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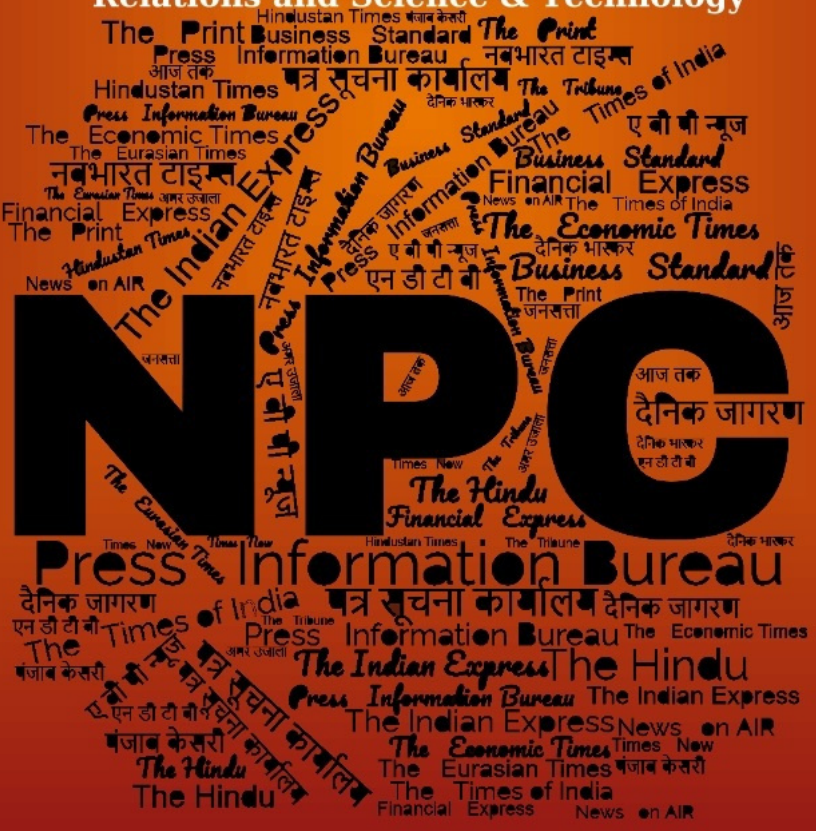
समाचार पत्रों से चयनित अंश
Newspapers Clippings

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

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology



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DRDO News

सेना के लिए बन रहा है 'अभ्यास', ताकि एयर डिफेंस की हो बेस्ट प्रैक्टिस

Source: NavBharat Times, Dt. 03 Jan 2026

Poonam.Pandey
@timesofindia.com

■ नई दिल्ली: ऑपरेशन सिंदूर के दौरान एयर डिफेंस सिस्टम की अहमियत का सबको अंदाजा हुआ। भारतीय सेना के एयर डिफेंस को प्रैक्टिस के लिए हाई स्पीड टारगेट की जरूरत है, जिसे डीआरडीओ बना भी रहा है।

डीआरडीओ सेना के लिए एक हाई स्पीड एक्सपेंडेबल एरियल टारगेट बना रहा है, जिसका नाम है अभ्यास। डीआरडीओ ने कहा है कि अगले 2-3 साल में इसे सेना को दे दिया जाएगा। आर्मी एयर डिफेंस को ऐसे हाई स्पीड टारगेट की जरूरत है जो एयरक्राफ्ट की तरह ही मूव करने वाला हो साथ ही उसके सिग्नेचर भी एयरक्राफ्ट की तरह ही हों, ताकि एयर डिफेंस की ट्रेनिंग सही से हो सके।

अभी यूके से लिया हुआ बैनशी (Banshee) टारगेट सिस्टम का इस्तेमाल किया जा रहा है। इसके साथ ही आर्मी एयर डिफेंस के पास एक स्वदेशी सिस्टम भी है लेकिन यह साइज में छोटा

File

■ डीआरडीओ बना रहा है हाई स्पीड टारगेट, 2-3 साल में सेना को सौंपने का लक्ष्य।

■ बदलती जरूरत के हिसाब से हाई स्पीड टारगेट की है जरूरत

है। ये एंटी टैंक मिसाइल को मॉडिफाई कर बनाया गया है। यह छोटा होने के साथ ही इसकी स्पीड भी कम है। हाई स्पीड टारगेट एयर डिफेंस की प्रैक्टिस के लिए जरूरी है। डीआरडीओ ने पहले भी ट्रेनिंग के लिए टारगेट बनाकर दिए थे, जिनका इस्तेमाल भी किया गया। लेकिन ये मौजूदा जरूरत को पूरा नहीं करते।

इस्राइल-हमास जंग ने एयरस्पेस सुरक्षा को लेकर दुनिया की सोच में बदलाव लाने का काम किया है। जब हमास ने इस्राइल पर अटैक किया तो इस्राइल के आयरन डोम पर चर्चा शुरू हो गई कि क्या आयरन डोम सिस्टम पूरी तरह सफल नहीं रहा। इसके बाद फिर जब ईरान ने इस्राइल पर ताबड़तोड़ सैकड़ों मिसाइल दागी तब इस्राइल ने दावा किया कि आयरन डोम ने ज्यादातर मिसाइल को इंटरसेप्ट कर नष्ट कर दिया। अमेरिका के राष्ट्रपति डॉनाल्ड ट्रंप ने भी कुछ महीने पहले कहा है कि अमेरिका ने भविष्य के 'गोल्डन डोम' मिसाइल डिफेंस सिस्टम के लिए एक डिज़ाइन चुन लिया है। यह सिस्टम उनके कार्यकाल के आखिर तक ऑपरेशनल हो जाएगा, यानी 2029 तक।

