally, the operation featured the use of Hammer smart weapon systems, BrahMos

missiles and guided bomb kits. The Army utilised artillery guns and Excalibur precision-guided artillery rounds.

India also used a variety of loitering munitions to target Pakistani military installations, doing away with the need to physically cross borders while maintaining the ability to strike deep inside enemy territory. During the hostilities, Pakistan deployed the China-supplied PL-15E beyond-visual-range air-to-air missile (BVRAAM), providing India insights into its capabilities.

India is said to be acquiring the R-37 long-range air-to-air missile from Russia and plans to induct the homegrown Astra BVRAAM and variants to enhance its arsenal of standoff weapons. And 216 Excalibur precision-guided 155mm artillery projectiles are being bought from the US. Other than large-scale fast-track procurement of modern technologies and weaponry, the Indian military, particularly the Army, has also been reorganising itself into smaller, lethal functional units equipped with modern weaponry for future wars.

The Army is raising Ashni platoons, Bhairav battalions, Rudra brigades, Shaktibaan regiments, Divyastra batteries and is working towards establishing integrated battle groups. According to officials, the Ashni platoons will be specialised drone platoons, integrated into infantry battalions, while Bhairav battalions are high-mobility light commando battalions. The Rudra brigade is an all-arms integrated brigade-level combat formation. Shaktibaan regiments will focus on unmanned systems and precision firepower, and the Divyastra battery will be primarily a drone, loitering-munition battery.

In the wake of the West Asia war, India is looking to raise a conventional missile force. According to the Defence Secretary, earlier the idea was to use it for only strategic purposes, but with that paradigm shifting now, India will adjust accordingly. A senior official said these changes will mean fewer forces can dominate large areas, allowing a large number of reserves for any offensive and other tasks.

https://indianexpress.com/article/india/a-year-after-operation-sindoor-drones-to-standoff-weapons-armed-forces-take-fast-route-to-shopping-10678468/

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Ready to counter Chinese missile threats from Pakistan: Military top brass on Operation Sindoor anniv

Source: The Tribune, Dt. 08 May 2026

India's military leadership on Thursday said it was ready to tackle fresh threats from Chinese-origin missiles acquired by Pakistan and reiterated that no terror sanctuary in Pakistan was safe, while also ruling out any third-country role in brokering peace between the two neighbours. The military leadership -- Lt Gen Rajiv Ghai, Air Marshal AK Bharti and Vice Admiral AN Pramod -- who had led military operations during Operation Sindoor in May last year, emphasised that Pakistan had failed to damage any military or civilian infrastructure in India during the skirmish (May 7-10, 2025).

On newer Chinese-origin missiles being tested by Pakistan, Air Marshal Bharti said, "We are continuously scanning… to always stay ahead of their capabilities." Two more units of the Russian-origin S-400 air defence missile systems are expected to be inducted this year, including one later this month. The IAF currently operates three such systems.

On the destruction caused inside Pakistan during Operation Sindoor, Air Marshal Bharti said," Eleven Pakistan Air Force bases were hit and 13 planes were destroyed during the skirmish, forcing Pakistan to seek cessation of hostilities. "Narrative and rhetoric do not give you victory," he remarked. General Ghai said, "Pakistan lost 100 soldiers. We have presented hard facts of military losses to Pakistan with irrefutable pictures and videos. Show us one evidence Pakistan has provided for its claims."

The three officers were addressing a press conference in Jaipur on the sidelines of the Joint Commanders' Conference. On terror infrastructure across the border, General Ghai said, "We have identified terror launch pads, terror camps and terror infrastructure across the Line of Control (LoC)… no sanctuary across the LoC is safe." He said the number and nature of such camps might fluctuate and some had shifted deeper inside Pakistan in the belief they would be safer, but no sanctuary was safe.

Speaking on the Navy's role during last year's skirmish, Vice Admiral Pramod said indigenous ships such as aircraft carrier INS Vikrant and the Kolkata and Visakhapatnam-class destroyers validated the Navy's investment in indigenous capability and preparedness. "If challenged again, we will not merely respond, we will shape the battlespace from the outset," he said.

Asked about the possibility of Turkiye, China and Pakistan colluding as they did during last year's conflict, General Ghai dismissed the concern. "You play against the team that turns up on the park. That is not something that should worry us so much. It is not something within our control. India and its armed forces are fully on the path to meeting these challenges," he said. The military leadership also said that after Operation Sindoor, the armed forces were undergoing transformation involving new weapons, missiles and upgrades of air defence systems and networks across both conventional and next-generation warfare domains.

