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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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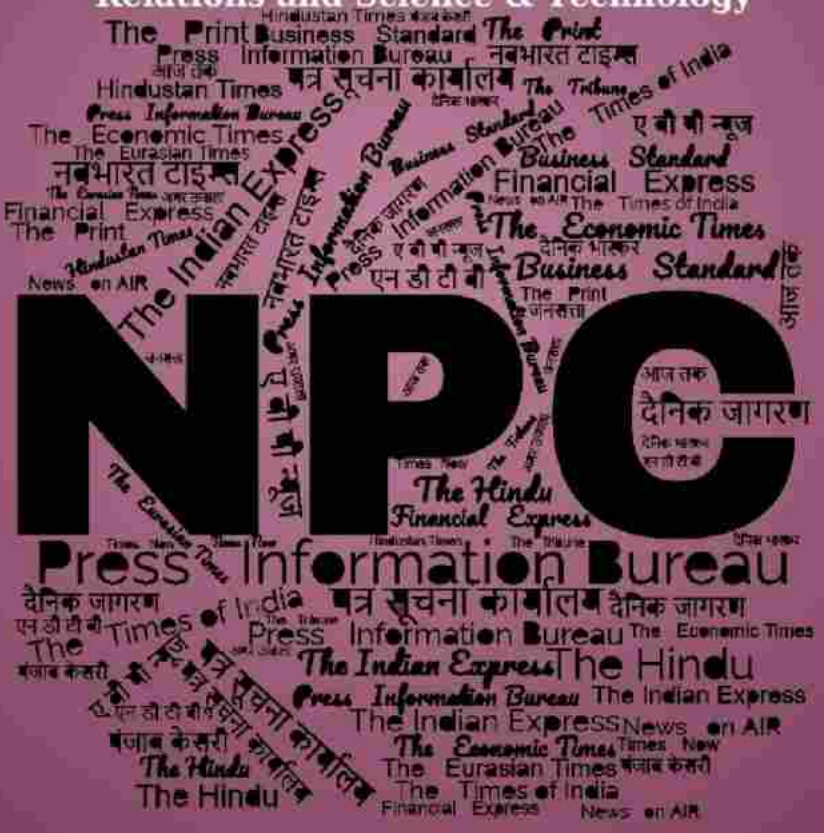

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लखनऊ में तैयार ब्रह्मोस सेना को सोपी, राजनाथ ने कहा - जद में पूरा पाकिस्तान

Source: Dainik Jagran, Dt. 19 Oct 2025

जागरण संवाददाता, लखनऊ : रक्षा मंत्री राजनाथ सिंह ने लखनऊ यूनिट में तैयार सुपरसोनिक मिसाइल ब्रह्मोस की पहली खेप शनिवार को सेना को सौंपी। सरोजनी नगर के भटगांव स्थित ब्रह्मोस उत्पादन इकाई में आयोजित कार्यक्रम में उन्होंने कहा कि पाकिस्तान की एक-एक इंच जमीन हमारी ब्रह्मोस मिसाइल की पहुंच में है। आपरेशन सिंदूर तो सिर्फ ट्रेलर था। उस ट्रेलर से ही पाकिस्तान को आभास करा दिया गया कि भारत उसे जन्म दे सकता है तो समय आने पर वह...। अब आगे मुझे बोलने की जरूरत नहीं है, आप खुद समझदार हैं। राजनाथ ने पाकिस्तान को उसकी नापाक हरकत पर बड़ा अंजाम भुगतने की चेतावनी भी दी। वहीं, मुख्यमंत्री योगी आदित्यनाथ ने कहा कि रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) को जितनी जमीन चाहिए, उत्तर प्रदेश में मिलेगी। उनकी कैबिनेट ने ब्रह्मोस यूनिट के लिए मुफ्त में जमीन मुहैया कराने का फैसला किया था।

राजनाथ ने कहा कि ब्रह्मोस जैसी उपलब्धियों से मेड इन इंडिया ग्लोबल ब्रांड बन गया है। अब हम फिलीपींस को ब्रह्मोस निर्यात करेंगे। भारत अब रक्षा क्षेत्र में टेक्नोलाजी लेने वाला नहीं, देने वाला बन गया है। कई देश भारत के साथ तकनीकी सहयोग में रुचि रखते हैं। पिछले एक महीने में ब्रह्मोस टीम ने दो देशों के साथ चार हजार करोड़ रुपये के अनुबंध पर हस्ताक्षर किए हैं। अगले वित्तीय वर्ष से ब्रह्मोस इकाई का टर्नओवर तीन हजार करोड़ रुपये होगा और इससे उत्तर प्रदेश सरकार को 500 करोड़ रुपये जीएसटी मिलेगा। एक ब्रह्मोस मिसाइल के उत्पादन से मिलने वाले जीएसटी से कई स्कूल और अस्पताल बन सकेंगे। देश के लिए इससे बड़ा धनतेरस क्या हो सकता है? हमारी सुरक्षा के साथ-साथ अर्थव्यवस्था पर भी मां लक्ष्मी की कृपा बरसी है।

उन्होंने कहा कि ब्रह्मोस हमारी सेनाओं की शक्ति का ही प्रतीक नहीं, यह संदेश भी है कि अब उत्तर प्रदेश बाहरी या आंतरिक सुरक्षा, किसी भी चुनौती को संभालने के लिए पूरी तरह तैयार है। रक्षा मंत्री ने कहा कि आपरेशन सिंदूर अभी खत्म नहीं हुआ है। जीत हमारी आदत है। इस आदत को हमें और मजबूत करना है। इससे पहले रक्षा मंत्री और मुख्यमंत्री ने ब्रह्मोस एयरोस्पेस यूनिट में बूस्टर और वारहेड बिल्डिंग का उद्घाटन किया। दोनों ने सुखोई लड़ाकू विमान से ब्रह्मोस के वर्चुअल हमले को भी देखा।

योगी ने कहा-ब्रह्मोस से करेंगे मित्र देशों की रक्षा : मुख्यमंत्री योगी आदित्यनाथ ने रक्षा क्षेत्र में उत्तर प्रदेश के अवदान की चर्चा की। कहा-प्रदेश में झांसी और अमेठी में भी हथियार बन रहे हैं। ब्रह्मोस केवल भारत की नहीं, बल्कि पूरी दुनिया में अपने मित्र देशों की रक्षा करने का सबसे सक्षम हथियार है। लखनऊ में बनी मिसाइलें पूरे देशवासियों की सुरक्षा और समृद्धि की गारंटी हैं।

10 माह में ब्रह्मोस नेक्स्ट जेनरेशन मिसाइल का भी उत्पादन » पेज 15

- इस यूनिट में तैयार मिसाइल की है यह पहली खेप, रक्षा मंत्री ने सीएम योगी की भी प्रशंसा की
- एक माह में ब्रह्मोस टीम ने दो देशों के साथ चार हजार करोड़ के अनुबंध पर किए हस्ताक्षर

लखनऊ में शनिवार को ब्रह्मोस एयरोस्पेस सरोजनी नगर में रक्षा मंत्री राजनाथ सिंह, साथ में मुख्यमंत्री योगी आदित्यनाथ व अन्य ● सूचना विभाग

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हल्के टैंक से एंटी टैंक मिसाइल नाग का सफल परीक्षण

Source: Dainik Jagran, Dt. 18 Oct 2025

नई दिल्ली, प्रेट्र : भारत के स्वदेशी हल्के टैंक से एंटी टैंक गाइडेड मिसाइल (एटीजीएम) नाग एमके II का परीक्षण किया किया गया है। यह रक्षा क्षेत्र में आत्मनिर्भरता की दिशा में बड़ी उपलब्धि है। इस हल्के टैंक को रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) द्वारा डिजाइन और विकसित किया गया है तथा इसका निर्माण लार्सन एंड टुब्रो लिमिटेड ने किया है।

रक्षा मंत्री राजनाथ सिंह ने स्वदेश निर्मित हल्के टैंक द्वारा मिसाइल के सफल प्रक्षेपण पर रक्षा अनुसंधान एवं विकास संगठन को बधाई दी है। इस सफल परीक्षण के बाद रक्षा मंत्री के कार्यालय ने कहा है कि महत्वपूर्ण रक्षा प्रौद्योगिकी

हल्के टैंक से प्रक्षेपित नाग एमके II मिसाइल ● प्रेट्र

में आत्मनिर्भरता को बढ़ावा देते हुए डीआरडीओ ने नाग एमके II फायरिंग क्षमता का प्रदर्शन करके हल्के टैंक के विकास में एक बड़ी उपलब्धि हासिल की। रेंज, गतिशीलता और सटीकता सहित सभी प्रदर्शन लक्ष्य हासिल कर लिए गए।

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DRDO analyses Chinese PL-15 missile, Astra-II will co-opt its advanced tech

Source: Hindustan Times, Dt. 18 Oct 2025

The Defence Research and Development Organisation (DRDO) has decided to incorporate advanced features from the Chinese PL-15 air-to-air missile into its indigenous Astra Mark-2 programme, following a detailed technical analysis of an unexploded missile fired by a Pakistani jet during Operation Sindoor in May, people aware of the matter said. The PL-15E missile was recovered fully intact in a field near Hoshiarpur, Punjab, on May 9, representing a rare intelligence opportunity for Indian defence scientists. The export variant of China's advanced beyond-visual-range missile, with a range of 145 kilometres, was found unexploded due to the weapon's lack of a self-destruct mechanism, unlike all Indian air-to-air missiles, according to people aware of the matter who asked not to be named.

The recovery occurred during Operation Sindoor, India's coordinated military response launched on May 7 to the April 22 Pahalgam terror attack that killed 26 civilians. The missile, believed to have been fired from a Pakistan Air Force JF-17 or J-10C fighter, failed to engage its target and fell approximately 100 kilometres inside Indian territory. While DRDO remains tight-lipped about its analysis report submitted to the defence ministry, the examination has identified several superior features in the Chinese weapon, one of the people cited above said. These include a miniature active electronically scanned array (AESA) radar with advanced propellant capable of maintaining speeds exceeding Mach 5, and sophisticated anti-jamming capabilities. All these advancements,

particularly the radar technology, are being incorporated into India's indigenous Astra missile development programme. Another person aware of the matter said that Pakistan is seeking to enhance its arsenal following Operation Sindoor. The Pakistan Air Force is reportedly pursuing longer-range PL-17 missiles for wide-bodied aircraft from China, 2,000 YIHA kamikaze drones from Turkey, and has submitted a list of high-tech weapons requirements to the US.

One of the people cited above also explained that India's own weapons performed effectively during the operation, with BrahMos, Rampage, and SCALP missiles demonstrating excellent results. However, Indian defence planners are moving to acquire additional Meteor missiles for Rafale fighters to ensure the Indian Air Force is not constrained by numbers in future engagements. A next-generation BrahMos missile with an 800-kilometre range is also being developed, ensuring coverage across nearly the entire breadth of Pakistan.

The evolving threat landscape, including Pakistan's three to five Chinese HQ-9 air defence systems, has prompted a strategic shift. Future hostilities will likely see Indian fighters operating from outside enemy air defence envelopes, launching long-range supersonic missiles designed to defeat ground and airborne radar systems, the people cited above said. Indian national security planners have also noted concerning ceasefire violations. Pakistan fired kamikaze armed drones and rockets in the Jammu and Rajasthan sectors even after the ceasefire was declared and communicated to all formations at 5 pm on May 10.

Pakistani forces carried out similar violations again recently, when they launched air strikes against civilian populations in Spin Boldak, a border city in Afghanistan, despite agreeing to a 48-hour no-fire pact with the Taliban in its conflict this month. While Indian armed forces did not retaliate to Pakistan's ceasefire violations on May 10, officials indicated that New Delhi would not be as forgiving in future incidents, the people said.

https://www.hindustantimes.com/india-news/drdo-analyses-chinese-pl-15-missile-astra-ii-will-co-opt-its-advanced-tech-101760751326571.html

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Upgrading strike capability: India tests 800-km BrahMos

Source: The Times of India, Dt. 20 Oct 2025

In what will be a major boost for its precision strike capabilities, India plans to begin inducting the new 800-km extended range BrahMos supersonic cruise missiles in a little over two years, while over 200km Astra air-to-air missiles are also slated for production in 2026-27. Tests are underway for the 800-km BrahMos, with a modified ramjet engine and other upgrades, to ensure the conventional (non-nuclear) missile is fully ready by end-2027, top defence sources told TOI.

The existing 450-km range BrahMos missiles, which fly at almost three times the speed of sound at Mach 2.8, were launched from Sukhoi-30MKI fighter jets for the targeted strikes deep into Pakistan under Operation Sindoor in May. “The 800-km BrahMos is more or less developed in terms of the modifications to its ramjet engine. A few more tests are required to test the efficacy of its combination of internal INS (inertial navigation system) and external global navigation satellite systems to ensure high accuracy, resilience and resistance to jamming,” a source said.

Navy, for instance, can then begin upgrading the existing 450-km BrahMos missiles on its frontline warships to the 800-km variant, with just some tweaking of the software, the ‘graphical user interface’ of the fire control system and the like. “With the basic missile and launcher remaining the

same, Navy and Army will first begin inducting the 800-km missile. The air-launched version will take slightly longer," the source said.

Parallelly, DRDO is increasing the beyond visual range (BVR) of Astra Mark-2 missiles to over 200km from the earlier 160km, while IAF is inducting over 280 Astra Mark-1 missiles with 100km range. "Along with trajectory shaping, the propulsion system is being upgraded to generate more thrust and burn for a longer time. If the trials are successful, Astra Mark-2 production can begin in six months. Otherwise, it will take a longer," another source said.

IAF has already finalised the plan to induct an initial 700 Astra Mark-2 missiles for its Sukhoi-30MKI and Tejas jets. There is also an Astra Mark-3 on the way, with solid-fuel ducted ramjet (SFDR) propulsion to increase the range to 350kmm but it will take three years to become operational. The all-weather day and night capable Astra series of missiles are crucial because they will eventually replace the expensive Russian, French and Israeli BVR air-to-air missiles (BVRAAMs) that are imported to arm IAF fighters.

