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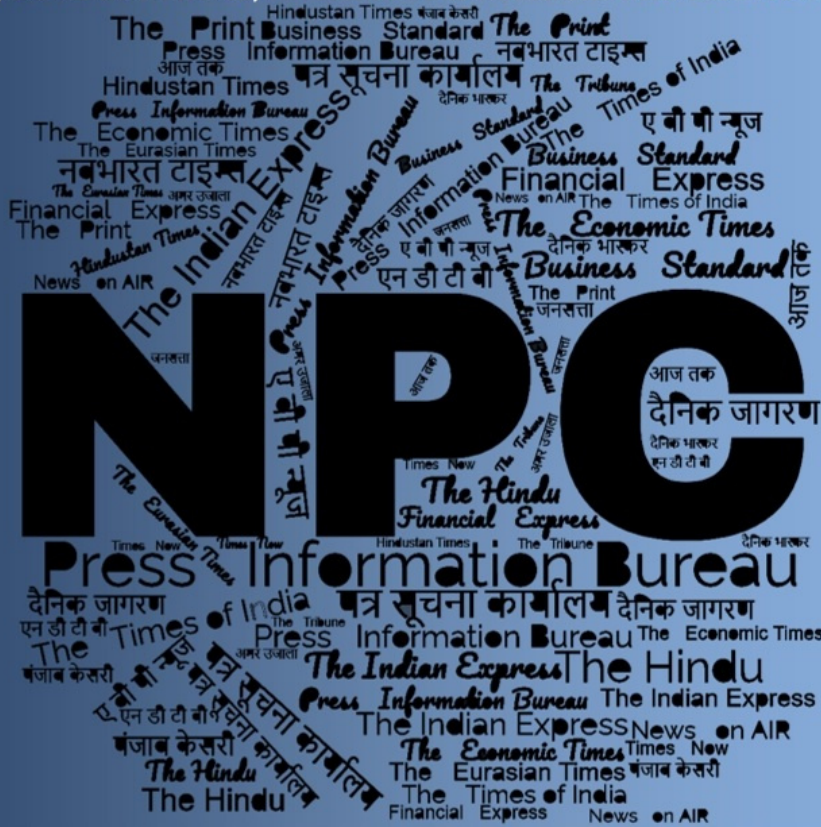
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समाचार पत्रों से चयनित अंश Newspapers Clippings

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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DRDO News

डीआरडीओ और भारतीय फौज मिलकर बनाएगी सीक्यूबी कार्बाइन

Source: Punjab Kesari, Dt. 24 Jun 2025

भारतीय सैनिकों के हाथ में जल्द ही स्टर्लिंग कार्बाइन की जगह आधुनिक मशीन गन नजर आएगी। भारतीय सेना में सैनिक क्लोज क्वार्टर बैटल (सीक्यूबी) कार्बाइन का इस्तेमाल करते नजर आएंगे। सेना ने रक्षा अनुसंधान विकास संगठन (डीआरडीओ) और भारत फोर्ज लिमिटेड को सीक्यूबी कार्बाइन बनाने का ऑर्डर दिया है।

दो हजार करोड़ के के इस ठेके के साथ डीआरडीओ और भारत फोर्ज लिमिटेड को सेना की प्रमुख खरीद निविदा में सबसे कम बोली लगाने वाली कंपनी (L1) के तौर पर चुना गया है।

डीआरडीओ ने बताया कि 5.56x45 मिमी सीक्यूबी कार्बाइन को डीआरडीओ के आयुध अनुसंधान और विकास प्रतिष्ठान (एआरडीई) डीआरडीओ ने डिजाइन और

विकसित किया है। साथ ही भारत फोर्ज लिमिटेड ने बनाया है। दोनों के प्रस्ताव को भारतीय सेना आरएफपी (प्रस्ताव के लिए अनुरोध) में एल1 के रूप में चुना गया है।

बताया जाता है कि भारत फोर्ज की सहायक कंपनी कल्याणी स्ट्रेटेजिक सिस्टम्स लिमिटेड की पुणे इकाई में कार्बाइन का उत्पादन किया जाएगा। यह अनुबंध दो

हजार के दशक में सेना में इंसोस राइफल के शामिल होने के बाद भारत में डिजाइन, विकसित और निर्मित हथियार प्रणाली के लिए सबसे बड़ा है।