General Ghai described Operation Sindoor as a defining moment in India's strategic journey. "It played out like clockwork. It is the gold standard of operations," he said. Air Marshal Bharti said Operation Sindoor had reaffirmed the primacy of air power, including aircraft, missiles, UAVs and helicopters.

https://www.tribuneindia.com/news/top-headlines/ready-to-counter-chinese-missile-threats-from-pak-military-top-brass-on-operation-sindoor-anniv/

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इंडियन मिलिट्री ने कहा- ऑपरेशन सिंदूर खत्म नहीं हुआ, अब भी जारी

Source: NavBharat Times, Dt. 08 May 2026

आतंक के खिलाफ पिछले साल 6/7 मई की रात को लॉन्च हुआ ऑपरेशन सिंदूर अब भी जारी है। इंडियन मिलिट्री नेकहा किऑपरेशन सिंदूर बस पॉज हुआ है। साथ हीकहा किऑपरेशन ने भारत की स्वदेशी क्षमता को मजबूती से सामने रखा। ऑपरेशन में इस्तेमाल किए गए हथियार प्रणालियों, गोला-बारूद, रॉकेट, मिसाइल, सेंसर और इलेक्ट्रॉनिक वॉरफेयर सिस्टम का बड़ा हिस्सा भारत में विकसित और निर्मितकिया गया था जिसने निर्णायक भूमिका निभाई।

जारी है ऑपरेशन सिंदूर: लेफ्टिनेंट जनरल ग्रुजीव घई ने कहा कि ऑपरेशन सिंदूर जारी है, इसका मतलब ये भी है कि तैयारियां जारी हैं। हमने जो सबक लिए उस हिसाब से तैयारी चल रही है, ट्रांसफॉर्मेशन चल रहा

है। हमें लगा जो बदलाव करना हैं तो वह तैयारी चल रही है, तैनाती पर सोच विचार चल रहा है। अगर काइनेटिक एक्शन (सीधी सैन्य कार्रवाई) की जरूरत होगी तो वह भी होगा। इसहिसाब से ऑपरेशन सिंदूर अभी भी जारी है और जारी रहेगा। भारत की आंतक के खिलाफ लड़ाई चलती रहेगी।

समय लिखेगा उनका भी इतिहास: पाकिस्तान और चीन की मिलीभगत के सवाल पर एयर मार्शल एके भारती ने कहा 'समर शेष है, नहीं पाप का भागी केवल व्याध, जो छद्म है समय लिखेगा उनका भी इतिहास'। वाइस एडमिरल एएन प्रमोद ने पहलगाम हमले के बाद कूटनीतिक स्तर पर संकटों का जिक्र किया। कहा कि चीन ने पहलगाम हमले की निंदा करने से परहेज किया। इसी तरह जब संयुक्त राष्ट्र सुरक्षा परिषद में प्रेस बयान जारी किया गया तब भी चीन के प्रभावके कारण 'रेजिस्टेंस फ्रंट' का नाम सीधे तौर पर हमले से नहीं जोड़ा गया। पाकिस्तान के करीब 80 फीसदी हथियार चीन से आते हैं। हथियारों औरआधुनिक सैन्य प्लेटफॉर्म्स जैसे जहाज, विमान और पनडुब्बियोंके मामले में चीन पाकिस्तानको अपनी बेहतरीन तकनीक दे रहा है। हाल ही मेंयह भीसामने आयाकि अगले दो सालों में पाकिस्तान को करीब 40 जे-35 लड़ाकू विमानदिएजाएंगे।यह सिर्फ सैन्य हार्डवेयर तक सीमित नहीं है।

लेफ्टिनेंट जनरल 'राज़ीवघई ने कहा कि चाहे हमारे सामने एक ही मोर्चे पर तुर्किए, चीन और पाकिस्तान जैसे तीन विरोधी हों, हमें उसी: टीम के खिलाफ खेलना है जो मैदान में सामने आती है। इसलिए ह ऐसी बात नहीं है जिसे लेकर हमें ज्यादा चिंतित होना चाहिए। यह हमारे नियंत्रण में भी नहीं है। भारत और हमारी सेनाएं इन चुनौतियों का सामना करने के रास्ते पर लगातार आगे बढ़ रही हैं। यही वजह है कि एक साल बाद हम आपके सामने बैठे हैं ताकियह भरोसा दिला सकें कि पिछले साल से हमने जो सीखा, उसे अच्छी तरह आत्मसात किया है और हम लगातार आगे बढ़ रहे हैं।