During its strikes on the nine terror hubs on May 7, IAF was initially caught off-guard by Pakistan's use of Chinese-origin jets like J-10s armed with PL-15 BVRAAMs with ranges over 200km, as was reported by TOI earlier. The BrahMos air-to-ground missiles launched from stand-off distances were, however, an unqualified success. The total value of the deals inked with Indo-Russian joint venture BrahMos Aerospace has crossed Rs 58,000 crore over the years, with the missiles becoming the prime conventional precision strike weapons for IAF, Navy and Army.

In March last year, for instance, defence ministry had inked the largest-ever Rs 19,519 crore deal for procurement of over 220 BrahMos missiles for Navy. Around 20 warships, including the latest destroyers and frigates, are already armed with the vertical-launched BrahMos missiles. After Sindoor, the Rajnath Singh-led defence acquisitions council in Aug had also given the preliminary nod for IAF to get another 110 air-launched BrahMos missiles for around Rs 10,800 crore.

The land variant of the 800-km BrahMos missiles will also eventually be part of the proposed Integrated Rocket Force (IRF), along with the Pralay ballistic missiles (400-km range) and long-range land-attack cruise missiles (derivatives of the original Nirbhay missiles with 1,000-km range), among others.

https://timesofindia.indiatimes.com/india/upgrading-strike-capability-india-tests-800-km-brahmos/articleshow/124694864.cms

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DRDO organises Curtain Raiser for Emerging Science, Technology & Innovation Conclave (ESTIC-2025) at DRDL Hyderabad

Source: Press Information Bureau, Dt. 17 Oct 2025

Defence Research and Development Organisation (DRDO) organised a Curtain Raiser for the upcoming Emerging Science, Technology & Innovation Conclave (ESTIC-2025) at Defence Research and Development Laboratory (DRDL), Hyderabad, on 17th October 2025. As one of the key organisers, DRDO is leading the thematic session on “Electronics & Semiconductor Manufacturing”, one of the 11 thematic sessions at the conclave.

Addressing the gathering at DRDL Hyderabad, Secretary, Department of Defence Research and Development (DDR&D) & Chairman DRDO, Dr Samir V Kamat underlined the central role of semiconductors in modern technology ecosystems, powering critical systems in healthcare, communications, transport, defence, and space. He highlighted that as global economies move towards deeper digitalisation and automation, semiconductors have become vital to national security, economic progress, and technological sovereignty.

Referring to India’s semiconductor journey, Dr Samir V Kamat noted that since the launch of the India Semiconductor Mission (ISM) in 2021, India has transitioned from vision to implementation in just four years. He reaffirmed the national aspiration to position India among the world’s top three nations in semiconductors by 2036 in the domains of research, innovation, and workforce development. He also announced that DRDO has made significant strides in semiconductor technology by developing indigenous methods for producing 4-inch Silicon Carbide (SiC) wafers and fabricating Gallium Nitride (GaN) High Electron Mobility Transistors (HEMTs) up to 150W.

The ESTIC-2025 is being jointly organised by 13 Ministries and Departments of the Government under the guidance of the Principal Scientific Adviser (PSA) to the Government of India. The conclave will be held from 3 to 5 November 2025 at Bharat Mandapam, New Delhi, with the theme “Viksit Bharat 2047 – Pioneering Sustainable Innovation, Technological Advancement, and Empowerment”.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180408

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Raksha Mantri dedicates to the nation Titanium & Superalloy Materials Plant at PTC Industries' Strategic Materials Technology Complex in Lucknow

Source: Press Information Bureau, Dt. 18 Oct 2025

"India must produce rare materials used in defence and aerospace to become a technology creator and safeguard its technological sovereignty," said Raksha Mantri Shri Rajnath Singh. He was dedicating to the nation a Titanium and Superalloy Materials Plant at PTC Industries' Strategic Materials Technology Complex in Lucknow, Uttar Pradesh on October 18, 2025. Emphasising the importance of Rare Earth Materials used in defence, space, electronics, and other sectors, he noted that only certain countries have the capacity to refine these materials and make high-end products. In this context, he said, the plant inaugurated, which is one of the first private sector manufacturing units to make aero-engine components and super alloy components etc., will go a long way in helping India produce rare materials.

Raksha Mantri noted that, in the past, India had been dependent on other countries for the advanced materials and critical technologies needed for defence and aerospace, thereby slowing the growth of the defence sector, and the initiatives such as the Titanium and Superalloy Materials Plant indicate a reversal of this trend. Shri Rajnath Singh reiterated that India would acquire true strength only when it can manufacture its own materials, components, chips and alloys. He stated that this new plant puts India amongst a select group of nations which can make their own critical defence and aerospace materials. "With this, we will be able to manufacture the parts used in our fighter jets, missiles, naval systems and satellites", he said.

Raksha Mantri stressed that while technology is power, material is the real strength, adding that be it a semiconductor chip, bullet material or engine turbine part, none is possible without strategic materials. "We are building a foundation which will strengthen India's technological sovereignty in the coming years," he added. Calling the plant a living example of Aatmanirbhar Bharat, Shri Rajnath Singh said the type would benefit not only the industry, but the society at large. It establishes an innovation chain which will fulfill the goal of Aatmanirbhar Bharat in the defence sector and give fresh momentum to the state economy, he said.

On the Strategic Materials Technology Complex, Raksha Mantri expressed confidence that it adds a new dimension to the industrial map of Uttar Pradesh. He said that the complex, along with ancillary units and supplier industries will create direct and indirect job opportunities in the state itself. He added that the UP Defence Industrial Corridor will be amongst the most advanced manufacturing zones in Asia, connecting to several start-ups and MSMEs, which will provide jobs to youth and opportunities for training and technical experience.

Shri Rajnath Singh applauded UP Chief Minister Yogi Adityanath for the strides made by the state in coming to the forefront of the industrial revolution in the past 10 years. He said that improved law and order has boosted investor confidence and factories, IT hubs, and research centres are being set-up in the state, which has become the growth engine of the country.

Hailing India's changed mindset today, Raksha Mantri said "We are entering a new era and have moved beyond Make-in-India to Design, Develop and Deliver in India." He also noted the prominent role played by the private sector in defence production and research, exuding confidence that if the industry and the government work together, any goal is possible.

Shri Rajnath Singh called upon youth, innovators, MSMEs and start-ups to take advantage of the possibilities in the defence sector not just as a business opportunities but as a responsibility to the nation. The work being done today will inspire a new generation of innovators, he said. He acknowledged the progress made in public private partnership in defence manufacturing and assured government policy support and cooperation to stakeholders in India's defence and aerospace sector. He called upon all stakeholders to pursue the goal of making India a global defence manufacturing hub through innovation, dedication, and passion.

Earlier, Raksha Mantri Shri Rajnath Singh took a tour of the Strategic Materials Technology Complex accompanied by UP Chief Minister Shri Yogi Adityanath, Deputy Chief Minister Shri Brajesh Pathak, **Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat and DG (BrahMos) Dr Jaytirth R Joshi.** Raksha Mantri and the dignitaries were briefed on the complex facilities by Chairman and Managing Director, PTC Industries Shri Sachin Agarwal.

An MoU was also signed between PTC Industries Limited and Bharat Dynamics Limited (BDL) to form a joint venture for the design, development, and manufacture of propulsion systems, guided bombs, and small aeroengines for missiles, UAVs, and loitering munitions. The collaboration aims to leverage the complementary strengths of both organizations and accelerate the indigenization of advanced propulsion technologies, reducing dependence on imports and strengthening India's defence manufacturing base.

Additionally, PTC Industries received a Letter of Technical Acceptance (LoTA) from the **Centre for Military Airworthiness and Certification (CEMILAC)**, under the Defence Research and Development Organisation (DRDO), for the indigenous development and manufacture of the Titanium Rear Fin Root Casting for the Advanced Medium Combat Aircraft (AMCA) program. Developed in collaboration with the **Defence Metallurgical Research Laboratory (DMRL)** and the **Aeronautical Development Agency (ADA)**, this achievement marks a critical advancement in India's indigenous capability to produce structural castings for next-generation fighter aircraft. PTC Industries also received a Letter of Technical Acceptance (LoTA) from CEMILAC, DRDO, for the indigenous development and manufacture of Oil Tank Assembly Titanium Castings for the Kaveri Derivative Engine (KDE-2). This will be executed in partnership with the Gas Turbine Research Establishment (GTRE).

Furthering its collaboration with GTRE, PTC Industries also received a Purchase Order for Post-Cast Operations to manufacture Single Crystal 'Ready-to-Fit' Turbine Blades for the Kaveri Derivative Engine (KDE-2). This achievement marks an important step in India's capability to produce single-crystal turbine blades - one of the most complex and high-value components in modern jet engines. Spread over 50 acres, the Strategic Materials Technology Complex has been established with an investment of Rs 1,000 crore. With a production capacity of over 6,000 tonnes per annum, this plant enables India to produce aviation-grade Titanium and Superalloys from domestic and recycled sources - a decisive move towards strategic materials independence.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180722

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Need for a structured policy framework to strengthen India's domestic industrial base through balanced synergy between public & private sectors: Defence Secretary

Source: Press Information Bureau, Dt. 17 Oct 2025

Defence Secretary Shri Rajesh Kumar Singh has underlined the need for a structured policy framework to strengthen India's domestic industrial base through a balanced synergy between public and private sectors. He was delivering the inaugural address at the 'Strategic Insight Conference on Indigenous Development of Critical Technologies for Air Power' organised by the Centre for Aerospace Power and Strategic Studies (CAPSS) in New Delhi on October 17, 2025.

The Defence Secretary emphasised that the diversification of the industrial base will end monopolies, enhance ease of doing business, and promote innovation across the ecosystem. He reiterated the Government's steadfast commitment to Aatmanirbharta in defence, stressing on the importance of developing advanced aero technologies, field evaluation trials, and long-range air-to-air missile systems to strengthen India's air power capabilities.

In his special address, Vice Chief of the Air Staff Air Marshal Narmdeshwar Tiwari highlighted the contribution of air power in determining strategic results, as seen during Operation Sindoor. He

said that apart from capabilities to design and develop indigenous aircraft, India should also prioritise achieving expertise in electronic warfare, advanced sensors, radars, and data links.

In her keynote address, **Director General, AERO, DRDO Dr K Rajalakshmi Menon** highlighted the disruptive potential of UAVs, multi-sensor fusion, and artificial intelligence in air operations. She spoke of advancements in stealth technology, aerostats, and airships equipped with enhanced sensors, as well as the integration of quantum, photonic, and blockchain technologies in defence systems.

DG, CAPSS Air Vice Marshal (Retd) Anil Golani drew attention to the significance of Aatmanirbharta amid the evolving security environment and the growing technological competition in the neighbourhood. Stressing the need to leverage artificial intelligence, advanced avionics, and next-generation propulsion systems, he emphasised on the development of intelligent control propulsion, super-cruise capability, and fly-by-light systems will define the future of India's aerospace dominance.

As part of the event, the Defence Secretary released a book 'Asian Defence Review 2025: Geo-political Shifts and Strategic Partnership Multilateralism in the Indo-Pacific'. Multiple technical sessions covering indigenous jet engine co-development, fighter aircraft programmes, unmanned systems, and strengthening the aerospace production ecosystem were also held. The conference witnessed senior officials from the Ministry of Defence, the Indian Air Force, DRDO, and industry leaders coming together to discuss India's journey towards technological self-reliance in the aerospace and defence realms.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180370

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Defence News

'ब्रह्मोस' की पहुंच में अब पाक की जमीन: राजनाथ

Source: NavBharat Times, Dt. 19 Oct 2025

पाकिस्तान में आतंकी ठिकानों को तबाह करने वाली स्वदेशी मिसाइल ब्रह्मोस की लखनऊ में बनी पहली खेप शनिवार को सेना को सौंप दी गई। रक्षा मंत्री राजनाथ सिंह के साथ मुख्यमंत्री योगी आदित्यनाथ ने ब्रह्मोस एयरोस्पेस की स्थानीय इकाई से निर्मित सुपरसोनिक ब्रह्मोस मिसाइलों के प्रथम बैच को हरी झंडी दिखाई।

लखनऊ में ब्रह्मोस मिसाइल की पहली खेप सेना को दी

इस अवसर पर रक्षा मंत्री राजनाथ सिंह ने कहा कि धनतेरस के शुभ अवसर पर चार मिसाइलों की डिलीवरी के साथ भारत की रक्षा क्षमता और आत्मनिर्भरता को नई ऊंचाइयों पर पहुंचाने वाला यह कदम न केवल सैन्य सफलता का, बल्कि आर्थिक समृद्धि और रोजगार सृजन का भी प्रतीक है। उन्होंने ब्रह्मोस को 'भारत की बढ़ती स्वदेशी ताकत का प्रतीक' बताते हुए पाकिस्तान को चेतावनी दी कि अब उसकी एक-एक इंच जमीन ब्रह्मोस की पहुंच में है। कार्यक्रम के दौरान रक्षामंत्री राजनाथ सिंह और मुख्यमंत्री योगी आदित्यनाथ ने बूस्टर भवन का उद्घाटन किया और बूस्टर डॉकिंग प्रक्रिया का प्रदर्शन भी देखा।

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Operation Sindoor was just a trailer, now BrahMos can reach all of Pakistan: Rajnath

Source: The Indian Express, Dt. 19 Oct 2025

Describing Operation Sindoor as a "trailer", Defence Minister Rajnath Singh sent Pakistan a tough message on Saturday, saying every inch of its territory was now within the reach of the BrahMos missile. Addressing a gathering after he and Uttar Pradesh Chief Minister Yogi Adityanath flagged off the first BrahMos batch manufactured in the Lucknow unit of BrahMos Aerospace Limited, Singh described the missile as a "symbol of India's growing indigenous strength".