नई कार्बाइन की विशेषताएं

5.56x45 मिमी सीक्यूबी कार्बाइन की विशेषता है कि यह हल्की, नजदीकी मुठभेड़ों में सटीक जवाब देने में सक्षम है। इसमें कई आधुनिक विशेषताएं हैं। इसके



डिजाइन में ऑप्टिक्स, लेजर डिजाइनर और सहायक उपकरण लगाए गए हैं। इस कार्बाइन का निर्माण फोर्ज की पुणे में इकाई में होगा। भारतीय सेना के एल1 बोलीदाता के रूप में डीआरडीओ और भारत फोर्ज के चयन से साफ है कि इसमें सभी तकनीकी जरूरतों को पूरा करते हुए सबसे कम कीमत पेश की और बड़ा अनुबंध हासिल किया।

स्टर्लिंग कार्बाइन से बदलने की तैयारी

भारतीय सेना में मौजूदा समय में 1940 में डिजाइन की गई सब मशीन गन स्टर्लिंग कार्बाइन का उपयोग किया जाता है। सेना लंबे समय से स्टर्लिंग कार्बाइन को बदलने की तैयारी कर रही थी। स्टर्लिंग कार्बाइन मौजूदा युद्ध परिस्थितियों के हिसाब से पुरानी मानी जाती है। इसलिए पुणे में डीआरडीओ के आयुध अनुसंधान और विकास प्रतिष्ठान (एआरडीई) ने नई कार्बाइन डिजाइन का संकल्प लिया।

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Army inks deals worth Rs 295 crore for spy drones & loitering munitions from desi private firms

Source: The Times of India, Dt. 24 Jun 2025

Under emergency procurement powers granted to the armed forces to build and replenish stocks after Operation Sindoor, the Army has ordered small loitering munitions and mini surveillance drones in two contracts, collectively worth Rs 295 crore, from domestic private sector companies.

The **DRDO**, on its part, has also **offered 28 of its weapon systems** to the three services for emergency procurements. They range from rockets, air-to-air missiles and air-to-ground missiles to laser-guided bombs, torpedoes and shoulder-fired air defence missiles, among others.

Of the two contracts inked by the Army, the first is for around 450 Nagastra-1R loitering munitions or kamikaze drones, which are also capable of night operations, at a cost of Rs 158 crore from the Nagpur-based Solar Defence and Aerospace Ltd.

The other deal is worth Rs 137 crore with ideaForge Technology for hybrid miniUAV (unmanned aerial vehicles) systems, variants of the Switch drones with VTOL (vertical take-off and landing) capabilities, for ISR (intelligence, surveillance and reconnaissance) missions.

Variants of the Nagastra and the UAVs with VTOL are already in the Army's inventory and were extensively used during the cross-border hostilities with Pakistan from May 7 to 10. The fresh orders have to be executed within a year. The Nagastra, with a 360-degree gimbal camera and the option of putting a thermal camera for night operations, comes with a highprecision targeting system.

<https://timesofindia.indiatimes.com/india/army-inks-deals-worth-rs-295-crore-for-spy-drones-loitering-munitions-from-desi-private-firms/articleshow/122036534.cms>

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Defence News

Operation Sindoor met all objectives, instilled fear in terrorists, says Rajnath

Source: The Hindu, Dt. 24 Jun 2025

Under the leadership of President Droupadi Murmu, Indian soldiers carried out the historic Operation Sindoor, achieving all objectives and instilling fear in the minds of terrorists, said Defence Minister Rajnath Singh in Delhi on Monday (June 23, 2025). He released Wings to Our Hopes (Volume-II), a curated collection of 51 speeches of Ms. Murmu in Hindi and English along with the e-version.

Speaking on the occasion, Mr. Singh described Ms. Murmu as the best example of women-led development in India, adding that under the leadership of the Supreme Commander of the Armed Forces, Indian soldiers carried out the historic Operation Sindoor, achieving all objectives and instilling fear in the minds of terrorists.

He commended her for constantly encouraging the armed forces personnel, while also working relentlessly for the empowerment of the deprived sections of society. “Through her own life, President Murmu has set an inspiring example for everyone to have access to education and equal rights and opportunities. The ideals of courage, hard work, public service and spirituality are visible in her life and these can be read in her speeches as well,” he added.

In his address, Mr. Singh described the compilation of the speeches – ranging from her address to the nation as well as at universities, on innovation, contribution of women in the development of the country, to equality and cultural heritage – as the essence of the government’s vision of making India a developed nation by 2047.