PM मोदी ने पिछले साल 15 अगस्त को लाल किले से ऐलान किया था कि 2035 तक देश के सभी महत्वपूर्ण स्थलों जिनमें सामरिक के साथ सिविलियन क्षेत्र भी शामिल हैं, उन्हें टेक्नॉलजी के नए तंत्र के तहत सुरक्षा का कवच दिया जाएगा। पीएम ने सुदर्शन चक्र मिशन लॉन्च करने का ऐलान किया था।

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IAF Chief congratulates ADA for 25 years of LCA Tejas; DRDO chair stresses importance of developing indigenous cutting-edge technology to minimise India's dependence on imports

Source: The Hindu, Dt. 05 Jan 2026

Air Chief Marshal A.P. Singh, the Chief of the Air Staff, on Sunday (January 4, 2025), emphasised the need to adhere to delivery timelines to keep the Indian Air Force operationally ready in the constantly evolving times.

Addressing a two-day seminar on ‘Aeronautics 2047’, Air Chief Marshal Singh congratulated the Aeronautical Development Agency (ADA) on the completion of 25 years of flight by the light combat aircraft (LCA) Tejas. ADA designed and developed the Tejas, with more than 5,600 successful flight trials. More than 100 design centres, including government laboratories, academic institutes, and industries, were associated with this programme. Several niche technologies — including carbon composites, light-weight materials, fly-by-wire flight control, digital utility management system, and a glass cockpit — were developed to make the LCA a fourth-generation fighter.

Chief of the Air Staff Air Chief Marshal A.P. Singh, along with Dr. Samir V. Kamat Secretary DDR&D and Chairman DRDO, Dr. Kota Harinaryana former Director ADA, and Dr. G. Satheesh Reddy, President AeSI & former DRDO Chairman and Dr. V. Narayanan, Chairman ISRO, inaugurated a national seminar on ‘Aeronautics 2047’ organised by ADA from January 4, 2026, to January 5, 2026 at Bengaluru.

Defence Research and Development Organisation chairman Samir V. Kamat underscored the importance of developing indigenous cutting-edge technology to minimise India’s dependence on imports, thereby realising the vision of a developed India by 2047.

The seminar brought together domain experts, industrial partners, academia, aviation enthusiasts and speakers from across the aerospace community to share their insights on the evolution of aeronautics, design innovation, manufacturing, and future frontiers.

The focus of ‘Aeronautics 2047’ is to explore modern aerospace technologies, including manufacturing and assembly for next generation aircraft, digital manufacturing, aerodynamics for next generation combat aircraft, propulsion technologies, flight testing techniques, digital twin technology, certification challenges, flight control systems, avionics, maintainability challenges in fighter aircraft, AI in aircraft design, and precision manufacturing for actuators.

https://www.thehindu.com/news/national/aircraft-manufacturers-must-deliver-on-time-to-the-iaf-air-chief-marshal/article70470687.ece

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Defence News

In a 1st in world, Army set to deploy ramjet-powered shells for 155mm artillery guns

Source: The Times of India, Dt. 04 Jan 2026

The Indian Army is on the cusp of becoming the world's first armed force to operationally deploy ramjet-powered artillery shells for its 155 mm guns. The advanced technology, developed in collaboration with the Indian Institute of Technology (IIT) Madras and with support of Army Technology Board (ATB), is now under trial.

Ramjet propulsion is not new and has been used in missiles worldwide. However, applying the technology to artillery shells is a revolutionary step.

Professors P A Ramakrishna and S Verma from IIT Madras' Department of Aerospace Engineering co-developed a ramjet-powered artillery shell after years of research. The technology, developed under the Atmanirbhar Bharat initiative, is designed to significantly extend the reach of standard tube artillery.

Prof Ramakrishna recently explained that a ramjet operates as an air-breathing engine that does not require turbines or compressors. It relies on the shell being launched to speeds of approx Mach 2 using an artillery gun. At this velocity, air entering the engine is naturally compressed, fuel is ignited and thrust is produced, which allows the shell to maintain propulsion and significantly extend its range.

"Being an air-breathing engine, ramjet has higher specific impulse (ISP) (> 4000 N s/kg) compared to that of a solid rocket (~2500 N s/kg) and, therefore, provides much higher overall impulse to the shell for the same mass of propellant," the IIT-M research paper said.

One of the key challenges IIT-M team faced was using ramjet to have high combustion efficiency with restricted secondary combustor length. However, the team managed to overcome this obstacle.

The technology promises to extend the range of conventional artillery shells by 30% to 50% while maintaining their destructive power. By integrating ramjet technology into 155 mm shells, the Army obtained the ability to strike deeper targets with greater effectiveness. Developmental trials are currently under way, with successful tests already conducted at the Pokhran field firing ranges. These trials have demonstrated the feasibility of retrofitting ramjet modules onto existing 155 mm

shells, meaning the technology can be applied across the Army's current inventory without requiring entirely new ammunition designs.