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आपरेशन सिंदूर में पाकिस्तान के 3 लड़ाकू विमान व 11 हवाईपट्टियां भारत ने की थीं तबाह

Source: Dainik Jagran, Dt. 08 May 2026

पिछले साल 22 अप्रैल को पहलगाम आतंकी हमले में 26 निर्दोष लोगों कीमौत के बाद भारत की ओर से सात मई से चलाए गए "आपरेशन सिंदूर' के दौरान भारतीय सेना ने पाकिस्तान के 3 लड़ाकू विमान व 11 हवाईपट्टियां तबाह की थीं। पाकिस्तान को गहरी चोट देने वाले इस आपरेशन के एक साल बाद पहली बार यह जानकारी सामने आई। आपरेशन सिंदूर की पहली वर्षगांठ पर भारतीय वायुसेना, नौसेना व थलसेना ने बृहस्पतिवार को जयपुर में एक. संयुक्त प्रेस कान्फ्रेंस की और उसी में यह राजफाश हुआ। इस दौरान सेना ने यह स्पष्ट संदेश दिया कि पाकिस्तान में कोई आतंकी ठिकाना सुरक्षित नहीं है और यह मिशन तो बस एक शुरुआत है। भारत आतंकवाद के खिलाफ लड़ता रहेगा और अपनी संप्रभुता व नागरिकों की रक्षा निर्णायक तरीके से करेगा।

जागरण संवाददाता के अनुसार, डिप्टी चीफ आफ एयर स्टाफ एयर मार्शल अवधेश कुमार (एके) भारती ने कहा, 'सात मई को हमने पाकिस्तान में नौ आतंकी कैंपों पर हमला किया और उन्हें तबाह कर दिया। इसका सुबूत सबके सामने है। हमने उनके 11 हवाई अड्डों पर हमला किया व 13 लड़ाकू विमानों को नष्ट किया। 300 किमी से ज्यादा की रिकार्ड दूरी पर मौजूद एक हाई वैल्यू एयरबोर्न एसेट को भी नष्ट किया गयां।'

उन्होंने कहा-'पाकिस्तान हमे कोई बड़ी क्षति नहीं पहुंचा पायां। न तो किसी सैन्य ढांचे कोऔर न ही लोगों को, वह चाहे कुछ भी दावा करें।'

प्रेट् के अनुसार, एयर. मार्शल ने कहा, "बार-बार सवाल उठता है कि हमने लड़ाई रोकने पर सहमति क्यों दी? असल में हमारी लड़ाई आतंकियों व उनके सहायक बुनियादी ढांचे से थी। हमने अपने सैन्य लक्ष्य कोहासिल किया और हमारा मिशन पूरा ही चुका था। लेकिन जब पाकिस्तानी सरकार ने आतंकियों का साथ देने का फैसला किया तो हमने भी उन्हें उन्हीं की भाषा में' कड़ा जवाब दिया और वह बेहद घातक-निर्मम था। भारत ने कार्रवाई तब रोकी जब पाकिस्तान की ओर से संघर्ष रोकने की मांग की गई। भारतीय नौसेना के वाइस एडमिरल एएन प्रमोद ने कहा कि "नौसेना की तैनाती के कारण पाक नौसेना-वायुसेना को अपने तटीय इलाकों तक सीमित रहना पड़ा।

आपरेशन सिंदूर के क्रियान्वयन में अहम भूमिका निभाने वाले सेना के तत्कालीन सैन्य संचालन महानिदेशक ले. जनरल राजीव घई ने कहा, आपरेशन सिंदूर अभी खत्म नहीं हुआ है। सेना ने पीओजेके में नौ सटीक स्ट्राइकें कीं और 100 से अधिक आतंकी मार गिराए। 100 से अधिक पाकिस्तानी जवानों भी मारे गए।

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Powerful symbol of national resolve, preparedness: Rajnath Singh on anniversary of Operation Sindoor

Source: The Economic Times, Dt. 08 May 2026

Defence Minister Rajnath Singh on Thursday paid tribute to the valour and sacrifices of the Indian armed forces on the anniversary of Operation Sindoor. He described the operation as a "powerful symbol of national resolve and preparedness," saying it reflected the armed forces' unmatched precision, seamless jointness and readiness to act decisively in safeguarding the nation.