“The book will become a guiding light to build Viksit Bharat with progressive thoughts while preserving our glorious heritage. President Droupadi Murmu knows the importance of diversity in our country and recognises the pain of the deprived. This book proclaims the spirit of equality,” he said.

Mr. Singh added that the book is an amalgamation of the knowledge and ideas of Ms. Murmu on diverse fields – from civilisation to culture, religion to science, art to literature, education to health and past to future. He termed this inclusiveness as a reflection of the character of India, which can prove to be beneficial for future generations.

<https://www.thehindu.com/news/national/operation-sindoor-met-all-objectives-instilled-fear-in-terrorists-says-rajnath/article69728238.ece>

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More than 20 targets were identified under Operation Sindoor

Source: The Hindu, Dt. 24 Jun 2025

Indian intelligence agencies and defence forces had identified more than 20 terror targets in Pakistan and Pakistan-occupied Kashmir (PoK) under Operation Sindoor, launched in May in response to the Pahalgam terror attack.

India carried out missile strikes on nine of them later.

According to top defence sources, after the list of more than 20 terrorist targets was drawn up, it was discussed in detail at a meeting of Defence Minister Rajnath Singh with the chiefs of the Army, Air Force and the Navy.

“Markaz Taiba camp in Muridke and Markaz Subhanallah in Bahawalpur were on top of the list from day one of the discussion. At the meeting, it was instructed that the attack should be precise and elaborate,” as per a source.

After the detailed discussion, all the options were tabled before Prime Minister Narendra Modi. Not just the planning of attack was discussed but also preparation for Pakistan’s retaliation. “Escalation was expected but it was ensured that only terror installations were targeted. There was no significant damage to the Indian military bases as forces were prepared for the retaliation in advance,” added the source.

It was clear after the Cabinet Committee on Security chaired by Prime Minister that out of the more than 20 targets, nine had been finalised. It was decided that there should be no harm to civilian

population, no religious sentiment should be hurt, and no military installations should be targeted. This was made clear to the heads of intelligence agencies and defence forces at the Cabinet meeting.

“At the meeting, a free hand was given to the forces to take down any terror camp operating across the border at any location, while keeping in mind the factors discussed at the meeting,” added the top defence source.

<https://www.thehindu.com/news/national/more-than-20-targets-were-identified-under-operation-sindoor/article69728050.ece>

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INS Teg concludes port call in Mauritius, boosts maritime security cooperation and bilateral ties

Source: The Tribune, Dt. 23 Jun 2025

Strengthening maritime cooperation in the Indian Ocean Region, INS Teg, a frontline stealth frigate of the Western Naval Command, concluded her port call at Port Louis, Mauritius on 22 June 2025, as part of her operational deployment to the South West Indian Ocean Region, the Ministry of Defence said in an official statement.

The visit featured a wide spectrum of professional, social, and cultural engagements, underscoring the robust maritime partnership between India and Mauritius.

As per the press release, during the deployment, INS Teg undertook coordinated surveillance of the Exclusive Economic Zone (EEZ) of Mauritius in collaboration with the Mauritius National Coast Guard (NCG) ships and aircraft. The joint effort reaffirmed both nations' shared commitment to safeguarding the global commons and combating Illegal, Unreported, and Unregulated (IUU) fishing.

The Commanding Officer of INS Teg, Captain Vikas Guleria, called on senior government and military dignitaries, including Rampersad Soorojebally, Commissioner of Police; Suresh Seebaluck, Secretary to Cabinet; Anurag Srivastava, High Commissioner of India; Kan Oye Fong Weng Poorun, Secretary for Home Affairs; and Captain CG Binoop, COMCG. These interactions helped deepen mutual understanding and further strengthen bilateral ties.

As part of capacity-building initiatives and the exchange of best practices, NCG personnel were trained onboard INS Teg in areas such as firefighting, damage control, bridge and engine room watchkeeping, electrical systems, and small arms handling. Live demonstrations, including post-sailing diving checks, were also conducted.

The press release also mentioned that, on request from the NCG, a technical team from INS Teg assisted the crew of CGS Valiant in rectifying a defect and operationalizing a diesel generator--support that was highly appreciated by the Mauritian side.