Once the ramjet artillery shell technology is ready for induction, it can be used in any of the Army's artillery systems, including on the US-imported M777 ultra-light howitzer.

https://timesofindia.indiatimes.com/india/in-a-1st-in-world-army-set-to-deploy-ramjet-powered-shells-for-155mm-artillery-guns/articleshow/126330397.cms

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Arihant class nuclear-powered submarine S4* likely to be named INS Arisudan

The names of all Indian nuclear submarines — Arihant, Arighaat, Aridhaman, and now, Arisudan — mean destroyer of enemies

Source: Hindustan Times, Dt. 05 Jan 2026

The fourth and last of the Arihant class nuclear powered and long range ballistic missile equipped submarine S4*, launched by Defence Minister Rajnath Singh on October 16 last year, is likely to be named INS Arisudan with Arihant (destroyer of enemies) being the common name for all the nuclear submarines of India.

HT learns that the formal name of S4* will be proposed by the ship-naming committee of the Indian Navy, then cleared by the Defence Ministry and finally the President of India will give the approval with Arisudan expected to be commissioned in 2027.

While INS Arisudan's predecessor INS Aridhaman is expected to be commissioned in the first half of 2026, work has also gained momentum for design and construction of two indigenous nuclear powered conventionally armed submarines or SSN after the Narendra Modi government gave the green signal to the P77 attack submarine on October 9, 2024. India is also expected to get a SSN of Akula class on lease from Russia latest by 2028 and HT also learns that Moscow offered to lease one more blue water boat to India ahead of the visit of Russian President Vladimir Putin to India on December 5, 2025.

The sub-surface nuclear deterrent is the most potent part of the nuclear TRIAD as submarines are crucial to the second strike capability of a country like India which professes no first use doctrine. While India's neighbor China also has a no first use nuclear doctrine, Pakistan, which claims to be India's arch rival, has first use nuclear doctrine.

While INS Arihant SSBN carries only K-15 750 km range nuclear missiles, all the remaining boats, which are bigger than the first of the class by 1000 tonnes, are expected to carry K-4 3500 km range missiles, which are currently undergoing test trials by the DRDO and Strategic Force Command. India needs submarines with unlimited range if it has to conduct deterrent and access denial patrols in the Indo-Pacific.

Names of warships, usually, follows a theme based on the name of the first of that class of ships. And, the class as a whole is named after the first ship.

Just as all Indian SSBNs have names that mean enemy killers, the diesel attack submarines of the Indian Navy conventionally carry the names of its decommissioned predecessors ; and all Kalvari

class submarines are named after Russian Foxtrot submarines decommissioned in the past. The Indian Navy's guided missile destroyers are named after cities of India like INS Delhi, INS Surat, INS Imphal, INS Kolkata, INS Mumbai, and INS Visakhapatnam, and Indian frigates are named after rivers and mountains like the Ganga class, the Brahmaputra class and the Shivalik class.

https://www.hindustantimes.com/india-news/arihant-class-nuclear-powered-submarine-s4-likely-to-be-named-ins-arisudan-101767555406284.html

*

Rajnath to commision Samudra Pratap today

Source: Hindustan Times, Dt. 05 Jan 2026

Press Trust of India
letters@hindustanitmes.com

NEW DELHI: The Indian Coast Guard's first indigenously designed and built pollution control vessel 'Samudra Pratap' will be commissioned into the ICG by defence minister Rajnath Singh on January 5, officials said on Sunday.

The 114.5-m vessel has over 60 per cent of indigenous content. The 4,200-tonne vessel boasts a speed of more than 22 knots and an endurance of 6,000 nautical miles, they said.

The vessel will serve as a critical platform for enforcing marine pollution control regulations, maritime law enforcement, search and rescue operations, and safeguarding India's Exclusive Economic Zone (EEZ).

The Samudra Pratap, was handed over to India Coast Guard (ICG) by Goa Shipyard Limited (GSL) in December. ANI

The vessel was formally delivered in December to the Coast Guard at Goa Shipyard Limited (GSL). "@IndiaCoastGuard Ship Samudra Pratap, the first of two Pollution Control Vessels, will be commissioned by Hon'ble Raksha Mantri Shri Rajnath Singh at @goashipyardltd, #Goa on 05 Jan 26," the ICG said in a post on X.

It also shared a small video clip on the vessel, billed as the largest and the most advanced PCV of the ICG.

"Built by #GSL with over 60% indigenous content, the 114.5 Mtr, 4,200 ton vessel boasts a speed of more than 22 knots and an endurance of 6,000 nm, significantly enhancing the #ICG's pollution response, fire-fighting, and maritime safety & security capabilities," the Coast Guard said.

The PCV is equipped with oil finger printing machine, gyro stabilised stand off active chemical detector and other equipment, the ICG earlier said.

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Army Chief General Dwivedi embarks on two-day visit to UAE

Source: The Hindu, Dt. 05 Jan 2026

Army Chief General Upendra Dwivedi on Sunday (January 4, 2026) left for the United Arab Emirates (UAE) on a two-day visit to explore ways to strengthen bilateral military cooperation. Gen. Dwivedi is scheduled to hold wide-ranging talks with top military brass of the influential Gulf nation.

"The visit underscores a shared commitment to deepening mutual understanding, enhancing cooperation in areas of common interest and advancing bilateral defence cooperation between the two nations," the Indian Army said on social media.

Gen. Dwivedi's trip is taking place weeks after the Gulf nation's Commander of the Presidential Guard, Major General Ali Saif Humaid Alkaabi, visited India. The Army Chief's visit comes in the midst of fast-paced developments in the Gulf region, including escalating tensions between the UAE and Saudi Arabia over the situation in Yemen.