In a post on X, the Defence Minister wrote, "On the anniversary of Operation Sindoor, we salute the valour and sacrifices of our armed forces, whose courage and dedication continue to safeguard the nation. Their actions during the operation reflected unmatched precision, seamless jointness and deep synergy across services, setting a benchmark for modern military operations."

"Operation Sindoor stands as a powerful symbol of national resolve and preparedness, showing that our armed forces are always ready to act decisively when it matters most. It also stands testament to India's steady advance towards achieving Atmanirbharta, enhancing capability while reinforcing resilience," the post read.

Operation Sindoor was launched in the aftermath of the Pahalgam terror attack that claimed 26 lives, prompting a strong military response from India. Read more: India commemorates first anniversary of Operation Sindoor, marking decisive military action against terror infrastructure

Indian armed forces struck terror bases in Pakistan and Pakistan-occupied Jammu and Kashmir (PoJK).In Operation Sindoor, launched on May 7, 2025, India successfully destroyed nine major terror launchpads in Pakistan and Pakistan-occupied Jammu and Kashmir (PoJK), targeting Lashkar-e-Taiba, Jaish-e-Mohammed, and Hizbul Mujahideen facilities. Indian armed forces killed over 100 terrorists in action.

Pakistan responded with drone attacks and shelling, which led to a four-day conflict between the two neighbouring countries. India showed formidable defence and conducted retaliatory strikes, destroying Radar installations in Lahore and Radar facilities near Gurjanwala. Following significant damage, Pakistan's Director General of Military Operations (DGMO) reached out to the Indian DGMO, and a ceasefire was agreed on May 10, bringing an end to the hostilities.

https://economictimes.indiatimes.com/news/defence/powerful-symbol-of-national-resolve-preparedness-rajnath-singh-on-anniversary-of-operation-sindoor/articleshow/130876380.cms?from=mdr

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From deterrence to compellence

-by Manoj Katiyar, GOC-in-C Western Command during Operation Sindoor

Source: The Indian Express, Dt. 08 May 2026

On May 7, 2025 at 0105 hours, India launched Operation Sindoor with precision strikes on nine terrorist bases in Pakistan, to avenge the brutal killing of 26 civilians in Pahalgam. A year on, the operation deserves sober appraisal. Did we achieve our objective of lasting deterrence or did it merely reset theclock on a cycle of violence? More importantly, if Pakistan sponsors anotherterror attack, how should India respond? What should be the strategy for Sindoor 2.0?

Some analysts argue that India should have pressed the advantage further. Sindoor, however, was never intended to be a full-scale war. It was a response short of ‘ war — limited in scope, space and intensity, designed to punish the perpetrators of terror while preserving the option to scalate. When Pakistan sought a ceasefire on May 10, India accepted, as the objectives destruction of terrorist infrastructure and a demonstrable punitive message had been met. Yet deterrence is not a single act but a posture sustained over time by certainty, severity and credibility.

So, sceptics may rightly ask whether deterrence willendure. Sindoor’s political fallout for the Pakistan army was limited. Paradoxically, it has been able to recast itselfas a stabilising force on the international stage, even as it retains the option to sponsor further proxy violence. After the defeat in 1971, the Pakistan army’s strategic calculus narrowed to asymmetric options to keep confrontation with India alive. Having refined irregular warfare during the Afghan conflict in the 1980s, it institutionalised proxy war as an instrument ofstate policy.

“War avoidance” is a key feature of the proxy war strategy. Pakistan calibrates terror attacks to invite only limited retaliation. This has become even more important today when its army is heavily committed on the Afghan front. Islamabad also leans oninternational actors to restrain escalation while invoking the spectre of nuclear war to detera decisive Indian response.

Finally, the Pakistani military seeks a “notion of victory” from limited engagements. Small tactical gains are magnified through information operations to create a narrative of triumph at home and abroad, as was done during Sindoor.

Against any future terror strike, India must keep various response options ready in both the kinetic and non-kinetic domains. A kinetic strategy should rest ona response short of war, with escalation dominanceatevery stage; itmust challenge Pakistan’s strategyofwar avoidance, denyit any notion of victory, and enable a graduated shift from deterrence to compellence.

Deterrence depends on the adversary's belief that retaliation will be both certain and consequential. The first response must therefore be fasterand more consequential than in 2025. Higher readiness levels allow a shorter decision window, reducing the chances ofinternational mediation restricting India's options. Initial strikes should be intelligence-driven, targeting terrorist bases and HQs and also selectively striking military bases that support proxy networks. India's naval superiority could be exploited.