To mark the International Day of Yoga (IDY) 2025, a joint yoga session was held on 21 June, bringing together around 150 participants including dignitaries, NCG personnel, and the crew of INS Teg. The visit also included recreational activities such as a trek to Signal Mountain and a friendly volleyball match, fostering camaraderie and strengthening cross-cultural bonds.

According to the Ministry of Defence, the visit of INS Teg to Mauritius stands as a testament to the Indian Navy's commitment to enhancing maritime security cooperation and bilateral relations. It not only boosted operational interoperability but also reinforced the deep-rooted friendship between India and Mauritius--founded on shared values, mutual trust, and a common vision for a safe and prosperous Indian Ocean Region.

<https://www.tribuneindia.com/news/world/ins-teg-concludes-port-call-in-mauritius-boosts-maritime-security-cooperation-and-bilateral-ties/>

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युद्ध में भारतीय 'बराक' बना इजराइल का फौलादी ढाल

Source: Punjab Kesari, Dt. 24 Jun 2025

नई दिल्ली, (पंजाब केसरी): भारत का जबरदस्त सुरक्षा सामरिक प्रहारक कवच बराक-8 एयर डिफेंस सिस्टम इजराइल के लिए मिसाइलों के खिलाफ एक फौलादी दीवार बन गया है। ईरान के मिसाइल और ड्रोन हमलों को रोकने में भारत-इजराइल रक्षा सहयोग निर्णायक साबित हो रहा है। भारत की ओर से इजराइल को सप्लाई किया गया यह एयर डिफेंस



सिस्टम इस युद्ध में इजराइल की सबसे बड़ी फौलादी ढाल बन गया। भारतीय और इजराइली इंजीनियरों ने मिल कर इस मिसाइल डिफेंस तकनीक तैयार की है, जो दुश्मन की क्रूज मिसाइलों, बैलिस्टिक मिसाइलों, ड्रोन और विमानों को 70 किलोमीटर की दूरी से ही नष्ट कर सकता है। बराक-8 एक अत्याधुनिक सतह से हवा में मार करने वाली मिसाइल प्रणाली है जिसे भारत की डीआरडीओ और इजरायल की आईएआई ने मिलकर विकसित किया है। मिसाइलों और ड्रोन को हवा में ही इंटरसेप्ट कर गिरा सकती है। इसे "फ्लोटिंग शील्ड" यानी उड़ती हुई सुरक्षा दीवार कहा जाता है। यह 70 से 100 किमी तक की दूरी पर आने वाले दुश्मन के मिसाइल, ड्रोन, लड़ाकू विमान आदि को हवा में ही मार गिरा सकता है। यह प्रणाली 360 डिग्री कवरेज देती है और एक साथ कई लक्ष्यों को ट्रैक कर सकती है। इसमें

● मिसाइलों, ड्रोन और विमानों को 70 किलोमीटर की दूरी से ही नष्ट कर सकता है बराक-8 यह प्रणाली 360 डिग्री कवरेज देती है और एक साथ कई लक्ष्यों को ट्रैक कर सकती है

मल्टी-फंक्शन रडार और एक्टिव रडार होमिंग गाइडेंस जैसी तकनीक है। यह न केवल इजराइली आकाश की रक्षा कर रहा है, बल्कि इससे ईरान समर्थित आतंकी संगठनों की योजनाएं लगातार नाकाम हो रही हैं। भारत द्वारा दी गई यह तकनीक अब इजराइल के आयरन डोम और एरो-3 जैसे डिफेंस सिस्टम के साथ काम कर रही है, जिससे उसकी सुरक्षा कई गुना बढ़ गई है।

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ऑपरेशन सिन्दूर में उपयोगी नागास्त्र खरीदेगी सेना

Source: Dainik Jagran, Dt. 24 Jun 2025



उड़ान के लिए तैयार स्वदेशी ड्रोन नागास्त्र-1आर। यह एक सुसाइड ड्रोन है • एएनआइ

जागरण न्यूज नेटवर्क, नई दिल्ली: ऑपरेशन सिन्दूर में अपनी उपयोगिता साबित कर चुका नागास्त्र अब भारतीय सेना की मारक क्षमता को और बढ़ाएगा। सेना ने 450 नागास्त्र-1आर खरीदने के लिए सोलर डिफेंस एंड एयरोस्पेस लिमिटेड (एसडीएल) को आर्डर दिया है।