"Our country believes that our adversaries won't be able to escape from the power of BrahMos. As far as Pakistan is concerned, now every inch of its territory is within our reach. And whatever happened during Operation Sindoor was only a trailer, my friend," he said. "But that trailer only made Pakistan realise that if India can give birth to Pakistan, then when time comes… ab aage mujhe bolne ki zarurat nahi hai (I don't need to say any further)," he said. The BrahMos played a significant role in Operation Sindoor when India struck terror sites in Pakistan and PoK and the hostilities that followed in May this year. Singh said the delivery of four missiles on Dhanteras marked a milestone in India's defence self-reliance, while generating economic growth and employment.

"It is a matter of great pride and joy for me that the state-of-the-art BrahMos booster building is being inaugurated in Lucknow today. Just a short while ago, I also had the privilege of planting a Rudraksha sapling in this very courtyard. We consider Rudraksha to be a part of Rudra, meaning Lord Mahadev. I pray to Mahadev that his blessings remain on this state-of-the-art facility and on our countrymen forever," he said. Congratulating the people of Lucknow, he said, "Lucknow is not just my parliamentary constituency, but a city that resides in my soul. The sense of satisfaction and pride that one feels seeing the rapid development of the state and the capital is further deepened by this defence-related achievement today." He praised the speed and efficiency of the Lucknow facility – inaugurated in May at a cost of Rs 380 crore over 200 acres – which manufactured and delivered the first batch of missiles in just five months.

He said it will produce approximately 100 missiles annually for the Army, Navy and Air Force, generating a turnover of Rs 3,000 crore and Rs 500 crore in GST revenue. "The speed and efficiency of this achievement sets a record and reinforces the credibility of Lucknow and Uttar Pradesh. Alongside BrahMos' credibility, Lucknow's identity has been further strengthened." Singh went on to emphasise BrahMos' capabilities: its supersonic speed, precision and long-range strike that make it one of the world's most advanced missile systems. The BrahMos production, he said, strengthens the nation's economy: taxes from each missile can fund schools, hospitals, and welfare schemes.

He pointed to India's growing role in defence exports, citing recent contracts worth approximately Rs 4,000 crore with countries, including Philippines, signaling India's emergence as a global defence partner. Expressing his gratitude to CM Adityanath for his full support and cooperation in the project, he highlighted UP's transformation under him. Describing Lucknow as a defence, technology and industrial hub, he underscored the importance of supporting local and small-scale industries to ensure the full success of the UP Defence Corridor. Addressing the event, Adityanath said, "Atmanirbhar Bharat is no longer just an idea, it is now a reality that's taking shape… Today, India is attracting global attention as the fourth-largest economy." He said India, which was once dependent on other countries for its defence needs, is not only meeting its own requirements now

but also assisting friendly nations in defence supply. “This is not only a symbol of self-reliance but also a major means of employment.”

He stated the dedication and technical expertise with which PTC Industries established the Strategic Material Technology Complex in Lucknow is proof that India is rapidly advancing towards self-reliance in defence production with support from the private sector. From the production of strategic materials to ready-to-fit critical components, the entire supply chain capacity has been developed. He said all six nodes of the defence manufacturing corridor, comprising Lucknow, Kanpur, Agra, Jhansi, Aligarh and Chitrakoot, are operating at full capacity. “We have a sufficient land bank, and institutions like IIT and AKTU (Dr APJ Abdul Kalam Technical University) are with us for technical collaboration,” he said.

https://indianexpress.com/article/india/pakistans-territory-now-within-brahmos-reach-rajnath-singh-10314572/

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घरेलू रक्षा उत्पादन को 100 प्रतिशत तक बढ़ाने का लक्ष्य: राजनाथ

Source: Dainik Jagran, Dt. 18 Oct 2025

- एलसीए-एमके1ए की तीसरी उत्पादन लाइन का राजनाथ ने किया उद्घाटन
- रक्षा मंत्री ने कहा, फिलहाल घरेलू स्तर पर 65% हो रहा रक्षा उत्पादन

नासिक में शुक्रवार को नए एचएएल विनिर्माण संयंत्र से निकले पहले हल्के लड़ाकू विमान तेजस एमके1ए को झंडी दिखाते रक्षा मंत्री राजनाथ सिंह ● आइएएनएस

नासिक, प्रेट्र: रक्षा मंत्री राजनाथ सिंह ने शुक्रवार को कहा कि भारत घरेलू रक्षा उत्पादन को 100 प्रतिशत तक ले जाने की दिशा में काम कर रहा है, क्योंकि विदेशी सैन्य आपूर्ति पर निर्भरता सामरिक कमजोरी को पैदा करती है। उन्होंने तेजस हल्के लड़ाकू विमान (एलसीए)-एमके1ए की तीसरी उत्पादन लाइन और प्रशिक्षण विमान एचटीटी-40 के दूसरे विनिर्माण संयंत्र का उद्घाटन करने के मौके पर यह बात कही। तेजस विमानों के लिए नए संयंत्र के उद्घाटन के साथ हिंदुस्तान एयरोनाटिक्स लिमिटेड द्वारा कम से कम 24 एलसीए विमानों का उत्पादन किए जाने की उम्मीद है।

रक्षा मंत्री ने अपने संबोधन में कहा, 'पहले 65-70 प्रतिशत रक्षा उपकरण आयात किए जाते थे, लेकिन अब भारत 65 प्रतिशत उत्पादन अपनी धरती पर कर रहा है। बहुत जल्द हम अपने घरेलू उत्पादन को 100 प्रतिशत तक ले जाएंगे।' उन्होंने बताया कि भारत का रक्षा निर्यात 25 हजार करोड़ रुपये के रिकार्ड स्तर तक पहुंच चुका है। लक्ष्य 2029 तक घरेलू रक्षा निर्माण को तीन लाख करोड़ तक ले जाना है और रक्षा निर्यात को 50 हजार करोड़ रुपये तक बढ़ाना है।

स्वदेशी लड़ाकू विमान तेजस में कई देशों ने दिखाई रुचि: हिंदुस्तान एयरोनाटिक्स लिमिटेड के चेयरमैन और प्रबंध निदेशक डीके सुनील ने कहा कि कई देशों ने इस विमान को खरीदने में रुचि दिखाई है। एएनआइ से बातचीत में उन्होंने कहा कि कई देशों के साथ बातचीत शुरुआती चरण में है। उन्होंने बताया कि पहला एलसीए-एमके1ए विमान दो वर्ष के अंदर तैयार किया गया। दो और विमान तैयार किए जा रहे हैं।

लड़ाकू विमानों के इंजन पर खर्च होंगे 7.4 अरब डालर: रायटर के अनुसार, यह उम्मीद जताई जा रही है कि भारत 2035 तक विकसित होने वाले लड़ाकू विमानों के इंजन पर 7.44 अरब डालर (करीब 65 हजार करोड़ रुपये) खर्च करेगा। सरकारी रक्षा प्रयोगशाला गैस टर्बाइन अनुसंधान प्रतिष्ठान के निदेशक एसवी रमण मूर्ति ने बताया कि देश को विभिन्न लड़ाकू विमान कार्यक्रमों के लिए करीब 1,100 इंजनों की जरूरत होगी।

ब्रह्मोस मिसाइलों की पहली खेप आज जारी करेंगे राजनाथ: लखनऊ संवाददाता के अनुसार, ब्रह्मोस मिसाइलों की पहली खेप शनिवार को रक्षा मंत्री राजनाथ सिंह, सीएम योगी आदित्यनाथ जारी करेंगे।

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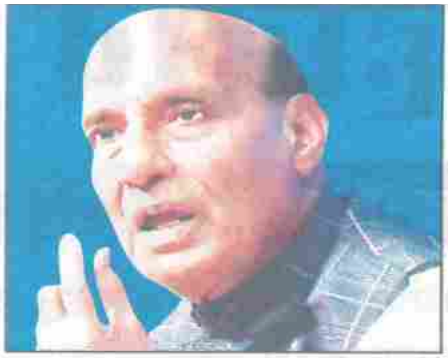
अब युद्ध कई मोर्चे पर लड़े जा रहे हैं: राजनाथ

Source: Punjab Kesari, Dt. 18 Oct 2025

पंजाब केसरी/नई दिल्ली

रक्षा मंत्री राजनाथ सिंह ने शुक्रवार को नासिक में एक महत्वपूर्ण उपलब्धि के तहत लाइट कॉम्बैट एयरक्राफ्ट की तीसरी उत्पादन लाइन को राष्ट्र को समर्पित किया। यह उपलब्धि भारत की स्वदेशी रक्षा उत्पादन क्षमता और आत्मनिर्भरता की दिशा में एक और सशक्त कदम है। उन्होंने कहा कि यह जानकर बड़ी खुशी हुई कि नासिक की टीम ने सुखोई-30 पर ब्रह्मोस मिसाइल को सफलतापूर्वक स्थापित करने का महत्वपूर्ण कार्य किया। यह वही ब्रह्मोस है, जिसने 'ऑपरेशन सिंदूर' के दौरान आतंकियों के ठिकानों को नेस्तनाबूद किया था। भारत की सुरक्षा से जुड़ा हुआ जो पूरा इतिहास है, उसमें महज कुछ ही पल ऐसे रहे हैं, जब एक साथ पूरे सिस्टम की असली परीक्षा ली गई है।

'ऑपरेशन सिंदूर' ऐसा ही एक मिशन था। इस मिशन में हमारी सेनाओं ने न सिर्फ अपने शौर्य का परिचय दिया, बल्कि स्वदेशी प्लेटफॉर्म्स पर अपने भरोसे को भी साबित किया। उन्होंने कहा कि इस दौरान एचएएल की टीम ने 24 घंटे लगातार विभिन्न ऑपरेशन साइटों पर सपोर्ट दिया। लड़ाकू विमानों जैसे



सुखोई, जगुआर, मिराज, तेजस और हेलीकॉप्टर के मेंटेनेंस और रिपेयर तुरंत किए, ताकि भारतीय वायुसेना की ऑपरेशनल तैयारियां बनी रहें। यह इस बात का प्रतीक था कि जब बात देश की सुरक्षा की आएगी, तो हम उपकरण खुद बना भी सकते हैं और उन उपकरणों से खुद की रक्षा भी कर सकते हैं। इस नई प्रोडक्शन लाइन के उद्घाटन के साथ, यहां 'मेड इन इंडिया' लड़ाकू और ट्रेनर विमानों के उत्पादन का भी एक नया युग शुरू हो रहा है। यह एक औद्योगिक उपलब्धि तो है ही, साथ ही साथ हमारे युवाओं, इंजीनियरों और वैज्ञानिकों की मेहनत, लगन और सपनों का प्रतिफल है।

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LCA Tejas Mk1A undertakes inaugural flight: 'Shining symbol of atmanirbharta,' says Rajnath Singh

Source: The Indian Express, Dt. 18 Oct 2025

The indigenous Light Combat Aircraft (LCA) Tejas Mk 1A undertook its first public sortie at the Hindustan Aeronautics Limited (HAL) facility in Nashik on Friday, a move that Defence Minister Rajnath Singh called a "shining symbol" of India's growing self-reliance in defence. The event also marked the formal inauguration of the third production line of the LCA Mk 1A and the second production line of the indigenously made Hindustan Turbo Trainer (HTT)-40 basic trainer aircraft. In his address, Singh said India once imported 65-70 per cent of critical military hardware, but is now manufacturing 65 per cent of the equipment on its own soil, highlighting the government's resolve to increase domestic manufacturing to 100 per cent in the years to come.

"We not only reduced import dependency, but also strengthened our commitment to indigenisation. Whatever we used to buy from abroad, we are now manufacturing it domestically, be it fighter aircraft, missiles, engines and electronic warfare systems," he said. "We have now set a target of increasing defence manufacturing to Rs 3 lakh crore and exports to Rs 50,000 crore by 2029," he added. The inaugural flight of the LCA Mk 1A is a step forward towards its delayed formal induction into the Indian Air Force (IAF), which has been facing a decline in its fighter squadron strength. The newly inaugurated production line in Nashik has the capacity to manufacture eight aircraft every year, and can be increased to 10. HAL is expected to produce a total of 24 aircraft annually.

The Nashik facility will also house the second production line for the indigenous HTT-40—a basic trainer aircraft that will replace the Pilatus PC-7 Mk II trainers in the IAF fleet. The unit will also manufacture 15 Su-30 MKIs, of which 13 would be for the IAF. Two will remain with HAL. An aerial display by the LCA Tejas Mk 1A, an HTT-40 and Sukhoi-30 MKI was carried out at the ceremony. HAL Chief Test Pilot (fixed wing) Group Capt KK Venugopal (Retd) piloted the LCA Tejas Mk1A sortie. The LCA Tejas Mk1A received a water cannon salute.

In his address, Singh highlighted the need to stay ahead of the curve as Artificial Intelligence, cyber warfare, drone systems and next-generation aircraft are shaping the future, and wars are being fought across multiple frontiers. “India must always stay ahead in this new race, and not lag,” he said, exhorting HAL to make its mark in the fields of next-generation aircraft, unmanned systems and civil aviation, and not limit itself to LCA Tejas or HTT-40. During Operation Sindoor, Indian forces not only demonstrated valour and commitment but also displayed confidence in indigenous platforms, he said. “HAL provided support at various operational sites 24 hours a day during the operation. It ensured the Indian Air Force’s operational readiness by carrying out prompt maintenance on fighter jets and helicopters,” he said. Singh added: “The Nashik team performed the crucial task of installing the BrahMos missile on the Su-30, which destroyed terrorist hideouts during the operation. This proved that when it comes to national security, we can make our own equipment and protect ourselves with it.”