India must plan to then absorb, deter and out-respond any Pakistani reprisals. That requires layered defensive safeguards: Robust air and missile defences, hardened and dispersed basing, resilient logistics and civil-protection measures. Offensively, responses should be phased, with verifiable victory markers at each stage.

Visible mobilisation of strike formations, even when not planning full-scale operations, will create a diresituation for Pakistan, which will need to relocate forces from the Afghan border— leaving it vulnerable against the BLA, TTP and Afghan army. Diplomatically, India must preempt third-party pressure for an early ceasefire by engaging world powers with justification forits actions. Militarily, weshould combine credible conventional options with the reinforcement of the massive second-strike policy, even in response to tactical nuclear weapons, to call Pakistan's nuclear bluff.

Beside preventing major damage to Indian bases, synchronised information operations, transparent attribution and the rapid release of forensic evidence are essential toshape domestic and international perceptions. Capturing objectives on the ground will blunt Pakistani propaganda.

Sindoor 2.0 should be designed not merely to punish but to extract concrete concessions. In return for the captured territory, India should insist on the repatriation and prosecution of terrorist leaders, dismantling of terror networks and public renunciation of state sponsorship for terrorism. A maritime blockade can be another important lever.

'Operation Sindoor delivered tactical success, but possibly did not resolve the underlying strategic problem. The nextiteration must be conceived as a coherent, multi-domain campaign that pairs swift, severe kinetic action with calibrated diplomatic, economic and information instruments. Its aim should be to compel a durable change in Pakistan's calculus making proxy warfare an unattractive and unsustainable policy choice.

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INS Sagardhwani arrives in Cam Ranh, Vietnam

Source: Press Information Bureau, Dt. 07 May 2026

INS Sagardhwani, an oceanographic research vessel, arrived at Cam Ranh, Vietnam on 05 May 2026, marking a significant step in India's scientific cooperation with Vietnam.

On arrival, the ship was warmly received by Senior Colonel Tran Van Cuong, Deputy Head of Khanh Hoa Military Command, along with representatives from the Vietnam People's Navy and the Coast Guard. The ship will conduct scientific interactions with the Institute of Oceanography, Nha Trang, promoting collaboration in marine science and oceanography. The visit marks an important milestone in strengthening diplomatic and scientific ties between India and Vietnam, reflecting their shared commitment to advancing oceanographic research.

During the port call, the Indian Navy will participate in a range of activities with the Vietnam People's Navy, including training exchanges, cross-training visits, friendly sports fixtures, and joint

yoga sessions. Professional and social interactions are also planned. INS Sagardhwani is a specialised oceanographic research vessel commissioned in Jul 1994. The vessel has served as a key platform for marine scientific research, contributing significantly to advancements in marine acoustics and naval oceanography. This visit further reinforces India's commitment to scientific excellence, regional cooperation, and enhanced maritime domain awareness.

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Science & Technology News

हमारे विज्ञानियों ने मीथेन गैस उत्सर्जन पर दुनिया के दावे को दिखाया आईना

Source: Dainik Jagran, Dt. 08 May 2026

जलवायु परिवर्तन और बढ़ती गर्मी के लिए जिम्मेदार मानी जाने वाली मीथेन गैस को लेकर लंबे समय से भारत पर बढ़े उत्सर्जक होने का ठप्पा लगाया जाता रहा है। धान की खेती, पशुपालन आदि को इसके लिए जिम्मेदार ठहराया जाता है। अब भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान (आइसर), भोपाल के विज्ञानियों ने शोध से साबित किया है कि अंतरराष्ट्रीय एजेंसियों के दावे गलत हैं। सेटेलाइट तकनीक, वैज्ञानिक माडल और जमीनी आंकड़ों के आधार पर किंए गए अध्ययन में सामने आया है कि देश में मीथेन उत्सर्जन वैश्विक एजेंसियों के अनुमान से काफी कम है। देश की वास्तविक स्थिति स्पष्ट करने वाला यह शोध भविष्य में प्रदूषण नियंत्रण और जलवायु नीति तय करने में भी मददगार साबित होगा। यह शोध अंतरराष्ट्रीय जर्नल एटमास्फेरिक केमिस्ट्री एंड फिजिक्स में प्रकाशित हुआ है। शोध करने वालों में डा. धन्यलेक्ष्मी के पिल्लै के अलावा शोधार्थी जितिन सुकुमारन, तारा अन्ना मात्यु, अद्वैत जे. विनोद शामिल रहे।