डीआरडीओ द्वारा विकसित यह ड्रोन दुश्मन को खोजकर मारने में सक्षम है। मेक इन इंडिया परियोजना के तहत इसे तैयार किया गया है। इससे सीमा पार आतंकवाद के खिलाफ भारत की रणनीतिक बढ़त को मजबूती मिलेगी।

नागास्त्र एक सुसाइड ड्रोन है।

नागास्त्र ड्रोन की ये हैं विशेषताएं

- इसकी खासियत है कि यह सैनिकों की जान खतरे में डाले बिना आसानी से दुश्मन के ट्रेनिंग कैंप या लांच पैड पर हमला कर सकता है।
- यह ड्रोन 4,500 मीटर से अधिक ऊंचाई पर उड़ सकता है, जिससे रडार द्वारा इसका पता लगाना मुश्किल हो जाता है।
- इस लोइटरिंग म्यूनिसन सिस्टम में 360 गिम्बल कैमरा है, जिसमें रात के ऑपरेशन के लिए थर्मल कैमरा लगाने का विकल्प भी है।
- इसमें निरस्त करने व पुनः उपयोग करने की सुविधा है। यदि लक्ष्य का पता नहीं चलता है या मिशन निरस्त हो जाता है, तो इसे वापस बुलाया जा सकता है।
- नागास्त्र का वजन करीब नौ किलोग्राम है। इसे थल सेना की सहूलियत को ध्यान में रखते हुए डिजाइन किया गया है।
- इसमें खास इलेक्ट्रिक प्रोपल्शन सिस्टम लगा है, जिससे इसकी आवाज का पता नहीं चलता। 200 मीटर से अधिक की ऊंचाई पर इसकी आवाज का पता लगाना लगभग असंभव है।
- यह लक्ष्य के ऊपर 60 मिनट तक मंडरा सकता है। यह एक किलोग्राम का वारहेड ले जा सकता है।

इसके काम करने का तरीका दूसरे ड्रोन से काफी अलग होता है। यह 'कामिकेज' मोड पर काम करता है, यानी दुश्मन पर सीधे हमला करने के बाद खुद को भी नष्ट कर लेता है। नागास्त्र में जीपीएस सिस्टम लगा हुआ है, जिसके जरिये यह अपने लक्ष्य को ढूंढता और

उसे नष्ट करता है। यह ड्रोन हवा में मंडराता रहता है और जीपीएस की मदद से सटीक निशाना लगाता है। नागास्त्र किफायती प्रणाली है, जिसमें लांचर सिस्टम का फिर से उपयोग किया जा सकता है। इन प्रणालियों का परीक्षण लद्दाख सहित विभिन्न स्थानों पर किया गया है।

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450 loitering munitions ordered to help boost army's capabilities

Source: Hindustan Times, Dt. 24 Jun 2025

The ministry of defence has ordered 450 locally produced loitering munitions, or kamikaze drones, from a Nagpur-based defence firm, Solar Defence and Aerospace Ltd, to boost the army's precision targeting capabilities, weeks after Indian forces deployed these weapons to hit targets in Pakistan during Operation Sindoor, people aware of the matter said on Monday.

The ₹158-crore order for the Nagastra-1R loitering munitions is a follow-on contract to the 480 Nagastra-1 drones ordered for the army last year through the emergency procurement route, the people said, asking not to be named. The firm, a subsidiary of Solar Industries and earlier known as Economic Explosives Limited (EEL), will execute the new order in one year to meet the army's urgent needs. Such munitions hover over the battle zone, locate the target and crash into it.

The Nagastra-1R is equipped with a 360-degree gimbal camera, with the option of using a thermal one for night operations, has a proprietary encryption for video and telemetry communication, and its launcher system is reusable, HT learnt. It has an indigenous content of around 80%. Loitering munitions --- including Nagastra-1, and Harop bought from Israel --- were deployed during Operation Sindoor. Nagastra-1 carries a one-kg warhead, has a maximum range of 30 km, and an endurance of 60 minutes. The exact specifications of the newer variant Nagastra-1R weren't immediately available.

Solar Defence and Aerospace Ltd has expanded its footprint in the country's defence manufacturing sector in recent years. In February, the defence ministry signed two contracts worth ₹10,147-crore to buy ammunition for the army's indigenous Pinaka multi-launcher rocket system — one of them was with Solar and the other with Pune-based Munitions India Limited.

The Nagpur-based firm (then called EEL) has also supplied one million hand grenades to the army under a 2020 contract worth ₹409 crore. These replaced a World War-II vintage hand grenade design that was being used by the army.