Sanjeev Kumar, Secretary, Defence Production, described the inauguration of two production lines as a symbol of India’s growing technological confidence, industrial strength, and strategic foresight. He said the LCA Tejas Mk1 is not merely a fighter aircraft but a statement of India’s design and manufacturing excellence—conceived, developed and produced indigenously through the collaboration of HAL, Aeronautical Development Agency, DRDO and the IAF. He added that the HTT-40, fully designed and developed by HAL, stands as a “shining example” of the company’s ability to conceptualise, design and deliver critical defence platforms completely indigenously.

D K Sunil, HAL Chairman and Managing Director, said the successful operationalisation of the LCA Mk1A and HTT-40 production from Nashik is a testament to HAL’s capacity for expansion. “HAL’s Nashik Division’s capacity to produce indigenous advanced fighters in addition to Su-30MKI has added momentum to our production efforts to meet delivery timelines. It has also resulted in the creation of around 1,000 jobs and the development of over 40 industry partners in and around Nashik, aligning with the government’s goal of forging an effective public-private partnership,” he added.

The LCA Mk 1A, designated LA-5043, had successfully completed its pre-flight trials earlier. The induction of the 83 LCA Mk 1As—the first two of which were slated for delivery to the IAF this month—is yet to begin, despite a delay of over a year and a half. It is learnt that the deliveries can start only after the aircraft completes final certification, which includes weapon integration and firing tests. HAL has constructed 10 aircraft so far. According to a government statement, HAL has operationalised the third LCA Mk 1A production line in a record time of two years, fully equipping it with more than 30 structure assembly jigs for all major modules of the aircraft, including centre fuselage, front fuselage, rear fuselage, wings and air intake.

https://indianexpress.com/article/india/lca-tejas-mk-1-a-inaugural-flight-rajnath-singh-10312783/

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Nashik unit open; HAL can roll out 24 Tejas jets a year

Source: The Hindu, Dt. 18 Oct 2025

Saurabh Trivedi
Hemanth C.S.
NASHIK

The production lines of the light combat aircraft Tejas Mk1A and the training aircraft HTT-40 are proof of the synergy among government, industry and academia, Defence Minister Rajnath Singh said here on Friday, asserting that no challenge was too big if faced together.

He was speaking after inaugurating the third production line of Tejas Mk1A and the second of the Hindustan Turbo Trainer-40 at the Hindustan Aeronautics Ltd. facility.

The Defence Minister flagged off the first LCA Mk1A aircraft produced at the facility, describing it as a symbol of India's growing self-reliance in defence.

Highlighting the transformation of India's defence sector in the past decade under Prime Minister Narendra Modi's leadership, Mr. Singh said the country, which once imported 65-70% of its military hardware, now manufactured nearly 65% of it domestically. "Our goal is to increase this to 100% in the near future," he said.

Coming on stream: Rajnath Singh during the flagging off of new production lines at HAL in Nashik on Friday. @SPOKESPERSONMOD X

He recalled that when the government under Mr. Modi came to power in 2014, it faced numerous challenges such as limited defence preparedness, import dependence, and a lack of private sector participation.

"Earlier, defence production was largely confined to government enterprises. There was insufficient focus on planning, advanced technology, and innovation, which made us dependent on other nations and created strategic vulnerabilities," he said. "These challenges pushed us to adopt new thinking and reforms. Today, we are manufacturing domestically what we used to import – fighter jets, missiles, engines, and electronic warfare systems."

Mr. Singh reaffirmed the government's commitment to inducting indigenous technologies into the armed forces and hailed HAL as the backbone of India's defence manufacturing ecosystem. He commended HAL for supporting the recently decommissioned MiG-21 fleet and its pivotal role during Operation Sindoor.

"In our security history, few instances have tested our system as much as Operation Sindoor. HAL provided round-the-clock support to the Indian Air Force, ensuring operational readiness. The Nashik team carried out crucial integration of the BrahMos missile on Su-30 aircraft, which destroyed terrorist hideouts during the operation," he said.

"This proved that India can design, produce, and deploy its own systems effectively," he added.

HAL plans

The first two production lines of the LCA and the first production line of the HTT-40 are in Bengaluru. The company initiated establishment of the third production line to fast-track delivery of Tejas to the IAF. The production line in Nashik has a capacity of eight aircraft a year.

The company said that with the third production line, HAL would achieve a total production capacity of 24 aircraft per year for LCA Mk1A.

The third Line had resulted in creation of approximately 1,000 jobs, and development of more than 40 industry partners in and around Nashik, including in cities of Maharashtra, Gujarat, and Madhya Pradesh. In two years, the company plans to expand capacity in Nashik up to 10 aircraft a year by way of establishing an additional Assembly Jig Line, Tooling and Pre-installation Check facilities for Line Replaceable Units.

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HAL helped IAF 24 hrs a day in Op Sindoor, says Rajnath

Source: Hindustan Times, Dt. 18 Oct 2025

Defence minister Rajnath Singh on Friday hailed round-the-clock support provided by aircraft maker Hindustan Aeronautics Limited (HAL) to the Indian Air Force during the four-day military confrontation between India and Pakistan in May, adding that the firm ensured that the country's fighter jets and helicopters were battle-ready at all times.

"HAL provided support at various operational sites 24 hours a day during Operation Sindoor. It ensured the IAF''s operational readiness by carrying out prompt maintenance on fighter jets and helicopters," Singh said at Nashik after inaugurating new production lines of the light combat aircraft (LCA Mk-1A) and the HTT-40 basic trainer to meet the air force's growing needs.

He also flagged off the first LCA Mk-1A produced at Nashik. HAL's Nashik Division had integrated the BrahMos supersonic cruise missile with the IAF's Russian-origin Su-30 fighter jets. "The Nashik team performed the crucial task of installing the BrahMos missile on the Su-30, which destroyed terrorist hideouts during the operation. This proved that when it comes to national security, we can make our own equipment and protect ourselves with it," Singh said.

Operation Sindoor marked New Delhi's direct military response to the April 22 Pahalgam terror attack in which 26 people were killed. India launched the operation in the early hours of May 7 and struck terror and military installations in Pakistan and Pakistan-occupied Kashmir (PoK). The inauguration of the LCA Mk-1A production line --- India's third, and the first outside Bengaluru --- comes weeks after the defence ministry signed a ₹62,370-crore contract with HAL to buy 97 more LCA Mk-1As for the IAF which is wrestling with a worrying shortage of fighter jets.

"LCA Mk-1A and HTT-40 production lines are proof of government-industry-academia synergy. No challenge is too big if faced together," Singh said, acknowledging the trust placed by the IAF in the two platforms. The new contract for 97 aircraft took the total number of LCA Mk-1As ordered by the government so far to 180 — it had ordered 83 such fighter jets for ₹48,000 crore in February 2021 to shore up the IAF's fighter fleet. To be sure, none of the fighters ordered four years back has been delivered yet. The IAF could get the delivery of the first of the 83 jets shortly.

HAL can build 16 Mk-1As every year in Bengaluru, and the Nashik production line will help it ramp production to a total of 24 jets. The HTT-40 production line is HAL's second, and the first outside Bengaluru. HAL hopes to deliver the first HTT-40, powered by Honeywell's TPE331-12B turboprop engine, to the IAF in January 2026 and 11 more before the financial year ends under a ₹6,838-crore contract signed two years ago with the government for 70 locally made basic trainer aircraft.

A large part of Singh's address focused on boosting self-reliance in the defence manufacturing sector. "The country, which once imported 65-70% of critical military hardware, is now manufacturing 65% of the equipment on its own soil," he said, adding that the government was committed to increasing it to 100% in the times to come. HAL chief DK Sunil termed the successful operationalisation of the LCA Mk-1A and HTT-40 production from Nashik as a testament to the firm's capacity for expansion.

"HAL's Nashik Division's capacity to produce indigenous advanced fighters, in addition to Su-30s, has added momentum to our production efforts to meet delivery timelines. It has also resulted in the creation of around 1,000 jobs and the development of more than 40 industry partners in and around Nashik, aligning with the government's goal of forging an effective public-private partnership," he added.

The Nashik Division was set up in 1964 for the licensed production of MiG-21 fighters --- the last of which were decommissioned by the IAF in September. The division has produced more than 900 aircraft and overhauled another 1,900 military aircraft, from MiG-21 and MiG-27 to Su-30.

https://www.hindustantimes.com/india-news/hal-helped-iaf-24-hrs-a-day-in-op-sindoor-says-rajnath-101760761723209.html

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लड़ाकू विमान सुखोई-30 के लिए ब्रेक पैराशूट बनाएगी ओपीएफ

Source: Dainik Jagran, Dt. 20 Oct 2025

कानपुर स्थित आर्डनेंस पैराशूट फैक्ट्री के नाम जुड़ी एक और उपलब्धि, रूस पर निर्भरता खत्म करने की दिशा में अहम कदम

ब्रेक पैराशूट की खासियत

- फैब्रिक नायलान से बनी है कैनोपी

32 लाइन की रस्सी लगी है

10 साल है ब्रेक पैराशूट की मियाद

23 किलोग्राम है पैराशूट का वजन

300 किमी प्रति घंटे की गति की इमरजेंसी लैंडिंग कराने में है सक्षम

आयुध पैराशूट फैक्ट्री में काम करतीं महिलाएं • सौजन्य ओपीएफ

सुखोई-30 विमान के लिए 905 ब्रेक पैराशूट सिस्टम बनाने का आर्डर मिलना बड़ी उपलब्धि है। यह स्वदेशी और आत्मनिर्भर भारत की दिशा में बड़ा कदम है। जल्द सारी प्रक्रिया पूरी कर इसका उत्पादन कार्य शुरू कर दिया जाएगा।

-एमसी बालासुब्रमणियम
सीएमडी, ग्लाइडर्स इंडिया लिमिटेड

कानपुरः रक्षा क्षेत्र में आत्मनिर्भरता की तरफ बढ़ रहे देश को गर्व करने का एक और अवसर मिला है। कानपुर स्थित आयुध पैराशूट फैक्ट्री (ओपीएफ) को लड़ाकू विमान सुखोई-30 के लिए 65 करोड़ की लागत के पहली बार 905 ब्रेक पैराशूट सिस्टम बनाने का बड़ा आर्डर मिला है। माना जा रहा कि इस मामले में रूस पर निर्भरता कम होने में मदद मिलेगी। यह प्रधानमंत्री के स्वदेशी वस्तुओं के उपयोग के आह्वान को भी आगे बढ़ा रहा है।

वायुसेना के बेड़े से लड़ाकू विमान मिग-21 के रिटायर होने के बाद सुखोई-30, तेजस, जगुआर सहित अन्य विमान हवाई मोर्चे पर कमान संभालने को तैयार हैं। रक्षा मंत्रालय के सार्वजनिक क्षेत्र के उपक्रम (पीएसयू) ग्लाइडर्स इंडिया लिमिटेड (जीआइएल) की आयुध पैराशूट फैक्ट्री (ओपीएफ) में अब तक वायुसेना के लिए पैराशूट बनते थे। लेकिन, ब्रेक पैराशूट सिस्टम के लिए तीन साल पहले तक भारत रूस पर निर्भर था। ओपीएफ द्वारा इसकी तकनीकी दक्षता हासिल करने के बाद स्वदेशी ब्रेक पैराशूट बनने लगे। जीआइएल के पास ब्रेक पैराशूट हाक के माडल, पैरोसेल, एसडी पैराशूट, इल्यूमिनेटिंग पैराशूट, केएम फ्लोट, बोट जैमिनी क्राफ्ट्स बनाने की भी तकनीकी दक्षता है। कंपनी के पास पैराशूट के पेटेंट, छह कापीराइट और दो ट्रेडमार्क हैं। ओपीएफ को बीच-बीच में ब्रेक पैराशूट का भी आर्डर मिलता था। कंपनी मिग-21 के लिए ब्रेक पैराशूट बनाती रही है।

बहुत महत्वपूर्ण है ब्रेक पैराशूटः ब्रेक पैराशूट लैंडिंग के दौरान विमानों की रफ्तार कम करने में मदद करता है। ये ब्रेक पैराशूट आपात स्थिति में 300 किलोमीटर प्रति घंटे की गति से उतरने वाले विमान की सुरक्षित लैंडिंग कराने में मददगार हैं।

यूरोप और अमेरिका को पैराशूट निर्यात के लिए चल रही वार्ताः जीआइएल अपने स्वदेशी उत्पादों को मध्य एशिया, अफ्रीकी देशों में पहुंचाने के लिए प्रयासरत है। यूरोपीय देशों और अमेरिका से आर्डर के लिए लगातार वार्ता चल रही है। वैश्विक रक्षा क्षेत्र में भारत के स्वदेशी पैराशूट का निर्यात बढ़ने से केंद्र सरकार की आत्मनिर्भर भारत व मेक इन इंडिया मुहिम को गति मिलेगी।

अतिरिक्त सामग्री पढ़ने के लिए स्कैन करें।

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दक्षिण चीन सागर से भू-मध्य तक नौसेना बड़ा रही अपनी धमक

Source: Dainik Jagran, Dt. 20 Oct 2025

- भविष्य की चुनौतियों के मद्देनजर नौसेना हर मित्र देश तक बढ़ा रही अपनी पहुंच
- हिंद महासागर में दबदबा कायम रखने के लिए भारत बना रहा स्वदेशी परमाणु पनडुब्बियां

नई दिल्ली, आइएएनएस: हिंद महासागर में बढ़ती उथल पुथल और हिंद-प्रशांत क्षेत्र में बदलते गठबंधनों के बीच, भारतीय नौसेना अपनी समुद्री पहुंच को विस्तार दे रही है। एक रिपोर्ट में दावा किया गया है कि भारत की नौसैनिक कूटनीति ऐसे समय में सामने आई है, जब बाहरी शक्तियां भारत के समुद्री पड़ोस में अपनी गतिविधियां बढ़ा रही हैं।