संयुक्त राष्ट्र पर्यावरण कार्यक्रम (यूएनईपी) और अंतरराष्ट्रीय ऊर्जा एजेंसी जैसी संस्थाएं भारत को तीसरा सबसे बड़ा मीथेन उत्सर्जक बताती हैं। उनका दावा है कि भारत प्रतिवर्ष 3 टेराग्राम (31 मिलियन टन) मीथेन गैस का उत्सर्जन करता है। आइसरके विज्ञानियों ने अब यह सिद्ध कर दिया है कि भारत का सालाना मीथेन उत्सर्जन केवल 2.9 से 24.9 टेराग्राम के बीच है। विज्ञानियों ने मीथेन उत्सर्जन का आकलन करने के लिए यूरोपीय सेटेलाइट सेंटिनेल-5पी के ट्रोपोमी सेंसर से वातावरण में मौजूद मीथेन की मात्रा मापी। इसके बाद डब्ल्यूआरएफ-जीएचसी माडल से यह समझा गया कि गैस वातावरण में कैसे फैलती है। अध्ययन में पाया गया कि भारत का सालाना मीथेन उत्सर्जन वैश्विक अनुमानों से 24 प्रतिशत तक कम है। सबसे ज्यादा उत्सर्जन पशुपालन, अपशिष्ट जल और धान की खेती से होता है। इंडो-गंगेटिक क्षेत्र मीथेन उत्सर्जन का प्रमुख हाट स्पाट पाया गया।

इस अध्ययन में उत्सर्जन के हाटस्पाट क्षेत्रों कीपहचान भी संभव है। शोध से जुड़े विज्ञानियों ने बताया कि बेहतर निगरानी प्रणाली से उत्सर्जन के स्रोतों कोअधिक सटीकता से ट्रैक किया जा सकता है। इससे कृषि, कचरा प्रबंधन और ऊर्जा क्षेत्रों में सुधार के जरिये मीथेन गैस को कम करने की रणनीति तैयार की जा सकती है।

निगरानी प्रणाली से उत्सर्जन नियंत्रण में मदद

विज्ञानियों का मानना है कि बेहतर निगरानी प्रणाली से मीथेन गैस के उत्सर्जन को नियंत्रित करने में मदद मिलेगी। मीथेन एक अत्यंत प्रभावशाली ग्रीनहाउस गैस है, जो कार्बन डाइआक्साइड की तुलना में कम समय में कई गुना अधिक गर्मीपैदा करती है | वैश्विक तापवृद्धि में इंसका योगदान सबसे अधिक माना जाता है| यही कारण है कि जलवायु परिवर्तन को नियंत्रित करने के लिए मीथेन के उत्सर्जन का सटीक मापन और निगरानी बेहद जरूरी मानी जाती है। विज्ञानियों का कहना है कि यदि मीथेन गैस उत्सर्जन को प्रभावी ढंग से कम किया जाएं, तो वैश्विक तापमान वृद्धि को धीमा किया जा सकता है।

मीथेन फ्लक्स का सटीक अनुमान बहुत जरूरी

मीथेन गैस को नियंत्रित करने के लिए यह जानना जरूरी है कि किस क्षेत्र से कितनी मीथेन निकल रही है। इसी दर को मीथेन फ्लक्स कहा जाता है। यदि फ्लक्स कासटीक अनुमान नहीं होगा तो बड़े उत्सर्जन स्रोतों कीपहचान और नियंत्रण की प्रभावी योजना बनाना मुश्किल होगा। यही कारण है कि वैज्ञानिक और सरकारें मीथेन फ्लक्स के सही आकलन को बेहद महत्वपूर्ण मानते हैं, ताकि जलवायु परिवर्तन पर नियंत्रण किया जा सके।

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High Commissioner of Canada to India Visits CSIR-IMMT to Boost Indo-Canada Collaborations in Critical Minerals

Source: Press Information Bureau, Dt. 07 May 2026

His Excellency Mr. Chris Cooter, High Commissioner of Canada to India, visited the CSIR–Institute of Minerals and Materials Technology (CSIR-IMMT), accompanied by Ms. Karen Joan Blumenschein, spouse of the High Commissioner; Mr. Arjun Kumar Dutta, Trade Commissioner from the High Commission of Canada; and Mr. Rohit Shukla, Political, Economic and Public Affairs Officer.