India launched the operation in the early hours of May 7 and struck terror and military installations in Pakistan and Pakistan-occupied Kashmir (PoK) in response to the April 22 Pahalgam terror strike in which 26 people were shot dead.

It triggered a four-day military confrontation with Pakistan involving fighter jets, missiles, drones, long-range weapons and heavy artillery before the two sides reached an understanding on stopping all military action on May 10. Days after the ceasefire, the government granted powers to the armed forces to make emergency purchases worth around ₹40,000 crore.

On June 21, defence minister Rajnath Singh said India paused Operation Sindoor after Pakistan asked for a ceasefire. "Operation Sindoor is not over yet. India is fully prepared to take all kinds of action against terrorism," he said at the time, addressing troops in Udhampur.

Private sector drone maker ideaForge Technology on Monday said it has secured an order worth ₹137 crore --- through the emergency procurement route --- for supplying mini UAV (unmanned aerial vehicle) systems to the army, adding that these are battle-tested and inducted into the army's inventory for ISR (Intelligence, Surveillance, and Reconnaissance) operations.

"The platform has also been battle-tested during the recent Operation Sindoor, where it played a critical role in providing ISR to the armed forces. Its performance in live operations validated both its technological robustness and mission-critical value," the company said in a statement.

This emergency procurement for counter-insurgency and counter-terror operations will help safeguard national security, and "reaffirms our commitment to building world-class, reliable UAVs in India", ideaForge Technology CEO Ankit Mehta said.

"It is a matter of pride that our platforms are not just made in India, but are also built to serve and protect India under the most demanding conditions, backed by a resilient and trusted supply chain," he said. The execution timeline for this order is also set at 12 months, aligning with the army's immediate operational requirements.

On June 19, the defence ministry said it has set up a high-powered committee, headed by the director general (acquisition), to steer a comprehensive review of the Defence Acquisition Procedure (DAP) 2020 for speedy modernisation of the armed forces and boosting self-reliance in the critical sector.

The aim of the review, the ministry said, is to meet the operational requirements and modernisation needs of the armed forces in a timely manner to ensure national security and achieve self-reliance goals by promoting technology infusion through indigenously designed and developed systems.

<https://www.hindustantimes.com/india-news/450-loitering-munitions-ordered-to-help-boost-army-s-capabilities-101750704271629.html>

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Army deploys drones to make rapid advances

Source: *The Economic Times*, Dt. 24 Jun 2025

The Army has started placing orders with Indian companies for a range of drones, loitering munitions and counter-drone systems as part of emergency procurements, cleared by the Rajnath Singh-led defence ministry, to boost operational preparedness. While some contracts have been inked to boost counterinsurgency capabilities, a much larger number is expected to be inked in the coming weeks as the ministry has given sweeping powers to the armed forces to quickly identify and purchase cutting-edge systems developed by the industry, besides replenishing ammunition and long-range, standoff weaponry.

One of the systems purchased is Nagastra 1R advanced loitering system that can take down infiltrators and target enemy positions at shallow depths on the Line of Control. The Army has placed an order for 450 of the munitions with Solar Industries, valued at ₹158 crore. The cost-effective systems are already in use by the Army and the fresh batch has to be delivered within 12 months.

NAGASTRA 1R
450 suicide drones ordered, worth **₹158 crore**
 Cost-effective system; full re-usability of launcher systems
 Thermal camera option for night operations
 Encryption for both video & telemetry communication
 High-precision targeting system
 More than 80% indigenous content

HYBRID MINI UAV
 Order placed for UAVs worth **₹137 crore**
 Designed for intelligence gathering and surveillance
 Already in service with Army
 Can take off vertically and switch to fixed wing flight mode mid-air
 Do not contain Chinese origin critical parts

BCCL

Another order has been placed with ideaForge Secures for hybrid Mini UAVs, which have already been battle-tested and inducted into the Army's inventory for ISR (Intelligence, Surveillance, and Reconnaissance) operations. This is a fixed-wing VTOL (Vertical Take-Off and Landing) platform.

The company said it went through a "rare and rigorous validation process" before the selection that included two independent high-power technical committees that verified the integrity and origin of Mini UAV's critical sub-components. The evaluation was carried out as the forces do not want any critical parts of the system to be of Chinese origin. As reported, the armed forces are focusing on long-range weapons, jammers, air defence systems and indigenous solutions for the 'new normal' approach against terrorism.