कर्नल (सेवानिवृत्त) बीपी काटजू ने इंडिया नैरेटिव में लिखी एक रिपोर्ट में बताया है कि परंपरागत अभ्यास से अलग हाल के महीनों में भारतीय नौसेना की पहुंच बढ़ी है। अगस्त में भारत और फिलीपींस की नौसेनाओं ने दक्षिणी चीन सागर में संयुक्त गश्त की। इसने दक्षिण पूर्व एशियाई साझेदारों के साथ एकजुटता का संकेत दिया। इसके तुरंत बाद, स्वदेशी पोत आइएनएस निस्तार ने सिंगापुर में पनडुब्बी बचाव अभ्यास में हिस्सा लिया। इसमें चीन व जापान समेत 12 देशों की नौसेनाएं शामिल हुईं। पूर्वी समुद्र में आइएनएस सहयाद्री ने हिंद-प्रशांत क्षेत्र में चल रही तैनाती के तहत मलेशिया के केमामन में प्रवेश किया। पश्चिम में पीएम नरेन्द्र मोदी की ग्रीस यात्रा के बाद भारत ने ग्रीस के साथ संयुक्त नौसैनिक अभ्यास किया। ग्रीस के साथ भारत की भागीदारी तुर्की और पाकिस्तान के बीच गहरे होते संबंधों के बीच हुई।

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भारत और मिस्र की साझेदारी मजबूत हो रही है मज़बूत

Source: Jansatta, Dt. 18 Oct 2025

जनसत्ता ब्यूरो
नई दिल्ली, 17 अक्तूबर।

प्रधानमंत्री नरेंद्र मोदी ने गाजा शांति समझौते में मिस्र के राष्ट्रपति अब्देल फतह अल सिसी की महत्त्वपूर्ण भूमिका के लिए शुक्रवार को उनकी सराहना की। मोदी ने मिस्र के विदेश मंत्री बद्र अब्देलती के साथ बैठक के दौरान अल सिसी की भूमिका को सराहा।

मोदी ने 'एक्स' पर कहा, 'मिस्र के विदेश मंत्री डा बद्र अब्देलती का स्वागत करते हुए मुझे खुशी हुई। गाजा शांति समझौते में महत्वपूर्ण भूमिका निभाने के लिए अपने मित्र राष्ट्रपति सिसी के प्रति गहरी कृतज्ञता व्यक्त की।' उन्होंने कहा, 'भारत-मिस्र सामरिक साझेदारी हमारे लोगों, हमारे साझा क्षेत्र और मानवता की भलाई के लिए

प्रधानमंत्री नरेंद्र मोदी से मुलाकात के दौरान मिस्र के विदेश मंत्री बद्र अब्देलती।

निरंतर मजबूत होती जा रही है।' वहीं विदेश मंत्री अब्देलाती ने अपनी यात्रा के दौरान आयोजित पहली भारत-मिस्र रणनीतिक वार्ता की जानकारी प्रधानमंत्री को दी। प्रधानमंत्री मोदी ने व्यापार, प्रौद्योगिकी, ऊर्जा, रक्षा और जन-से-जन संबंधों सहित विभिन्न क्षेत्रों में द्विपक्षीय सहयोग में हो रही प्रगति पर संतोष व्यक्त किया।

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भारत नौसेना की ताकत बढ़ाएंगे और तीन नए जहाज

Source: Dainik Jagran, Dt. 19 Oct 2025

कोच्चि, आइएनएस : वायुसेना के मोर्चे पर चीन को पीछे छोड़ चुका भारत अब नौसैनिक मोर्चे पर भी चीन को पीछे छोड़ने को तैयार है। जहाज बनाने वाली सरकारी कंपनी कोचीन शिपयार्ड लिमिटेड (सीएसएल) ने शनिवार को तीन अत्याधुनिक पोतों का एक साथ जलावतरण कर बड़ी उपलब्धि हासिल की।

इन पोतों में एंटी-सबमरीन वारफेयर शैलो वाटर क्राफ्ट (एएसडब्ल्यू एसडब्ल्यूसी), हाइब्रिड इलेक्ट्रिक मेथनाल-रेडी कमीशनिंग सर्विस आपरेशन वेसल (सीएसओवी) और देश का सबसे बड़ा ट्रेलर सक्शन हापर ड्रेजर, डीसीआइ ड्रेज गोदावरी शामिल है। एक साथ तीन पोतों का जलावतरण जटिल जहाज निर्माण, टिकाऊ प्रौद्योगिकी और इंजीनियरिंग में भारत की बढ़ती क्षमताओं को रेखांकित करता है।

देश का सबसे बड़ा ड्रेजर है डीसीआइ ड्रेज गोदावरी

डीसीआइ ड्रेज गोदावरी भारत का सबसे बड़ा ड्रेजर है। 12,000 घन मीटर के इस पोत को रायल आइएचसी, नीदरलैंड के सहयोग से ड्रेजिंग कारपोरेशन आफ इंडिया के लिए विकसित किया गया है। 127 मीटर लंबा यह पोत बंदरगाह विकास, भूमि सुधार और जलमार्गों के रखरखाव के लिए उपयोगी होगा।

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ब्रह्मोस अगली पीढ़ी की मिसाइल का उत्पादन 10 महीने में होगा

Source: Dainik Jagran, Dt. 19 Oct 2025

जासं, लखनऊ: भारत व रूस के संयुक्त उपक्रम के ब्रह्मोस एयरोस्पेस के अंतर्गत लखनऊ यूनिट में दो तरह की ब्रह्मोस का उत्पादन होगा। अभी थलसेना, वायुसेना व नौसेना के लिए प्रतिवर्ष 80 से 100 ब्रह्मोस मिसाइल तैयार की जाएंगी। अगले 10 माह में सुपरसोनिक क्रूज मिसाइल ब्रह्मोस नेक्स्ट जेनरेशन (एनजी) का उत्पादन भी होने लगेगा। ब्रह्मोस मिसाइल की अधिकतम गति 2.8 से 3.0 मैक (ध्वनि की गति से तीन गुना, लगभग 3,430 किमी प्रति घंटे) तक होगी। मिसाइल की रेंज 290 से 400 किमी होगी। ब्रह्मोस (एनजी) का वजन व इसकी लागत मौजूदा ब्रह्मोस मिसाइल से आधी होगी। अभी ब्रह्मोस मिसाइल का वजन 2,900 किलो है। एनजी तकनीक की मिसाइल का वजन घटकर 1,260 किलोग्राम हो जाएगा।

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Army Chief reviews security situation along LAC, Nepal

Source: The Indian Express, Dt. 20 Oct 2025

PRESS TRUST OF INDIA
NEW DELHI, OCTOBER 19

CHIEF OF Army Staff General Upendra Dwivedi carried out a comprehensive review of India's military preparedness in the central sector, including along the borders with Nepal and China.

Gen Dwivedi visited several high-altitude forward posts in Pithoragarh and adjacent areas during his two-day tour of the region that concluded on Sunday, officials said.

The Army Chief visited forward posts in the central sector to assess operational posture, motivate troops and strengthen civil-military linkages in the strategically vital region, according to an official readout.

Chief of the Army Staff, General Upendra Dwivedi, interacts with veterans at Pithoragarh military station, Uttarakhand. *PTI*

Gen Dwivedi reviewed ongoing capability enhancement programmes, including advanced surveillance systems, specialist mobility platforms, integration of next-generation technologies, optimisation of reconnaissance assets and coordination with allied security agencies, the Army said in the readout.

He lauded the professionalism, discipline, tactical agility and innovative employment of new equipment in challenging terrain, it said without elaborating further.

In his interaction with the troops, the Army chief praised their resilience, courage and steadfast devotion to duty under extreme climatic conditions and rough terrain, according to the Army.

He reaffirmed the Indian Army's "full preparedness" to counter evolving security challenges, it said.

Gen Dwivedi also met veterans and local communities.

Emphasising the strategic importance of the Kumaon region, especially as a gateway to border areas with Nepal and China, he lauded the local communities and invoked the glorious legacy of the Kumaon Regiment.

He underscored that the Indian Army in Kumaon embodies "strength with compassion", defending frontiers while empowering border communities.

Gen Dwivedi reaffirmed the Indian Army's unwavering resolve to maintain operational excellence, enhance civil-military harmony and uphold the highest traditions of duty, honour and service to the nation, the Army said.

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Mahindra Group, Embraer ink pact to offer C-390 millennium aircraft to IAF

Source: The Economic Times, Dt. 18 Oct 2025

Brazilian aerospace major Embraer Defense & Security and India's Mahindra Group signed a strategic cooperation agreement to jointly offer the C-390 Millennium for the Indian Air Force's Medium Transport Aircraft programme. The deal aims to establish local manufacturing, assembly, and maintenance capabilities for the aircraft in India.

The agreement expands on a memorandum of understanding signed in February 2024, which outlined initial cooperation between the two companies. The new pact takes the collaboration further by defining roles in marketing, industrialisation and supply-chain development. Both firms will work closely with India's defence establishment and private aerospace ecosystem to identify potential partners for production and maintenance.

Airbus Helicopters had awarded a contract to Mahindra Aerostructures in August to manufacture and assemble the main fuselage of the European aircraft maker's H125 light single-engine helicopter. This was in addition to the contract to build the fuselage for H130, which was announced earlier in 2025.

Mahindra Defence Systems, part of the Mahindra Group and established in 2012, manufactures armoured and tactical vehicles for the Indian Armed Forces. Its products include the armored light specialist vehicle (ALSV or Armado), mine protected vehicles, and vehicle-mounted mortar systems. Mahindra Aerostructures is a unit of Mahindra Defence Systems.

https://economictimes.indiatimes.com/news/defence/mahindra-group-embraer-ink-pact-to-offer-c-390-millennium-aircraft-to-iaf/articleshow/124641915.cms?from=mdr

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'We produce 65% of defence hardware, target 100%'

Source: The Economic Times, Dt. 18 Oct 2025

India, which was once heavily import dependent, is now producing 65% of its defence hardware at home but the resolve is to increase this to 100%, with all equipment needed by the armed forces to be made by domestic players, defence minister Rajnath Singh said on Friday.

Speaking after the inauguration of the third production line of the Light Combat Aircraft (LCA) Tejas Mk1A and the second line of Hindustan Turbo Trainer-40 (HTT40) at the Nashik facility of Hindustan Aeronautics Limited (HAL), he said the defence sector has seen a transformation in the past decade, with several private players fast emerging as manufacturers.

"There was a time when the country was dependent on other countries to meet its defence needs, and almost 65-70% of defence equipment was imported. But today, this situation has changed; now India is doing 65% manufacturing on its own soil. Very soon, we will take our domestic manufacturing to 100% as well," the minister said.

The minister also flagged off the first LCA made at the Nashik facility, which also undertook its maiden public flight at the event. His comments come even as policy changes are being planned to encourage more private sector participation in defence manufacturing. Among proposals being discussed is the possibility of allowing fully owned subsidiaries of foreign companies to be treated at par with Indian companies for defence contracts.

Speaking at the event, the minister also made a reference to the legacy of the Nashik facility that is transitioning from being the biggest producer of Russian-origin MiGs and Sukhois to being an important hub for indigenous platforms like the LCA and HTT40.

The Nashik plant, which produced Soviet and Russian origin aircraft for nearly sixty years, is now geared to produce locally designed fighters and trainers. Incidentally, the heart of both new aircraft being produced at the facility is of American origin. LCA is powered by a GE engine while HTT40's power plant comes from Honeywell.

Singh said the resolve is to further reduce foreign dependencies and get access to technology that will ensure self-reliance. "We have now set a target of increasing defence manufacturing to ₹3 lakh crore and exports to ₹50,000 crore by 2029," he said.

Speaking at the event, the minister also appreciated the role of HAL in providing operational support to the IAF during Operation Sindoor. "HAL provided support at various operational sites 24 hours a day during the operation. It ensured the Indian Air Force's operational readiness by carrying out prompt maintenance on fighter jets and helicopters," he said.

The minister also referred to the integration of Brahmos missiles onto the Su30MKI fighter jets, which was also carried out at the Nashik facility, saying the joint effort has proved that when it comes to critical phases of national security, India is capable of producing its own equipment.

https://economictimes.indiatimes.com/news/defence/we-produce-65-of-defence-hardware-target-100-rajnath-singh-at-inauguration-of-production-lines-at-nashik-facility/articleshow/124639683.cms?from=mdr

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Launch of sixth ASW SWC BY 528 (Magdala) at CSL, Kochi

Source: Press Information Bureau, Dt. 17 Oct 2025

BY 528 (Magdala), the sixth vessel in the series of eight Anti-Submarine Warfare Shallow Water Crafts (ASW SWC), was launched on 18 Oct 2025 at Cochin Shipyard Limited (CSL), Kochi. In keeping with naval maritime tradition, the ship was launched by Mrs. Renu Rajaram in the presence of Vice Admiral Rajaram Swaminathan, Controller of Warship Production and Acquisition (CWP&A), along with senior officials from the Indian Navy and CSL.

This ship is indigenously designed and built by Cochin Shipyard Limited. Delivery of the first ship is planned end Oct 2025. ASW SWCs will augment underwater domain awareness, Anti-Submarine Warfare and Mine Laying capabilities. Propelled by three Diesel Engine powered waterjets, these ships are equipped with role defining sensors such as a Hull Mounted Sonar and Low Frequency Variable Depth Sonar (LFVDS), and firepower provided by state-of-the-art Torpedoes, Anti-Submarine Rockets, NSG-30 Gun and 12.7 mm SRCG.

Besides the Launch of Magdala, the Cochin Shipyard Limited also launched two more vessels, one being a CSOV for M/s Pelagic Wind Services, Cyprus and second being the largest indigenously manufactured dredger for M/s DCI, Mumbai. A proud moment for India's indigenous shipbuilding.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180791

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Delivery of eleventh Ammunition Cum Torpedo Cum Missile (ACTCM) Barge, LSAM 25 (Yard 135)

Source: Press Information Bureau, Dt. 17 Oct 2025

Induction Ceremony of 11th ACTCM Barge, LSAM 25 (Yard 135) was held on 17 Oct 2025 at Naval Dockyard, Mumbai. Chief Guest for Induction Ceremony was Cmde Sumeet Vishnu Shidore, GM (R) ND (Mbi).