The military cooperation between India and the UAE witnessed significant momentum after the visit to that country by then Army Chief Gen M.M. Naravane in December 2020. It was the first-ever visit to the UAE by a head of the Indian Army.

https://www.thehindu.com/news/national/army-chief-general-dwivedi-embarks-on-two-day-visit-to-uae/article70470993.ece

*

25 yrs in the air: Tejas's turbulent flight path

Source: The Times of India, Dt. 04 Jan 2026

On Jan 4, 2001, the made-in-India jet took off on its first test flight. The story of its development features a long list of characters, and cameos by industrialists Ratan Tata and Rahul Bajaj

Chethan.Kumar@timesofindia.com

On Jan 4, 2001, a compact fighter rolled down a Bengaluru runway and lifted something far heavier than its own weight. Entwined in those 18 minutes aloft were decades of ambition, argument, delay, improvisation and quiet resolve. Twenty-five years later, the Light Combat Aircraft Tejas stands as the only indigenously developed fighter to enter service with Indian Air Force: as much a technological milestone as a reminder that India's long quest for self-reliance in combat aviation remains unfinished.

But at HAL's airport in Bengaluru that Thursday morning, all that was running through Wing Co Rajiv Kothiyal's head were the meticulously worked-out details of the first tech demonstrator of the LCA programme. Aged 42 then, the IAF test pilot stepped confidently on to Runway 09 at the National Flight Test Centre, ready to attempt something that had never done before. But there was unease, too. This was uncharted territory.

First Test Flight

The flight went largely to plan, though minutes after take-off the telemetry auto-tracking system failed. In the monitoring control room, all 16 screens began flashing incorrect data. Kothiyal pressed on. "I knew she was doing fine and we continued," he later recalled.

The day had begun early. At 8am, Kothiyal conducted a detailed flight briefing, laying out the sortie profile and speaking plainly to the crews of the two Mirage-2000 chase aircraft about their roles if anything went wrong.

Although take-off was scheduled for 10am, Kothiyal had strapped in by 9.15am. As cockpit checks began, he mentally rehearsed manoeuvres he would execute, many practised repeatedly during hundreds of hours in a Mirage simulator. The GE-F404 engine powering LCA was gunned up soon after for lengthy after-start checks.

By around 9.40am, the aircraft entered a 12-min automatic built-in test. During this sequence, the flight control computer ran through a pre-programmed set of checks. On an operational fighter, the process would take about a minute. For the demonstrator, it was non-negotiable.

(From L-R) LCA project director Kota Harinarayan, then defence minister George Fernandes, Wing Co Rajiv Kothiyal, senior scientist APJ Abdul Kalam and then IAF chief Anil Tipnis in Bengaluru on Jan 4, 2001

Eventually, he got a "GO". At 10.18am, Kothiyal eased the aircraft down the runway and lifted India's long-held fighter ambitions into the sky on a machine till then unnamed. It was only in 2003 that then PM AB Vajpayee gave LCA its name: Tejas.

From a thought in the late 1970s to an aircraft in service now, Tejas has travelled a long and uneven road. It has moved from paper drawings and tech demonstrators to prototypes and, finally, induction. Yet, debates about its operational value surface regularly. The programme has drawn both criticism and praise, and its history has several chapters worth recording.

Rs 17,269cr Cost of development of IAF/ Navy variants, trainers, etc

38 jets inducted as of Dec 2025

IAF has two Tejas Mk1 squadrons, Flying Daggers (raised in 2016), and Flying Bullets (2020). In Aug 2022, the Tejas Mk2 proposal received clearance

Growth, Concerns

The commonly cited starting point of the LCA journey is 1983. The push for that came earlier though, in the late 1970s, when India realised that further development of the HF-24 Marut was not feasible, largely because of the absence of a suitable engine. Marut had been designed by Kurt Tank, the German engineer behind the Focke-Wulf, who relocated to India after WWII.

In 1979, Prof Roddam Narasimha conceived an aircraft with limited range but maximum performance and presented it to IAF. Backed by Prof Raja Ramanna — nuclear physicist who's known as the 'father of India's nuclear programme' — the proposal moved through govt. "The idea was not to just have an aircraft, it was to create capabilities," Roddam later said.

The first shot of funding, of Rs 560 crore, came in 1983. With no single organisation in India capable of developing the jet on its own, govt created ADA (Aeronautical Development Agency) in 1984. ADA was tasked with design and development, while HAL became the principal production partner.

Saving The Baby

Progress was slow and uncertain. By the early 1990s, the programme came close to being shut down. At a critical moment, industrialists Ratan Tata and Rahul Bajaj stepped in. Air Marshal Philip Rajkumar has recalled how Tata said he would take over the programme if it were to be abandoned by govt.

In 1991, then defence minister Sharad Pawar set up a high-level panel — it included Tata and Bajaj — that visited ADA and other centres in Bengaluru to review tech demonstrations. Former LCA project director Kota Harinarayan later said the project survived because Tata, Bajaj and Air Marshal Idris Latif stood by it when many others expressed doubt. Tata reportedly was of the view that shelving the project would be "a shame".

Forex Crunch, Sanctions

But the project ran into compounding difficulties. India's foreign exchange crisis in 1991 forced a shift in strategy. As former ADA chief P S Subramanya recalled, plans for foreign tie-ups had to be abandoned. PM P V Narasimha Rao insisted the programme go fully indigenous. That meant developing systems from scratch, often without adequate funding.