The forces have drawn up a roadmap to award contracts worth thousands of crores, a large chunk of which is set to go to the private sector. Weapons worth ₹44,000 crore are likely to be ordered in the coming days, including ammunition for prolonged conflict. A special focus is on 'long range vectors', weapons that can be used from a standoff distance to strike deep into enemy territory.

The forces are also looking to acquire jammers and low-level transportable radars in higher numbers in the coming months as they proved effective in thwarting large-scale drones attacks during Op Sindoor. The armed forces are also likely to go in for a range of air defence capabilities to further strengthen the network that kept the Pakistani missile and drone barrage in check.

<https://economictimes.indiatimes.com/news/defence/army-deploys-drones-to-make-rapid-advances/articleshow/122032142.cms?from=mdr>

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Science & Technology News

Writing with Machines

Source: *The Indian Express*, Dt. 24 Jun 2025

A new MIT study points to the adverse effects of writing with ChatGPT. The picture is more complicated

FROM AT LEAST the mid-15th century, with the invention of the printing press, a wave of anxiety has accompanied every new technology around the creation and dissemination of the written word. Pens, typewriters, computers, the internet and search engines and, most recently, large language models (LLMs) like ChatGPT — each technology was seen by its critics as somehow diluting the purity of the relationship between thought and word. This anxiety peaked with the sudden and widespread rise of LLMs and their ubiquity in knowledge production, especially by students and researchers. Unlike earlier technologies, which were tools that assisted either the physical act of writing or, as with search engines, made research and referencing easier, AI models can “think” for the user. According to a study conducted at the Massachusetts Institute of Technology (MIT), published earlier this month, the use of ChatGPT for writing incurs a considerable “cognitive debt”.

Nataliya Kosmyrna and other researchers divided test subjects — who had to write essays — into three groups: Those who used only their brains to write, those assisted by search engines, and those who used ChatGPT. Participants also switched roles to ensure more robust results. The neural activity of all three groups was monitored over four months. The group using LLMs showed considerably lower cognitive engagement with their writing, had less ownership over their work and remembered less than their counterparts. For many, these findings conform to the broader panic around AI. The fear that AI will replace intellectual labour like automation did in manufacturing is exacerbated by evangelists like OpenAI CEO Sam Altman. In a recent essay, Altman wrote, “ChatGPT is already more powerful than any human that has ever lived.”

Both the MIT study and Altman might be overestimating the consequences of AI. While the cognitive effects of relying completely on an LLM might be adverse, there are ways to use it effectively. The act of writing — good writing, at least — is not about regurgitation of facts but rather about ways to collate, analyse and express. This training is important for intellectual development, but that does not mean it cannot incorporate new tools. The stage when AI is integrated into learning is also important. School students, for example, are still taught how to do long division even though they will likely use a calculator in adulthood. LLMs can be useful for “language” tasks — correcting grammar, summarising texts, helping with tone and tenor — without replacing or diminishing the author. The issue is not whether to use AI but how to. The rapid growth of AI means that research into its effects is still playing catch-up. The lessons from the social media boom, and the issues that appeared in its wake, highlight the importance of narrowing this gap.

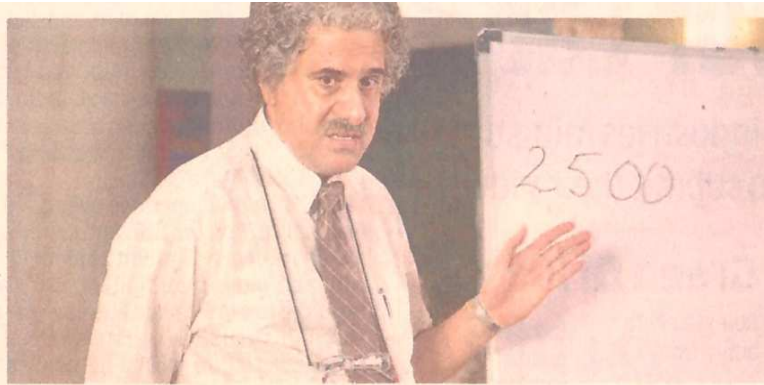
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STEM the Tide for Research

Source: *The Economic Times*, Dt. 24 Jun 2025



Sheel Kapoor & Aditya Sinha



For starters, you'll have to make better offers than that

tured onboarding, inter-institutional mobility or peer networks, has often isolated returnees.