The Contract for construction and delivery of eleven (11) Ammunition Cum Torpedo cum Missile (ACTCM) Barge was concluded with M/s Suryadipta Projects Pvt Ltd, Thane, on 05 Mar 21, an MSME Shipyard. The Shipyard has indigenously designed these Barges in collaboration with an Indian Ship Design firm and subsequently model tested at Naval Science and Technological Laboratory, Visakhapatnam successfully to ensure seaworthiness. These barges are built in accordance with relevant Naval rules and Regulations of Indian Register of Shipping (IRS). These Barges are the proud flag bearers of Make in India and 'Aatmanirbhar Bharat' initiatives of Government of India.

Ten ACTCM Barges have already been delivered and the shipyard has also been awarded a contract for construction of four Sullage Barges for the Indian Navy thereby highlighting the Indian navy's commitment towards encouraging MSMEs. Induction of these Barges would provide impetus to operational commitment of Indian Navy by facilitating transportation, embarkation and disembarkation of articles/ ammunition to Indian Navy platforms both alongside jetties and at outer harbours.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180602

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The lessons not learnt from Op Sindoor

-by Vice Admiral Harinder Singh (Retd)

Source: The Tribune, Dt. 18 Oct 2025

VICE ADMIRAL HARINDER SINGH (RETD)
FORMER DEPUTY CHIEF OF NAVAL STAFF

ON May 7, 2025, Pakistan anticipated an imminent Indian strike. When the Indian Air Force (IAF) took to the skies, the Pakistan Air Force (PAF) was ready — well-rehearsed and strategically positioned. Remaining within its own airspace, the PAF engaged IAF aircraft as it was executing its operations. In the ensuing combat, the PAF downed some Indian jets, including a Rafale.

The causes remain murky: flawed technological assessments, possible intelligence lapses and misjudged trends in aerial warfare. In the aftermath, some aircraft were temporarily grounded. As acknowledged by the Chief of Defence Staff (CDS), India revised its strategy — shifting to precision strikes from the safety of standoff ranges using a variety of air-to-surface missiles (ASMs) available with the three armed forces.

These inflicted very significant damage on Pakistani assets and permitted us to rightly claim victory. Less than the desired number of aircraft squadrons did not impede the IAF and had no role to play.

Yet the IAF's reluctance to acknowledge operational shortcomings whilst it is claiming it won every war and skirmish since Independence is not new — books abound on this subject. During the Balakot airstrikes in February 2019, deploying an outdated MiG-21 in a high-threat environment and facing F16s surely raised eyebrows and was not explained. The loss of an IAF helicopter to friendly fire — despite minimal aerial activity — was unacceptable poor preparation and training.

Similar issues resurfaced during Operation Sindoor. Despite possessing capable aircraft, the IAF aircraft were not able to break the PAF's fighter defences or project strategic dominance.

The damage inflicted by ASMs, surface-to-air missiles (SAMs) and S-400 systems — while commendable — was largely detached from the performance of fighters, including the latest out-of-the-crate Rafale. This disconnect is a national strategic embarrassment that needs a critical examination at the highest level.

The key lesson from Op Sindoor and other engagements is that future air combat is likely to occur at standoff and beyond-visual-range (BVR) distances. Close dogfights are increasingly becoming obsolete.

In such scenarios, quantity, sensors and missile capability will matter more than expensive platforms. Lesser aircraft equipped with superior BVR weapons may suffice. With the availability of precision BrahMos and similar missiles that can cover almost every part of Pakistan from land or sea, the IAF's primary role must be air combat and aerial supremacy. Let the strategic forces and other services attend to such tasks.

After initial setbacks, India's political and military leadership allowed the IAF to recover lost ground through standoff missile assaults — safely launched from inside India, some 300 km behind the border.

The BrahMos missile, which caused the most damage, is also available to the Army and the Navy and would have achieved the same goals with similar results without risking air assets. Yet they were not employed. The IAF's traditional role — airspace dominance — was not even attempted after the initial losses, and this is a matter of concern.

This raises a critical question: if future operations will rely on

standoff weapons launched from safe distances in keenly contested domains infested with radars, drones, SAMs and S400 types, why invest in increasingly expensive aircraft that won't cross borders or engage in close combat?

What India needs are longer-range airborne weapons such as air-to-air missiles and sensors — not costlier foreign platforms designed for an era that is being overtaken by technology and wouldn't be relevant after a decade or two. Yes, we do need fifth and sixth-generation Indian aircraft.

Also, on an allied front, the Air Chief is even now fighting a rearguard action to persuade the *Raksha Mantri* away from jointness, that he has ordained and is the call of the day. These are pressing issues, even as the IAF continues to push for more Rafales and resist integration into joint theatre commands.

For decades, it has operated in isolation, seeking accolades without offering mutual support to the other services. Even the 1971 missile attack on Karachi went without air support. Post-Sindoor, the Air Chief has repeatedly sought access to the *Raksha Mantri* to revisit decisions — but has mercifully made little headway.

The Indian Army did a wonderful job on the front with SAM, drones, anti-drone operations and more during Op Sindoor but little has been written or appreciated, though paltry few drones or missiles trespassed into India.

The larger tragedy is that these debates are not new. The IAF has often been accused of overstating its achievements while underplaying its lapses.

Unless the service embraces transparency and accepts its evolving role within a joint framework, India risks repeating the same mistakes in a future conflict.

The world of airpower is shifting rapidly — towards drones, hypersonic and AI-enabled targeting. If the IAF clings to outdated notions of prestige platforms and solitary glory, it will not only squander scarce resources but also compromise national security.

These are pertinent issues today, even as the IAF increasingly continues its drumbeat of claimed victories. It is time for the IAF and its leadership to be held to account.

They must come clean — not just about the causes of recent setbacks and what they plan to do about it, but about the service's evolving role in India's strategic future, its acquisition priorities and its place in joint operations under theatre commands — if we are not to suffer in a future war.

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Army vehicle logistics hub comes up in Leh

Source: The Tribune, Dt. 18 Oct 2025

LEH/JAMMU, OCTOBER 17

A new generation vehicle logistics hub for the armed forces has come up in Leh, with satellite hubs planned in important border areas, including Kargil, Tangtse, and Nyoma, along the India-Pakistan and the India-China borders in Ladakh.

General Officer Commanding, Fire and Fury Corps, Lieutenant General Hitesh Bhalla, inaugurated the dedicated NGV (new generation vehicle) logistics hub on Thursday, with a defence spokesperson terming the facility a major leap towards enhancing high-altitude operational readiness.

This strategic initiative aims to overcome the unique logistics and maintenance challenges of operating modern NGVs in high-altitude areas that can remain inaccessible for up to six months during winters due to extreme terrain and weather conditions, he said. The new facility comprises a centralised and integrated logistics and equipment sustenance system, thereby improving turnaround time, spare availability, and long-term operational sustainability, the spokesperson added. — PTI

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3-day military lit fest in Chandigarh from November 7

Source: The Tribune, Dt. 18 Oct 2025

The ninth edition of the Military Literature Festival is scheduled to be held in Chandigarh from November 7-9 on the theme of "Heartland and Rimland Powers in Multi-domain Warfare and India". The western, southern and eastern edges of Eurasia have been categorised as Rimland, with central and northern areas being the heartland.

Punjab Governor Gulab Chand Kataria will inaugurate the festival, while Chief of Defence Staff Gen Anil Chauhan will deliver a keynote address on the concluding day. The closing ceremony, dedicated to heroes of the 1965 India-Pakistan War, will be presided over by Punjab Chief Minister Bhagwant Mann.

Operation Sindoor in the context of employing air power in multi-domain warfare will figure among the discussions. — TNS

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Pak naval chief meets defence leaders during washington visit

Source: The Tribune, Dt. 18 Oct 2025

Pakistan's naval chief Admiral Naveed Ashraf visited the US and held talks with military leaders to enhance defence ties between the two countries, the army said on Friday.

According to a statement, the visit by the Chief of the Naval Staff was part of ongoing efforts to further strengthen bilateral maritime cooperation and defence engagements.

During the visit, he called on US Deputy Chief of Naval Operations, Vice-Admiral Yvette Davids, and Acting Vice-Commandant of the US Coast Guard, Vice-Admiral Thomas G Allan Jr Matters of professional interest, regional security dynamics, and avenues for professional training and maritime cooperation were discussed during these meetings, it said.

"The engagements encompassed deliberations on politico-military cooperation, maritime security, capacity-building initiatives and shared maritime interests," according to the statement. —PTI

Reaffirms commitment to military coop

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Army holds 4-day exercise for multi-domain warfare

Source: The Tribune, Dt. 19 Oct 2025

JAMMU, OCTOBER 18

A tri-service multi-domain exercise was conducted under the aegis of the Army's Northern Command headquarters, setting new benchmarks in preparedness for next-generation conflicts, a defence spokesperson said here on Saturday.

The four-day exercise tested commanders, staff and troops against futuristic threats in the cyber, space, electromagnetic and cognitive domains. Central Armed Police Forces, sister services, central government agencies and private sector players participated jointly, underscoring the importance of an integrated, whole-of-nation approach to the evolving security landscape, the spokesperson added.

He said the involvement of indigenous defence industry players established a new standard in jointness, aatmanirbharta (self-reliance) and innovation. Troops deployed in forward areas were trained to respond to challenges such as cyber intrusions, spectrum saturation, electronic jamming, spoofing and cognitive attacks.

Army personnel patrol near the Line of Control in Akhnoor, Jammu. FILE PHOTO

"In modern warfare, the lines are blurring between domains, so we need to leverage niche technology and keep innovating. A whole-of-nation approach is required to protect our territorial integrity and critical assets and also unleash punitive action on the adversary if the situation so demands," said Northern Army Commander Lieutenant General Pratik Sharma, while interacting with the troops.

Initiated after a strategic dialogue held during Samvad at Mathura on October 4, the exercise reflected that readiness for future warfare begins with open minds and seamless teamwork, the spokesperson said. He added that the Northern Command now stands "better equipped, united and prepared" to counter emerging threats with strategic foresight and multi-domain synergy. —PTI

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Why we shouldn't look at Op Sindoor through flawed lens

-by Air Marshal R. Nambiar (Retd)

Source: The Tribune, Dt. 20 Oct 2025

AIR MARSHAL R NAMBIAR (RETD)
EX-C-IN-C, WESTERN &
EASTERN AIR COMMANDS

IN the wake of Operation Sindoor, India's most sophisticated air campaign to date, one would expect thoughtful analysis from our military veterans. Instead, we are treated to a misreading of facts from Vice-Admiral Harinder Singh (Retd). His recent article not only distorts airpower employment through a flawed lens but also attempts to derail camaraderie between the services by vitiating the image of one.

It is imperative to dissect the some of the biases and half-truths in his piece. Here's a rebuttal:

Prestige platforms and solitary glory: The Admiral accuses the IAF of chasing "prestige platforms" and "solitary glory." Apparently, investing in Rafales-with AESA radars, Spectra EW suites, sensor fusion, and Meteor BVR missiles-is vanity, not capability. By that logic, the Navy should avoid new ships, and the Army should still wield the .303 rifle.

Deterrence rests on credible, repeatable options-penetration, standoff, escort, suppression, and time-sensitive targeting. The mere availability of such options alters the adversary's calculus before a shot is fired. Modern warfare is technologically driven; it is necessary to have better platforms, they are not indulgence.

Pakistan anticipated the strike: Yes — and still failed to prevent precision strikes on nine terror sites. The IAF executed the mission with surgical accuracy, avoiding escalation and civilian casualties. That's not failure-that's textbook airpower.

Rafale downed? Official briefings indicate the entire strike package on May 7 returned to base. Even if a Rafale was lost, attrition is part of any combat plan. Air combat isn't a walk in the park. What matters is how swiftly the PAF folded-within 90 hours of sustained strikes. Long-range SAMs, including S-400s, constrained Pakistani aircraft, with 12 downed by IAF claims. Please debate the numbers, but not the deterrent effect.

Standoff weapons and lesser aircraft: The shift to standoff weapons was prudent. Adapting to high-threat airspace with BrahMos, SCALP and similar munitions is doctrinal evolution, not retreat. The Admiral's belief that any aircraft can deploy these weapons betrays a limited grasp of target acquisition, lock-on protocols, mission planning and precision delivery. Advanced munitions are not plug-and-play; they require platforms with integrated sensors, real-time processing, electronic protection and endurance to operate in contested environments. Stripped of these enablers, even the most sophisticated weapons are reduced to blunt instruments.

Rafale, Su-30MKI and other modern fighters have that ecosystem inbuilt. You cannot bolt a Meteor onto a basic airframe and expect parity. To use a naval analogy, you cannot fit a BrahMos on an offshore patrol vessel and expect destroyer-scale effect. The Admiral's suggestion that land or naval BrahMos could have delivered the same impact ignores the requirement of speed — airpower can reposition 800 km in an hour, not crawl at 15 knots or 60 kmph. Precision, tempo and escalation control demanded exactly what was done.

Operational shortcomings and failure to break fighter defences: Every service studies its history. The IAF learned from 1965 and applied those lessons in 1971. Likewise, from Op Balakot in 2019 to Op Sindoor in 2025, adaptation was rapid. The question of why MiG-21s were used in Balakot should not be aimed at the IAF, which had sought replacements since the early 1990s-approval arrived only decades later.

The Balakot airstrikes marked a watershed moment in India's counterterrorism doctrine, demonstrating a calibrated use of airpower to neutralise cross-border threats without triggering full-scale war. By striking deep into Pakistani territory and targeting terror infrastructure with precision, the Indian Air Force not only redefined the rules of engagement but also imposed a psychological and operational cost on the adversary. The aftermath was telling: despite the revocation of Article 370

— a move with profound political and strategic implications — there was no major retaliatory escalation from Pakistan. For nearly six years following Balakot, the Line of Control remained relatively quiet, and large-scale terror incidents saw a marked decline. This period of relative peace was not accidental; it was earned through credible deterrence, strategic signalling and the demonstrated ability to project force deep within enemy territory with restraint and precision.