On June 23, 1993, Centre allocated another Rs 1,628 crore. Many involved say even that was insufficient. Just as momentum built, sanctions followed India's Pokhran-II nuclear tests in 1998, cutting off access to key technologies.

Airborne, At Last

Tejas took another decade after its first flight to achieve 'initial operational clearance', or IOC. Even then, it fell short of several IAF requirements, leading to a second IOC. On Jan 10, 2011, then IAF chief P V Naik publicly noted that it was not yet a fourth-generation aircraft and needed more work.

Concerns persist. Despite multiple govt orders, IAF chief Air Chief Marshal A P Singh said in Feb 2025 that he had "no confidence" in HAL, citing delays in improvements and deliveries.

India also attempted to develop its own engine. But the Kaveri programme, begun in the 1980s, failed to deliver an operational engine. Tejas continues to fly with the GE-F404, with newer variants set to use the GE-F414. The naval variant followed a similar arc. Approved for operations on aircraft carriers, the LCA-Navy rolled out in 2010. Its first prototype flew on Apr 27, 2012, and completed shore-based trials in 2013. Delays, however, pushed the Navy to look elsewhere for its immediate needs.

Over 25 years of flying, Tejas has suffered only two crashes, including on Nov 21 last year in Dubai, when a pilot was killed. In 2024, a crash had occurred near Jaisalmer from which the pilot ejected safely.

Tejas' story is neither of triumph nor failure alone. It's a record of what India learned the hard way, and of how much remains to be done before the country can truly claim mastery over combat aircraft design.

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Army signs deal to procure long-range rocket launchers Suryastra

Source: The Hindu, Dt. 04 Jan 2026

Under emergency procurement powers, the Indian Army has signed a ₹293 crore contract with private defence manufacturer NIBE Limited, in collaboration with Israel, for the supply of an advanced long-range rocket launcher system with strike capabilities of 150 km and 300 km. The acquisition will significantly enhance the Army's deep-strike artillery firepower and operational reach.

Suryastra Multi Calibre Rocket Launcher System.

The development was confirmed by Pune-based defence manufacturer NIBE Limited in a letter to Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE), on Friday (January 3, 2026). “The company has entered into a supply contract with Indian Army, Ministry of Defence, Government of India for manufacturing and supply of ground equipment, accessories, ESP and ammunition for universal rocket launcher system capable of integrating multiple rocket types including rockets striking at long ranges of 150 km and 300 km for a total consideration of ₹292.69 crore (inclusive of all taxes and duties),” the letter mentioned.

The system, Suryastra, is India’s first Made in India universal multi-calibre rocket launcher, capable of executing precision surface-to-surface strikes at ranges extending up to 300 km. Designed to engage multiple targets simultaneously at varying ranges, the system achieves a high degree of accuracy with a circular error probable (CEP) of less than five metres during trials. The same launcher is also capable of firing loitering munitions up to a range of 100 km, enhancing operational flexibility.

In July 2025, the defence manufacturer has signed a Technology Collaboration Agreement (TCA) with Israeli defence major Elbit Systems to manufacture the advanced universal rocket launcher system (SURYA) in India. This marks the first time a high-precision rocket launcher system with strike capability up to 300 km is being produced domestically, supporting the government’s thrust on Aatmanirbhar Bharat.

On December 26, 2025, the Defence Acquisition Council (DAC) of the Defence Ministry cleared a proposal to allow defence forces to sign contracts under emergency procurement (EP) powers till January 15, 2026. Under the EP provisions, the armed services can procure weapons systems worth upto ₹300 crore on an urgent basis without any further clearances. Deliveries should begin in six months and end within a year of the contract date. Recently, DRDO chairman Samir V. Kamat said they will soon begin manufacturing new variants of the Pinaka rocket system with extended ranges of 120 km and 300 km. These systems are expected to be inducted into the Indian Army within the next three to five years.

https://www.thehindu.com/news/national/army-to-procure-long-range-rocket-launchers-in-major-deal-backed-by-israeli-technology/article70468168.ece

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CDS ने कार निकोबार एयरस्ट्रिप की शुरुआत की

Source: NavBharat Times, Dt. 03 Jan 2026

पीटीआई, श्री विजयपुरम (निकोबार): चीफ ऑफ डिफेंस स्टाफ (CDS) जनरल अनिल चौहान ने शुक्रवार को अंडमान और निकोबार द्वीप समूह में भारतीय वायु सेना के कार निकोबार एयरफोर्स बेस पर अडवांस एयरस्ट्रिप की शुरुआत की। श्री विजयपुरम से करीब 535 किलोमीटर दूर स्थित निकोबार जिले का कार निकोबार द्वीप 2004 की सुनामी के दौरान सबसे अधिक प्रभावित हुआ था। यह एयरस्ट्रिप पूर्वी मोर्चे को और अधिक मजबूती देगी।

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CDS inaugurates upgraded runway at IAF base in Car Nicobar island

Source: The Times of India, Dt. 03 Jan 2026

Chief of Defence Staff General Anil Chauhan on Friday inaugurated a major runway upgrade at the Indian Air Force's Car Nicobar air base, a move aimed at strengthening India's strategic reach over the vital Malacca Strait.

Car Nicobar, which once bore the brunt of a deadly tsunami in 2004, gets the new modernised infrastructure that is designed to enhance the IAF's rapid response capabilities and strengthen India's military posture in the eastern Indian Ocean.