► Absence of a mission-oriented innovation agenda means returnees are not embedded in coherent national-level grand challenges.

But India's scientific ecosystem has begun to witness a quiet revolution, with momentum accelerating. There is a concerted effort by several ministries towards bringing in reforms for the ease of doing research. Anusandhan National Research Foundation (ANRF) marks a foundational shift in how the country approaches research funding and governance. It's centralising fragmented efforts and introducing coherence across disciplines.

ANRF aims to become the backbone of India's R&D architecture. New funding mechanisms, like the Advanced Research Grant (ARG), are being introduced. It's designed to serve as a stable, long-term 'bread-and-butter' grant for Indian scientists. Simultaneously, critical financial reforms are under-



China has been years ahead in recognising that talent is the new oil. Through Thousand Talents Programme, it has systematically built a global pipeline for high-end scientific talent

way to make research more frictionless. These include streamlining fund disbursement, easing utilisation norms and granting greater autonomy to institutions.

But India must seize this rare moment to launch a unified, mission-driven, talent-attraction programme targeting researchers from the world's top 100 STEM institutions. The lure of being back home must be supplemented with state-orchestrated efforts.

Fragmented, short-term schemes are no longer sufficient. What's needed is a cross-ministerial effort aligned with national innovation priorities and backed by investment in cutting-edge lab infra. To lead globally, India must not just invite excellence — it must be ready to host it.

Kapoor is CEO, FAST India, and Sinha is a public policy professional

In 1950, the US made a radical wager: that funding curiosity — unapologetic curiosity — through the installation of the National Science Foundation (NSF) could change the world. The payoff was immense. For every \$1 of public research funding, the US economy gained between \$1.50 and \$3. Over 260 NSF grant recipients went on to become Nobel laureates.

Cut to 2025. The US has proposed a 56.9% cut to NSF's 2026 budget — even as last Friday, a federal judge blocked the move — eliminated over 1,400 grants worth more than \$1 bn, and slashed graduate science fellowships by half. In real terms, this means 46,000 jobs lost, and a \$6.1 bn hit to GDP through supply chain effects and declining R&D demand.

Efficiency concerns are prompting the US to cut back on scientific research. A March 2025 Nature survey shows 75% of US-based scientists, and 79% of post-graduate and PhD students are considering leaving the country. This moment is India's opportunity.

With less than 0.7% of GDP spent on R&D and 15 researchers per 1 lakh people (compared to 423 in the US and 1,307 in South Korea), India is underbuilt, but not incapable. If India reforms its institutions, funds bold research and builds real pathways for global talent, it can become not just the world's back office but also its brain. The question isn't whether top minds will leave the US, but where they'll land.

China has been years ahead in recognising that talent is the new oil. Through flagship programmes like Thousand

Talents Plan (TTP) and Young Thousand Talents (YTT), China has systematically built a global pipeline for high-end scientific talent. TTP offers extraordinary incentives:

► A one-time bonus of 1 mn renminbi (\$140,000), 3-5 mn renminbi in research grants, housing subsidies, relocation allowances and access to senior roles in academia and industry. By 2017, TTP had recruited over 7,000 high-calibre professionals, including Nobel laureates and faculty from MIT, Stanford and Oxford.

► Sent out 3,500 offers between 2011 and 2017, targeting PhDs from the top 100 STEM universities. A January 2023 study in Science, 'Has China's Young Thousand Talents program been successful in recruiting and nurturing top-caliber scientists?', found YTT awardees averaged 2.39 publications a year and ranked in the top 15% of Chinese-origin US researchers by productivity.

In May, the EU launched a €500 mn (\$576 mn) 'Choose Europe for Science' campaign aimed at attracting global scientific talent between 2025 and 2027. The initiative offers super grants with relocation bonuses and longer contracts. France has pledged €100 mn (\$115 mn) under this framework, alongside a separate 'Choose France for Science' co-funding platform. This investment comes as the EU seeks to reverse its declining share in global research output, calling on member states to commit 3% of GDP to R&D by 2030.



The question isn't whether top minds will leave the US, but where they'll land

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The Tribune
The Statesman
पंजाब केसरी जनसत्ता
The Hindu
The Economic Times
Press Information Bureau
The Indian Express
The Times of India
Hindustan Times
नवभारत टाइम्स
दैनिक जागरण
The Asian Age
The Pioneer