Even in Op Sindoor, lessons from the first night were assimilated within 24 hours, yielding telling effect. The mission was to punish terror infrastructure and degrade enabling military nodes, not stage cinematic Top Gun-style dogfights. Destruction of C2, radars, runways, and logistics mattered more than visual-range kills. The fact that no significant target on Indian soil was damaged clearly reflects how effectively IAF operations neutralised Pakistani airpower.

Resistance to jointness: The IAF has consistently supported joint operations, with emphasis on clear command relationships and unity of effort-reasonable requirements for complex, time-compressed missions like Operation Sindoor. Jointness means common plans, interoperable command and control, and rehearsed tactics. The IAF already maintains a Joint Force HQ with Army and Navy commands.

To dismiss a service's viewpoint merely because it contradicts another's is dangerous and undermines national security. The IAF's concern with current theaterisation proposals stems from strategic assessment, not institutional ego. Branding such divergence as dissidence invites risks that could jeopardize India's long-term defence posture.

Drumbeat of victories: Calling Op Sindoor a success is not chest-thumping. It reflects calibrated objectives achieved in days — confirmed through operational outcomes and official citations. Pride and professional introspection can, and must, coexist.

Final approach: Vice-Admiral Singh's arguments are riddled with factual errors, strategic misreadings and a fractured understanding of aerial warfare.

The IAF does not need to "come clean." It must continue doing what it did in Operation Sindoor: adapt, integrate, and dominate-from 300 km away if necessary. The next step for the joint force is clear: harden ISR against third-party surveillance, tighten cross-service kill chains, and align maritime posture with the tempo and objectives of the air and land campaign. Aerospace dominance will always belong to those who can sense first, shoot first and remain unseen the longest.

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Quad nations to come together for first joint air exercise in Nov

Source: The Tribune, Dt. 20 Oct 2025

AJAY BANERJEE
TRIBUNE NEWS SERVICE

NEW DELHI, OCTOBER 19

In a first for the Quad nations, India, the United States, Japan and Australia will come together for an air exercise next month. India will host the drills, 'Cope India', in the first week of November.

While India and the US will lead the exercise, Australia and Japan will participate as observers. Japan had joined as an observer during 'Cope India 2023', but this will mark Australia's first participation — completing the first structured engagement of all four Quad countries in an air exercise.

The timing of the air exercise will coincide with a separate maritime drill, Malabar, involving the same four nations. Malabar, an annual marquee event, will be hosted by the US at Guam — one of its key military bases in the western Pacific Ocean. The island of Guam lies about 2,500 km east of the Philippines.

The bilateral air exercise between India and the US has evolved over the past two decades to include subject-matter expert exchanges, air mobility and air-drop training, large-force engagements and fighter training.

These military exercises have continued despite India facing punitive tariffs imposed by the US.

Meanwhile, Indian Navy warship INS Sahyadri will join the maritime exercise Malabar at Guam. The four-nation drill is often dubbed by Beijing as 'anti-China', largely because its participants — India, the US, Japan and Australia — are also members of the Quad.

India-US ties have strained since the Trump administration imposed a 50 per cent tariff on Indian goods.

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Science & Technology News

भारत सात नैनोमीटर कंप्यूटर चिप 2028 तक तैयार कर लेगा: अश्विनी वैष्णव

Source: Jansatta, Dt. 19 Oct 2025

भारत का स्वदेशी रूप से डिजाइन किया गया 7 नैनोमीटर (एनएम) कंप्यूटर प्रोसेसर शक्ति 2028 तक तैयार होने की उम्मीद है, जिसे भविष्य में स्थानीय स्तर पर चिप संयंत्र में उत्पादित किया जा सकता है। आइआइटी मद्रास स्थित टीम ने शनिवार को केंद्रीय मंत्री अश्विनी वैष्णव को यह जानकारी दी।

आइआइटी मद्रास की एक टीम द्वारा विकसित किया जा रहा यह प्रोसेसर वित्तीय, संचार, रक्षा और रणनीतिक क्षेत्रों के लिए कंप्यूटर सर्वरों में तैनाती पर ध्यान देगा।

मंत्री के सोशल मीडिया अकाउंट पर पोस्ट किए गए एक वीडियो से पता चलता है कि उन्होंने टीम को चिपसेट के स्वदेशी उत्पादन की तैयारी के लिए हरी झंडी दे दी है, जिसका उपयोग आईटी सर्वर में किया जा सकता है। वैष्णव ने वीडियो में कहा, हम 28 नैनोमीटर से 7 एनएम तक का सफर तय कर रहे हैं ताकि भविष्य में इसे हमारे 'फैब' में लोड किया जा सके। आइआइटी मद्रास की एक टीम द्वारा विकसित किया जा रहा यह प्रोसेसर वित्तीय, संचार, रक्षा और रणनीतिक क्षेत्रों के लिए कंप्यूटर सर्वरों में तैनाती पर ध्यान देगा। वर्तमान में, मोबाइल फोन, कंप्यूटर और सर्वर जैसे उच्च तकनीक वाले उपकरण ज्यादातर 3 से 7 नैनोमीटर के बीच के आकार के चिप का उपयोग करते हैं।

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छोटा परमाणु रिएक्टर बना रहा है भारत, कहीं भी कर सकेंगे स्थापित

Source: Dainik Jagran, Dt. 20 Oct 2025

- बेहद सुरक्षित होंगे, कंपनियों के कैप्टिव पावर प्लांट में लग सकेंगे
- 55 और 200 मेगावाट के होंगे, बार्क के विज्ञानी कर रहे विकास

नई दिल्ली, प्रेट्र : भारत स्वच्छ ऊर्जा उत्पादन के लिए लगातार प्रयास कर रहा है। इस कड़ी में देश में 200 मेगावाट तक के छोटे आकार वाले परमाणु ऊर्जा रिएक्टर विकसित कर रहा है। इन रिएक्टरों को वाणिज्यिक जहाजों समेत किसी भी स्थान पर स्थापित किया जा सकेगा।

एक वरिष्ठ अधिकारी ने बताया, "परमाणु ऊर्जा, परमाणु विखंडन द्वारा उत्पन्न ऊष्मा से पैदा होती है जिससे बिजली का उत्पादन होता है। आप इस रिएक्टर को जहां चाहें वहां स्थापित कर सकेंगे, यहां तक कि जहाज पर भी।" उन्होंने कहा कि भाभा परमाणु अनुसंधान केंद्र (बार्क) के विज्ञानी 55 मेगावाट और 200 मेगावाट के दो परमाणु ऊर्जा रिएक्टर विकसित कर रहे हैं जिन्हें सीमेंट उत्पादन जैसे अधिक ऊर्जा की जरूरत वाली कंपनियों के कैप्टिव पावर प्लांट में भी स्थापित किया जा सकता है।

परमाणु पनडुब्बियों में इनके उपयोग के सवालों को टालते हुए उक्त अधिकारी ने कहा, "ये परमाणु रिएक्टर बहुत सुरक्षित हैं और इनका उपयोग मर्चेंट नेवी के जहाजों में भी किया जा सकता है।" कहा कि ये भारत स्माल माड्यूलर रिएक्टर (बीएसएमआर) देश में परमाणु ऊर्जा की हिस्सेदारी बढ़ाने का मुख्य आधार बनेंगे। वर्तमान में भारत के पास दो स्वदेश निर्मित परमाणु पनडुब्बियां आइएनएस अरिहंत व आइएनएस अरिघात हैं। सरकार ने यह भी घोषणा की है कि वह असैन्य परमाणु क्षेत्र में निजी कंपनियों के प्रवेश की अनुमति देने के लिए परमाणु ऊर्जा अधिनियम, 1962 में संशोधन करेगी। योजना के अनुसार, सरकार निजी कंपनियों को परमाणु ऊर्जा संयंत्रों का संचालन करने और परमाणु ईंधन चक्र के प्रारंभिक चरण को भी संभालने की अनुमति दे सकती है।

परमाणु अनुसंधान केंद्र 'फास्ट ब्रीडर टेस्ट रिएक्टर' के 40 साल हुए पूरे

चेन्नई, प्रेट्र : कलपक्कम स्थित इंदिरा गांधी परमाणु अनुसंधान केंद्र (आइजीसीएआर) में 'फास्ट ब्रीडर टेस्ट रिएक्टर' ने शनिवार को अपनी 40वीं वर्षगांठ मनाई, जोकि भारत के परमाणु ऊर्जा कार्यक्रम में एक महत्वपूर्ण मील का पत्थर है। चेंगलपट्टू जिले में बंगाल की खाड़ी के निकट स्थित यह रिएक्टर स्वदेशी विज्ञानी उत्कृष्टता और तकनीकी नवाचार का एक उत्कृष्ट प्रमाण है।

आइजीसीएआर की आधिकारिक विज्ञप्ति में कहा गया- "फास्ट ब्रीडर टेस्ट रिएक्टर 1985 में पहली क्रिटिकलिटी प्राप्त करने की 40वीं वर्षगांठ, फास्ट रिएक्टर प्रौद्योगिकी में आत्मनिर्भरता की दिशा में भारत की एक ऐतिहासिक उपलब्धि है।" इस रिएक्टर ने बहुमूल्य परिचालन अनुभव प्रदान किया है और भविष्य के फास्ट ब्रीडर रिएक्टरों के लिए आवश्यक ईंधन और संरचनात्मक सामग्री पर विकिरण अध्ययन के लिए एक बहुमुखी अनुसंधान और विकास मंच के रूप में कार्य किया है। परमाणु ऊर्जा आयोग (एईसी) के पूर्व अध्यक्ष केएन व्यास ने आइजीसीएआर के निदेशक सीजी करहाडकर सहित वरिष्ठ अधिकारियों के साथ समारोह में शिरकत की।

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चंद्रयान-2 ने पहली बार देखा चांद पर सूर्य का प्रभाव

Source: Dainik Jagran, Dt. 19 Oct 2025

चेन्नई, प्रेट्र : भारत के चंद्रयान-2 मिशन ने अपने वैज्ञानिक उपकरणों का उपयोग कर चंद्रमा पर सूर्य के कोरोनल मास इजेक्शन (सीएमई) के प्रभावों का पहली बार अवलोकन किया है। चंद्रयान-2 मिशन को 2019 में लांच किया गया था। इसरो ने शनिवार को कहा कि इस अवलोकन से चंद्रमा के बाह्यमंडल, चंद्रमा के अत्यंत पतले वायुमंडल और उसकी सतह पर अंतरिक्ष मौसम के प्रभाव को समझने में मदद मिलेगी।

22 जुलाई, 2019 को श्रीहरिकोटा से लांच किया गया चंद्रयान-2 अपने साथ आठ पेलोड ले गया था। 20 अगस्त, 2019 को चंद्रयान-2 को चंद्रमा की कक्षा में स्थापित कर दिया गया। हालांकि लैंडिंग के प्रयास के दौरान विक्रम लैंडर से संपर्क टूट गया था, फिर भी आर्बिटर पूरी तरह से कार्य कर रहा है। इसरो के अनुसार, चंद्रयान-2 पर लगे पेलोडों में से एक चंद्रा एटमास्फेरिक कंपोजिशनल एक्सप्लोरर 2 ने सूर्य से निकलने वाले कोरोनल मास के चंद्र बाह्यमंडल पर पड़ने वाले प्रभावों को रिकार्ड किया है। कोरोनल

मास इजेक्शन सौरमंडल में होने वाले सबसे शक्तिशाली विस्फोट होता हैं। कोरोनल मास इजेक्शन के दौरान सूर्य हीलियम और हाइड्रोजन आयन उत्सर्जित करता है।

चंद्रमा पर कोरोनल मास इजेक्शन का असर बहुत ज्यादा होता है। ऐसा इसलिए है क्योंकि चंद्रमा पर हवा नहीं है और न ही कोई बड़ा चुंबकीय क्षेत्र है, जो सूर्य के असर से उसकी सतह को कुछ हद तक बचा सके। चंद्रा एटमास्फेरिक कंपोजिशनल एक्सप्लोरर 2 के अवलोकनों से पता चला कि सूर्य के कोरोनल मास इजेक्शन के प्रभाव से दिन के समय चंद्रमा के बाह्यमंडल के कुल दबाव में वृद्धि हुई। यह वृद्धि पहले के सैद्धांतिक माडलों के अनुरूप है, लेकिन चंद्रयान-2 पर लगे पेलोड ने पहली बार ऐसा प्रभाव देखा है।

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कैंसर से श्वसन संक्रामणो पर कारगर नेफिथ्रोमाइसिन

Source: Dainik Jagran, Dt. 19 Oct 2025

- केंद्रीय मंत्री डाक्टर जितेंद्र सिंह ने नेफिथ्रोमाइसिन को बताया देश की पहली स्वदेशी सुपर एंटीबायोटिक
- 14 साल की रिसर्च का परिणाम, एजिथ्रोमाइसिन से 10 गुना ज्यादा असरदार साबित हुई

जीन थेरेपी में भी बड़ी सफलता

डा. सिंह ने बताया कि भारत ने जीन थेरेपी में भी बड़ी सफलता हासिल की है। हीमोफीलिया के उपचार के लिए इसके जरिये पहला सफल स्वदेशी क्लिनिकल ट्रायल किया गया। सरकार के जैव प्रौद्योगिकी विभाग के सहयोग से क्रिश्चियन मेडिकल कालेज, वेल्लोर में इसका ट्रायल किया गया।

नई दिल्ली, आइएएनएस: भारत ने चिकित्सा विज्ञान के क्षेत्र में ऐतिहासिक उपलब्धि दर्ज करते हुए पहली स्वदेशी सुपर एंटीबायोटिक नेफिथ्रोमाइसिन विकसित की है। यह दवा उन संक्रमणों पर प्रभावी पाई गई है, जिन पर अब तक उपलब्ध एंटीबायोटिक काम नहीं कर रहीं। खासतौर पर कैंसर और डायबिटीज के गंभीर मरीजों में संक्रमण के खिलाफ इस एंटीबायोटिक ने उल्लेखनीय असर दिखाया है।