The Canadian delegation interacted with Dr. Ramanuj Narayan, Director, CSIR-IMMT, along with senior scientists and researchers, to explore avenues for scientific and technological collaboration in the areas of critical minerals, sustainable resource processing, and advanced metallurgical technologies. Dr. Narayan highlighted the institute's growing international engagement initiatives, including the Joint Declaration of Intent (JDI) signed with the University of Saskatchewan for collaborative research and academic exchange. Dr. Kali Sanjay, Head of the Centre of Excellence on Critical Minerals established at CSIR-IMMT by the Ministry of Mines, Government of India, presented the ongoing research, technology development, and human resource capacity-building activities related to critical minerals.

India and Canada are increasingly emerging as strategic partners in the critical minerals sector, driven by the rapidly growing global demand for minerals essential to clean energy technologies, electric mobility, advanced manufacturing, and strategic industries. While Canada possesses significant reserves of critical minerals and advanced mining expertise, India offers expanding capabilities in mineral processing, downstream technologies, and manufacturing. Enhanced Indo-Canadian collaboration is expected to support resilient and diversified critical mineral supply

chains, promote technological innovation, strengthen research partnerships, and contribute significantly to the global energy transition.

As part of the visit, the Canadian delegation toured several advanced research facilities at CSIR-IMMT, including the Platinum Group Elements (PGE) pilot plant, recycling pilot plant, seabed minerals pilot plant, and molten salt electrolysis pilot facility.

The interaction underscored the importance of deeper scientific and technological cooperation between India and Canada in addressing future critical mineral challenges through innovation, sustainability, and knowledge sharing. Opportunities related to joint research programmes, capacity building, technical training, and technology transfer were also deliberated during the meeting. The visit concluded with a tree plantation drive at the CSIR-IMMT campus, symbolising the shared commitment of both countries towards sustainable development and long-term scientific collaboration.

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India and Vietnam Strengthen Science & Technology Partnership Through High-Level Talks, Expand Cooperation in AI, Deep-Tech and Innovation

Source: Press Information Bureau, Dt. 07 May 2026

Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences, and Minister of State for PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh today held bilateral talks with Prof. Dr. Vu Hai Quan, Minister of Science and Technology of the Socialist Republic of Vietnam, in New Delhi, with both sides agreeing to deepen cooperation in emerging technologies, innovation, research and startup ecosystems.

The discussions focused on advancing collaboration in Artificial Intelligence, cybersecurity, deep technologies, semiconductors, robotics, biotechnology, digital technologies and innovation-led research, while also strengthening institutional mechanisms between the two countries in science and technology.

Welcoming the Vietnamese delegation, Dr. Jitendra Singh described India and Vietnam as civilizational partners connected by nearly two thousand years of shared cultural and historical linkages. He said the Comprehensive Strategic Partnership between the two countries has gained new momentum over the last decade and acquired greater depth following the visit of Prime Minister Pham Minh Chinh to India in August 2024.

The Minister said Vietnam remains an important partner in India’s Act East Policy and Indo-Pacific vision, adding that the growing India-ASEAN engagement in science, technology and innovation provides a strong foundation for collaborative research, innovation and technology-driven growth. He said the present engagement offers an important opportunity to further elevate bilateral cooperation in frontier areas of science and technology.

Dr. Jitendra Singh referred to India’s rapidly expanding startup ecosystem and proposed stronger engagement between startups, innovators and research institutions of the two countries. He said

India and Vietnam can work together to create new opportunities for entrepreneurs and young researchers in emerging technology sectors.

The Minister also referred to Vietnam's active participation in India-ASEAN Science, Technology and Innovation programmes. Around ten researchers from Vietnam have availed fellowships under the India-ASEAN Research and Training Fellowship programme, while several joint projects are currently underway in different domains of science and technology. Vietnamese innovators and women scientists have also participated in innovation and scientific forums organised under regional cooperation frameworks. The two sides discussed the proposed next India-Vietnam Joint Committee Meeting (JCM) and reviewed preparations for advancing bilateral engagement in science, technology and innovation through structured institutional cooperation.

Prof. Dr. Vu Hai Quan welcomed the growing engagement between the two countries in science and technology and expressed Vietnam's interest in developing structured collaboration in deep technologies with practical applications and societal benefits. He proposed nomination of dedicated nodal points from both Ministries for regular coordination and preparation of a concrete action plan to translate bilateral initiatives into implementable outcomes. The Vietnamese Minister also supported continuation of the Joint Committee mechanism between the two Ministries and informed that Vietnam would nominate a Deputy Minister-level representative to coordinate future engagements with the Indian side.