CDS Gen Anil Chauhan with senior military officials during the inuguration of the resurfaced and upgraded runway

The CDS, who arrived at Car Nicobar around 11.30 am, was welcomed by Vice Admiral Ajay Kochhar, commander-in-chief of the Andaman and Nicobar Command (ANC) and several other senior officials on the island. Significant changes done as part of the base facelift include the

expansion of the apron areas for smooth aircraft movement. The new facility will help the IAF carry out long-range firing exercises in a minimal time. Car Nicobar is a key part of the ANC 0— the country's only tri-service command integrating the Army, Navy, and Air Force. Positioned at the heart of the Bay of Bengal, it acts as a springboard for operations across the Indo-Pacific.

Second, the base enables rapid deployment, humanitarian assistance and deterrence against threats to India's maritime security. And most importantly, its strategic location near the Malacca Strait underscores its role in safeguarding some of the world's busiest sea lanes.

On Dec 26, 2004, Car Nicobar was shattered by a monstrous tsunami that claimed the lives of 122 air warriors and their family members. Hundreds of civilians were also killed. The coastline was redrawn, villages erased and haunting "ghost towns" left behind. The tsunami forced India to rethink its strategic posture in the Indo-Pacific. Car Nicobar, once a site of grief, was rebuilt as a hub of resilience. Today, the airbase hosts C-130J Super Hercules aircraft, elite paratroopers and advanced surveillance systems.

https://timesofindia.indiatimes.com/india/cds-inaugurates-upgraded-runway-at-iaf-base-in-car-nicobar-island/articleshow/126310573.cms

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India to launch Drone Shakti mission soon

Source: The Pioneer, Dt. 03 Jan 2026

India will soon launch a mission to achieve technology sovereignty in the manufacturing of drones, which are playing a key role in applications ranging from product delivery to warfare. "In the immediate future, we are going to launch the Drone Shakti Mission that will offer incentives to manufacture components used in drones, instead of assembling drones using imported components," said Ajay Kumar Sood, the principal scientific advisor to the Government of India.

He told reporters that the mission has twin objectives — to incentivise component manufacturing and promote research and development required for high-end drones. Sood said the Drone Shakti Mission will be launched under the Anusandhan National Research Foundation that aims to foster a culture of research, development and innovation in the country.

The top scientific advisor said the government was also looking at the fields of advanced manufacturing and robotics to achieve the goal of technology sovereignty. Drones were widely used in Operation Sindoor by the armed forces to trace and destroy high-value targets, including enemy radar and missile systems inside Pakistan.

Loitering munitions, also known as "suicide drones" or "kamikaze drones," are weapons systems that can hover or circle a target area, searching for a suitable target before attacking. Science and Technology Minister Jitendra Singh said every major reform undertaken by the government was technology-enabled.

This transformation has been possible due to the consistent prioritisation of science, technology, and innovation in national policy making, he said. The minister said a major highlight of the year was the Research, Development and Innovation Fund of Rs one lakh crore, under which the Government directly supported research and development in the private sector.

Complementing this, the Anusandhan National Research Foundation has been established to democratise research funding, expand participation beyond elite institutions and mobilise nearly

50-60 per cent of its resources from non-government sources, including philanthropy and industry, Singh added.

https://dailypioneer.com/news/india-to-launch-drone-shakti-mission-soon

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Artillery recast as Army's strike formation

Procurement of loitering ammo marks a new journey for the Shaktibaan regiments

Source: The Tribune, Dt. 03 Jan 2026

AJAY BANERJEE

MONTHS after the Indian Army announced restructuring of its war-fighting units, the Ministry of Defence has gotten down to equip specialised regiments, called Shaktibaan, with new technology, including loitering ammunition and swarm drones.

The Defence Acquisition Council (DAC), the apex decision-making body of the Ministry of Defence, this week okayed the procurement of loitering ammunition for Shaktibaan regiments.

The Army has a target of having 25 Shaktibaan regiments, pre-positioned at specific locations along the western frontier with Pakistan and the northern front with China. These regiments, coupled with specialised units called the Divyaastra batteries, mark the evolution of the Indian artillery with modern-day needs of precision warfare.

DIVYAASTRA BATTERIES

Set up post Operation Sindoor (May 7-10, 2025) against Pakistan, the Divyaastra batteries — as the units in an Artillery regiment are known — carry long-range artillery guns, surveillance drones and anti-drone systems backed by AI-based fusion centres collating real-time data.

Shaktibaan regiments will use loitering ammunition and swarm drones as means of battle and not the regular artillery guns.

> Procurement of loitering ammo marks a new journey for the Shaktibaan regiments

The restructuring was announced by Army Chief Gen Upendra Dwivedi at an event in Kargil in July. It marks the first change to the Army's battle structure post Op Sindoor.

The loitering ammunition will be of two types: long range and medium range. The ammunition can stay in air for a specific period and then ground controllers can direct it to hit the identified targets. The equipment would be produced locally.

Several types of swarm drones have been inducted and tried out at various altitudes. An indigenous loitering ammunition called Nagastra is already available.

ABOUT THE TRANSFORMATION

The Artillery is moving from just having traditional guns to now functioning as integrated strike formations. There are some 260 field formations of the Artillery and the move marks a fundamental re-conceptualisation of modern warfare. Shaktibaan and Divyaastra are not just upgrades, they constitute a re-imagining of how the Army would conduct offensive operations by aligning conventional firepower, unmanned systems and AI-enabled targeting.