During the discussions, both sides also exchanged views on cooperation in Artificial Intelligence missions, cybersecurity frameworks, innovation ecosystems and technology transfer initiatives. India expressed readiness to share its experiences and best practices in these areas. The meeting also reviewed ongoing academic and institutional engagements between the two countries, including collaborations involving research institutions, innovation hubs and technology incubation platforms. Discussions covered possibilities for startup exchange programmes, co-innovation centres and industry-linked research partnerships.

India and Vietnam share a strong and expanding partnership under their Comprehensive Strategic Partnership framework, with science and technology emerging as a key pillar of bilateral cooperation. Both sides agreed to maintain regular engagement and work towards translating the outcomes of the bilateral dialogue into concrete collaborative initiatives delivering technological, economic and societal benefits for the people of both countries.

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NIScPR signed an MoU with RIS to strengthen Science Technology Innovation Policy and Diplomacy

Source: Press Information Bureau, Dt. 07 May 2026

CSIR-National Institute of Science Communication and Policy Research (NIScPR) signed a MoU with Research and Information System for the Developing Countries (RIS) on 6 May 2026 to strengthen collaboration in science, technology, innovation policy and diplomacy through joint research, policy analysis, capacity building and knowledge sharing. The partnership will promote work in science policy, communication, diplomacy and traditional knowledge, along with joint projects, publications, policy dialogues, workshops and outreach for inclusive and sustainable development.

Prof. Sachin Kumar Sharma, Director General, RIS, in his welcome remarks, highlighted science diplomacy as a key tool for building trust and addressing global challenges such as climate change, health and technology inequalities, while emphasizing the Global South's role in shaping scientific governance. He outlined RIS initiatives including ITEC courses, iGOT Karmayogi training, Forum for Indian Science Diplomacy publications and global partnerships through DAKSHIN and IBSA Fellowships.

Dr. Geeta Vani Rayasam, Director, CSIR-NIScPR, described the partnership as a collaborative, win-win effort for the Global South, focusing on working groups and joint publications. She highlighted NIScPR's role in science communication and policy research, along with CSIR's R&D ecosystem, affordable HIV drug innovations, traditional knowledge validation, rural innovations and 15 open-access journals.

Dr. S.K. Varshney, Science Consultant, RIS, emphasized the importance of South-South scientific cooperation based on equality, sovereignty and demand-driven partnerships for context-specific solutions, technology sharing and resilient health systems. Dr. Amit Kumar, Assistant Professor, RIS, termed the collaboration a key milestone combining RIS's policy expertise with CSIR's scientific strengths, further reinforced by the roundtable on science diplomacy.

Dr. Rajan Sudhesh Ratna highlighted science diplomacy as a driver of development in the Global South and RIS's role through DAKSHIN in strengthening cooperation. Dr. Yogesh Suman, Chief Scientist, CSIR-NIScPR, emphasized NIScPR's role in disseminating CSIR technologies for rural livelihoods and sustainable development. Dr. Sarin N. S., Coordinator, Forum for Indian Traditional Medicine (FITM), highlighted traditional knowledge and medicine as pillars of South-South cooperation, while Dr. Monika Jaggi and Dr. Charu Lata highlighted NIScPR's contributions to science diplomacy and traditional knowledge through initiatives like SVASTIK.

On the occasion, all the dignitaries released three valuable documents "India-Republic of Korea S&T Cooperation: Co-Creating the Future" (Sanjeev K. Varshney, Amit Kumar and Sneha Sinha); "Proceeding of Workshop on Strengthening India's Semiconductor Ecosystem: Policies, Challenges and Opportunities" (Dr. Shiv Narayan Nishad, Dr. Vipan Kumar, Dr. Naresh Kumar, Dr. Sandhiya Lakshmanan) and policy bulletin: "The key drivers of particulate pollution from road transportation in Indian states" (Dr. Sandhya Lakshmanan).

Dr. Sneha Sinha, Consultant, RIS, noted that previous collaborations, including workshops and research in science diplomacy, have laid a strong foundation for future engagement. She highlighted the significance of the roundtable on science diplomacy in the Global South, focusing on India-Africa cooperation ahead of the India-Africa Forum Summit, and emphasized technology sharing and integrating science diplomacy perspectives into a joint report.

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The Tribune
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The Hindu
The Economic Times
Press Information Bureau
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The Times of India
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