Traditional Indian Army artillery regiments operate within a standardised structure established a century ago. This would be of three batteries, each comprising six guns, totalling 18 guns per regiment. This structure relies on firepower, with the artillery gun being the primary lethal instrument. Traditional silos — artillery, reconnaissance, and air defence — operate as separate, hierarchically coordinated entities.

DIFFERENT ARCHITECTURE

The Shaktibaan regiment has a fundamentally different architecture — it would have two units firing loitering ammunition and a dedicated swarm drone unit. Shaktibaan regiments would bring speed in detecting, analysing and engaging enemy targets.

Divyaastra occupies a critical middle ground — combining the sustained firepower of conventional artillery with the precision, flexibility, and autonomy of emerging unmanned technologies and AI. Five such Divyaastra batteries have been set up and were validated during an exercise, 'Divya Drishti', conducted in east Sikkim in August.

Each contains multi-domain strike formations capable of conducting deep-precision strikes, real-time surveillance, area defence, and independent operations. The UAV will provide real-time surveillance feed and aid in target acquisition.

It has integrated air defence against the enemy UAVs and AI-enabled processing inputs. It can automatically recommend targeting solutions. When a reconnaissance drone detects an enemy position, the target information is instantly fed into the AI-enabled fusion centre, which calculates the optimal engagement ammunition to be fired — a loitering missile or drone strike.

A connected counter-drone system employs electronic jamming and the laser-based kinetic kill provides multi-layer protection against approaching threats. All the inputs flow to the Akashteer Integrated Command and Control System.

A 2022 study on 'Re-organisation and Rightsizing of the Indian Army' had reviewed operational structures to make them future-ready. An ARTRAC training roadmap requires reorienting the entire educational infrastructure of gunner schools and regimental centres.

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Army Day to feature re-enactment of Operation Sindoor in Jaipur

Source: The Tribune, Dt. 04 Jan 2026

Operation Sindoor will be re-enacted during Army Day celebrations on January 15, showcasing the role played by troops, guns, missiles, rockets and air defence systems in countering Pakistan's aggression between May 7 and 10 last year.

The celebrations, to be held in Jaipur, will unfold in two phases. The first will be the traditional morning parade, which will include, among other elements, a display by the newly raised Shaktibaan artillery regiments and Bhairav Commando battalions created after Operation Sindoor.

Defence Minister Rajnath Singh interacts with troops of the newly raised Bhairav Battalion: File Photo

The second phase, scheduled for the evening and titled ‘Shaurya Sandhya’ (Evening of Valour), will feature a re-enactment of the four-day skirmish with Pakistan. This will showcase the role played by BrahMos missiles, the Pinaka multi-barrel rocket system, the M777 artillery gun and air defence systems that drew widespread praise. The M777 was used to fire precision-guided Excalibur ammunition across ranges of up to 40 km to target terror camps on May 7.

The Army’s post-Operation Sindoor war-fighting architecture will be on display at the event, including a planned drone show involving 1,000 drones. The Army has transitioned towards a drone-centric battle framework, with all 385 infantry battalions now equipped with a specialised drone unit called “Ashni”. These units operate surveillance drones and loitering munitions — commonly known as kamikaze drones — giving each infantry battalion precision strike capability that was absent in earlier border operations.

The newly raised “Bhairav” battalions will also take part in the parade. The first five battalions were deployed in October, with another 20 in the pipeline. Designed for rapid, high-impact missions along India’s borders, these units bridge the gap between conventional infantry formations and Special Forces. They are tasked with surprise attacks, cross-border raids, disruptive operations and advanced reconnaissance, particularly along the China and Pakistan fronts.

The Shaktibaan regiment will be another highlight. The Army plans to raise 25 such regiments, pre-positioned along the western frontier with Pakistan and the northern frontier with China. The regiment has a fundamentally different structure, comprising two loitering munition units and a dedicated swarm drone unit. The Ministry of Defence last week approved the induction of two types of loitering ammunition — long-range and medium-range. Several swarm drone variants

have already been inducted and tested at different altitudes. The Army's restructuring was announced by Army Chief Gen Upendra Dwivedi at an event in Kargil in July, marking the first major overhaul of its battle structure following Operation Sindoor.

https://www.tribuneindia.com/news/india/army-day-to-feature-re-enactment-of-operation-sindoor-in-jaipur/

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NCC plans trained cyber, drone, disaster warriors

Source: The Pioneer, Dt. 04 Jan 2026

In a unique method to use manpower and human resources of the country, the National Cadet Corps (NCC) has planned to train one lakh cadets as first responders - Yuva Apda Mitras -in the wake of natural disasters and also raise a unit of 'Cyber Warriors' to act as shield towards India's digital defence mechanism.

Not only this, NCC has simultaneously started work on raising four to five hubs across the country where select cadets can be trained on drone and counter-drone aspects. Announcing this initiative, Director General, NCC, Lt Gen Virendra Vats said these will be integrated with the national database. "The idea is to raise cadets who are disciplined, have leadership qualities and possess a spirit of adventure," Vats said during a press conference on the NCC's Republic Day Camp 2026 that began on December 30 at the Cariappa Parade Ground at Delhi Cantonment.

Sources said the NCC is holding regular deliberations with the NDRF as well as with SDRF for better coordination for Yuva Apda Mitra and with the Ministry of Electronics and Information Technology and its various arms like C-DAC, NIC and some of the private agencies related to working out a modus operandi for the Cyber Warriors. The NCC boss made a PowerPoint presentation outlining various future plans of the NCC.

In coordination with the National Disaster Management Authority (NDMA), the NCC has planned to train as many as one lakh cadets as "first responders" in the wake of any natural disaster, he said. These cadets will be known as Yuva Apda Mitras, and they will be trained and linked with the national database, so that the services can be used by the nation in case of need in future, Lt Gen Vats said. Furthermore, work is also in progress under a plan to raise 10,000 cadets as 'cyber warriors', "who can stand as a wall of digital defence, as today, the cyber domain is getting weaponised," he told reporters. Vats also announced that for the "first time, parade and contingent commanders of the NCC will march carrying a sword during the 2026 Republic Day Parade, "at par" with the members of military contingents.

A total of 2,406 NCC cadets, including 898 girls, from across the country are participating in the annual camp this year. More than 200 cadets from over 20 friendly foreign countries, including Bhutan, Sri Lanka, Brazil, Bangladesh, Nepal and Malaysia, are also taking part. Lt Gen Vats, in response to a query, said the NCC plans to increase its strength from 17 lakh to 20 lakh in a phased manner, and "we plan to achieve it by 2028". Girls cadets form 40 per cent of the total current strength, he added.

https://dailypioneer.com/news/ncc-plans-trained-cyber-drone-disaster-warriors

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Pak successfully conducts flight test of Taimoor missile

Source: The Times of India, Dt. 04 Jan 2026

Pakistan Air Force has successfully conducted a flight test of the indigenously developed Taimoor Weapon System, capable of hitting targets at 600km. This launch marks another significant milestone in the advancement of national aerospace and defence capabilities, the army said in a statement issued in Rawalpindi on Saturday.

“Taimoor Air-Launched Cruise Missile is capable of engaging enemy land and sea targets with high precision at a range of 600km, carrying a conventional warhead,” the statement said. “Equipped with a state-of-the-art navigation and guidance system, Taimoor is designed to fly at very low altitudes, enabling it to effectively evade hostile air and missile defence systems.”

https://timesofindia.indiatimes.com/world/pakistan/pak-successfully-conducts-flight-test-of-taimoor-missile/articleshow/126330411.cms

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China launches new missile destroyer

Source: The Indian Express, Dt. 03 Jan 2026

Press Trust of India
Beijing, January 2

THE CHINESE navy has commissioned a new "upgraded" missile destroyer as it's expanding its fleet at a breakneck speed to catch up with the US naval strength.

The Chinese People's Liberation Army (PLA) Navy has commissioned a new Type 052D guided missile destroyer named Loudi, which features upgraded radar, weapon and network systems, official media here reported on Friday.

Zhang Shengwei, a crew member of the Loudi, was quoted by state-run *Global Times* as saying that the new-type warship adopts a new system and architecture, giving it enhanced combat capabilities in air defence, sea attack and task force command.

The Loudi can not only conduct long-range assault and strike missions against its targets, but also defend friendly ships in defensive missions, Zhang said. Observers say the new ship's addition highlights the feverish pitch at which the Chinese navy is expanding its fleet, adding a ship a month.

With the addition of Loudi, the Chinese navy has added 11 combat vessels, including the aircraft carrier Fujian, in 2025.

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Science & Technology News

Will send manned sub up to 6-km depth: Minister

Source: The Tribune, Dt. 03 Jan 2026

Union Minister Dr Jitendra Singh on Friday said that India was preparing for human spaceflight and deep-sea exploration. He said while an Indian astronaut would venture into outer space, India would also send a human-occupied submersible to depths of up to 6,000 metres, marking a historic dual achievement in 2027.

“One going in outer space and one going deep sea. 2026 will be the final rehearsal year for both of these expeditions. This year we would also be preparing ourselves to engage ourselves into another ambitious area- ocean energy. Like nuclear energy contributing 10 per cent by 2047, we will have clean energy sources of ocean resources which would be solar panels, ocean winds. We have a vast ocean,” the minister said.

He underscored that India’s reform express is being driven by science, technology, and innovation, with technology acting as the central force behind governance, administration, and economic transformation. The minister said the country’s future growth over the next two decades will be led by innovation-driven sectors such as Space, oceans, biotechnology, clean energy, and advanced manufacturing.

A major highlight of 2025, Singh said, was the Research Development and Innovation (RDI) Fund of Rs 1 lakh crore, under which the government is directly supporting private sector R&D, an unprecedented step globally.

https://www.tribuneindia.com/news/india/will-send-manned-sub-up-to-6-km-depth-minister/

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Scientists create more efficient battery tech

Source: The Times of india, Dt. 05 Jan 2026

Scientists say a breakthrough in solid-state sodium-ion (Na-ion) batteries could make electric vehicle and grid storage safer and more stable. Unlike conventional lithium-ion batteries, which use flammable liquid electrolytes and risk thermal runaway, the new batteries use a solid electrolyte made with sulphur and chlorine, providing high stability and a Coulombic efficiency of 99.26% after 600 cycles. Yang Zhao, professor at Canada’s Western University, explains the solid-state electrolyte is non-flammable and safer than lithium-based systems. Using advanced X-ray analysis at Canada’s synchrotron facility, researchers tracked ion movement to optimise performance. The technology could improve recyclability and enable large-scale, safer energy storage.

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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