केंद्रीय विज्ञान एवं तकनीक राज्य मंत्री डा. जितेंद्र सिंह ने बताया कि यह भारत में विकसित पहला स्वदेशी एंटीबायोटिक मालिक्यूल है, जो चिकित्सकीय रूप से मान्य है। आत्मनिर्भरता की दिशा में इसे एक बड़ी छलांग माना जा रहा है।

नेफिथ्रोमाइसिन को विकसित करने में 14 वर्षों की लगातार मेहनत लगी। वैज्ञानिक परीक्षणों में यह एजिथ्रोमाइसिन से 10 गुना ज्यादा प्रभावी साबित हुई। दावा किया गया है कि यह दवा गंभीर निमोनिया जैसे संक्रमणों के इलाज में केवल तीन दिन में परिणाम देती है। इस एंटीबायोटिक का ट्रायल भारत, अमेरिका व यूरोप के मल्टी-ड्रग रेजिस्टेंट मरीजों पर किया गया, जिसमें 97 प्रतिशत मरीजों में सकारात्मक परिणाम मिले। यह दवा स्ट्रेप्टोकोकस बैक्टीरिया पर बहुत प्रभावी है, जो निमोनिया के 33% मामलों का कारण होता है।

नेफिथ्रोमाइसिन को मुंबई स्थित वाकहार्ट लिमिटेड ने जैव प्रौद्योगिकी विभाग (डीबीटी) तथा बीआइआरएसी के सहयोग से तैयार किया है। विशेषज्ञों का मानना है कि इस खोज से गंभीर संक्रमणों से लड़ाई आसान होगी और भारत का स्थान वैश्विक फार्मा अनुसंधान में और मजबूत होगा।

डा. सिंह ने बताया कि भारत ने अब तक 10,000 से अधिक मानव जीनोम सीक्वेंसिंग कर ली है और दस लाख जीनोम सीक्वेंसिंग का लक्ष्य निर्धारित किया गया है। जीन थेरेपी ट्रायल में भी शून्य रक्तस्राव मामलों के साथ 60-70 प्रतिशत सुधार दर दर्ज किया गया। ये भी भारत के चिकित्सा अनुसंधान के क्षेत्र में एक मील का पत्थर है।

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India has developed its first indigenously discovered antibiotic "Nafithromycin", which is effective against resistant respiratory infections, particularly useful for cancer patients and poorly controlled diabetics

Source: Press Information Bureau, Dt. 18 Oct 2025

Union Minister of State (Independent Charge) for Science & Technology; Minister of State for Prime Minister's Office, Personnel, Public Grievances, Pensions, Department of Atomic Energy and Department of Space, Dr. Jitendra Singh today informed that India has developed its first indigenously discovered antibiotic "Nafithromycin", which is effective against resistant respiratory infections, particularly useful for cancer patients and poorly controlled diabetics. He said this antibiotic is the first molecule entirely conceptualized, developed and clinically validated in India, representing a significant leap toward self-reliance in the pharmaceutical sector.

The antibiotic Naphithromycin has been developed by the Govt of India's Department of Biotechnology in collaboration with well-known private pharma house Wockhardt. Citing this as an example of successful industry-academia partnership driving India's biopharmaceutical growth, the Union Minister emphasized the need to build a self-sustainable innovation ecosystem, so that India could reduce its dependence on government funding and create a culture of private sector participation and philanthropic support to achieve global recognition in research and innovation.

Inaugurating the 3-day Medical Workshop on "Harnessing Artificial Intelligence for Multi-Omics Data Integration and Analysis", Dr. Jitendra Singh said that India must develop a self-sustainable ecosystem to drive its scientific and research growth. He stated that most nations that have achieved global recognition in science and innovation have done so through self-sustaining, innovation-driven models with extensive engagement of the private sector.

Citing another successful story of government - non government collaboration, the Minister also announced that India has achieved a major breakthrough in gene therapy, marking the first successful indigenous clinical trial for Hemophilia treatment, the trial for which was supported by Govt of India's Department of Biotechnology and done in a non-government sector hospital, Christian Medical College Vellore.

Dr Jitendra Singh further mentioned that India has already sequenced over 10,000 human genomes and aims to scale this up to one million. The gene therapy trial, he added, recorded a 60–70% correction rate with zero bleeding episodes, representing a milestone in India's medical research landscape. The findings have been published in the New England Journal of Medicine, underscoring India's growing leadership in advanced biomedical innovation.

Speaking at the occasion, Dr. Jitendra Singh said the Anusandhan National Research Foundation (ANRF) is a major step in this direction, with a total outlay of ₹50,000 crore over five years, of which ₹36,000 crore will come from non-government sources. This model, he added, reflects a paradigm shift in India's approach to research and development, aligning it with global standards and emphasizing greater participation of academia and industry.

Dr. Jitendra Singh highlighted that Artificial Intelligence (AI) has become one of the most transformative tools of the modern era, reshaping healthcare accessibility, governance efficiency, and decision-making. He mentioned that AI-based hybrid mobile clinics are already serving rural and remote regions, ensuring quality healthcare for all. He also referred to the AI-driven grievance

redressal system developed by the Department of Administrative Reforms and Public Grievances (DARPG), which has achieved a weekly disposal rate of 97–98%, significantly improving citizen satisfaction and service delivery.

The Minister lauded institutions like Sir Ganga Ram Hospital for pioneering interdisciplinary approaches by integrating AI, biotechnology and genomics to improve healthcare outcomes. He urged greater collaboration between government departments, private hospitals, and research institutes to realize the vision of Viksit Bharat @2047.

Dr. Jitendra Singh said that India is entering a new era of self-reliance in biotechnology, AI and genomic medicine. The convergence of innovation, collaboration and compassion, he said, will define India's journey toward a developed nation and establish its leadership in the global science and technology landscape. The event was also attended by Dr.Shiv Kumar Kalyanaraman, CEO Anusandhan National Research Foundation, Dr. N.K Ganguly, DR. D.S Rana, and Dr. Ajay Swaroop.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2180705

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Wetware: When human mini-brains power computers

Source: The Times of India, Dt. 19 Oct 2025

Inside a lab in the picturesque Swiss town of Vevey, a scientist gives tiny clumps of human brain cells the nutrient-rich fluid they need to stay alive. It is vital these mini-brains remain healthy, because they are serving as rudimentary computer processors — and unlike your laptop, once they die, they cannot be rebooted.

This new field of research, called biocomputing or "wetware", aims to harness the evolutionarily honed yet still mysterious computing power of the human brain. At the Swiss start-up FinalSpark's lab, co-founder Fred Jordan says he believes that processors using brain cells will one day replace the chips powering the artificial intelligence boom.

The supercomputers behind AI tools like ChatGPT currently use silicon semiconductors to simulate the neurons and networks of the human brain. "Instead of trying to mimic, let's use the real thing," Jordan said. Among other potential advantages, biocomputing could help address the skyrocketing energy demands of AI, which have already threatened climate emissions targets and led some tech giants to resort to nuclear power.

"Biological neurons are one million times more energy efficient than artificial neurons," Jordan said. They can also be endlessly reproduced in the lab, unlike the massively in-demand AI chips made by companies like behemoth Nvidia. But for now, wetware's computing power is a very long way from competing with the hardware that runs the world.

To make its "bioprocessors," FinalSpark first purchases stem cells. These cells, which were originally human skin cells from anonymous human donors, can become any cell in the body. FinalSpark's scientists then turn them into neurons, which are collected into millimetre-wide clumps called brain organoids. They are around the size of the brain of a fruit fly larvae, Jordan said. Electrodes are attached to the organoids in the lab, which allow the scientists to "spy on their internal discussion," he explained.

The scientists can also stimulate the organoids with a small electric current. Whether they respond with a spike in activity — or not —is roughly the equivalent of the ones or zeroes in traditional computing. Ten universities around the world are conducting experiments using FinalSpark's organoids — the small company's website even has a live feed of the neurons at work.

Benjamin Ward-Cherrier, a researcher at the University of Bristol, used one of the organoids as the brain of a simple robot that managed to distinguish between different braille letters. There are many challenges, including encoding the data in a way the organoid might understand — then trying to interpret what the brain cells "spit out," he said. "Working with robots is very easy by comparison," Ward-Cherrier said with a laugh. "There's also the fact that they are living cells — and that means that they do die," he added.

https://timesofindia.indiatimes.com/science/wetware-when-human-mini-brains-power-computers/articleshow/124681287.cms

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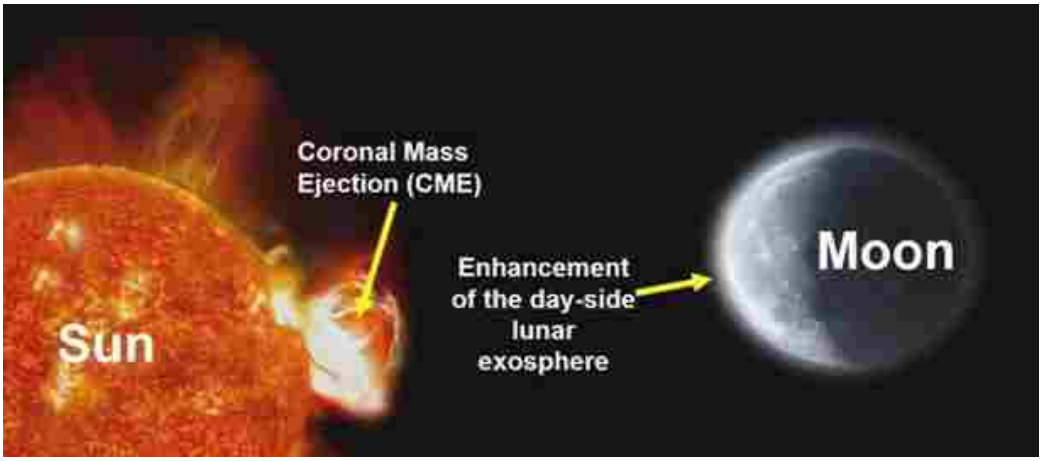
Chandrayaan-2 makes first-ever observation of Sun's impact on Moon, says ISRO

Source: The Hindu, Dt. 20 Oct 2025

The lunar orbiter of India's second moon mission Chandrayaan-2, launched in 2019, has made the first-ever observation of the effects of the Sun's Coronal Mass Ejection (CME) on the Moon. The Chandra's Atmospheric Composition Explorer-2 (CHACE-2) payload onboard the orbiter has made this observation.



Artistic rendition of the CME hurled by the Sun towards the Moon, and its effect on the day-side lunar exosphere

The Indian Space Research Organisation (ISRO) said on Saturday (October 18, 2025) that the observations from CHACE-2 showed an increase in the total pressure of the dayside lunar exosphere (very thin atmosphere) when the CME impacted the Moon. "The total number density (number of neutral atoms or molecules present in an environment per unit volume) derived from these observations showed an increase by more than an order of magnitude. This increase is consistent with earlier theoretical models, which predicted such an effect, but CHACE-2 onboard Chandrayaan-2 has observed such an effect for the first time," ISRO said.

ISRO added that the opportunity to directly observe the effects of the CME impacting on the Moon came in a rare occurrence, on May 10, 2024, when a series of CMEs were hurled by the Sun. “This increased quantity of the solar coronal mass that impacted on the moon enhanced the process of knocking off the atoms from the lunar surface, thereby liberating them to the lunar exosphere, which manifested as the enhancement of the total pressure in the sunlit lunar exosphere,” ISRO added.

The space agency said that this observation would provide scientific insight in the understanding of the lunar exosphere and space weather effects on the Moon. “Apart from pushing the edge of our scientific understanding about the Moon and the lunar space weather (effect of the Sun’s emissions on the Moon), this observation also indicates the challenges of building scientific bases on the Moon. Lunar base architects need to account for such extreme events, which would temporarily alter the lunar environment, before the effects subside,” it said.

Launched on July 22, 2019, from Sriharikota using the GSLV-MkIII-M1 rocket, Chandrayaan-2 carried eight experiment payloads. On August 20, 2019, Chandrayaan-2 was successfully inserted into the elliptical orbit around the Moon. However, the Vikram lander, while attempting to make a soft landing on the Moon’s surface, lost communication from the lander and the ground stations.

https://www.thehindu.com/sci-tech/science/chandrayaan-2-makes-first-ever-observation-of-suns-impact-on-moon-says-isro/article70181623.ece

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Artificial Sunlight from space could flood night sky with blinding light

Source: The Times of India, Dt. 20 Oct 2025

A proposed constellation of satellites has astronomers deeply concerned. Unlike satellites that accidentally reflect sunlight, those planned by US startup Reflect Orbital would create light pollution by design.

The aim is “sunlight on demand”, using mirrors to beam sunlight down so solar farms can run after dark. It plans to launch an 18m test satellite, Earendil-1, in 2026 and hopes to deploy around 4,000 satellites by 2030.

Each satellite would orbit roughly 625km above Earth with mirrors 54m wide, illuminating patches about 7km across — some 15,000 times dimmer than the midday Sun yet brighter than the full Moon. The startup says this will extend solar generation, but astronomers warn the sky could be flooded with artificial light.

Reflect Orbital previously tested a 2.5m mirror on a hot-air balloon, recording 516 watts of light per square metre — roughly half the intensity of sunlight at noon. But scaling that to orbit would need a mirror 6.5km wide. The company’s goal is to reflect sunlight at 200 watts/sqm, or 20% of midday sunlight, but a single 54m satellite would be far too faint — 3,000 would be needed to light one region for a few minutes.

Reflect Orbital plans 2,50,000 satellites — more than all catalogued satellites and space debris combined. Even then, only about 80 sites could be lit simultaneously, mostly near dusk and dawn.

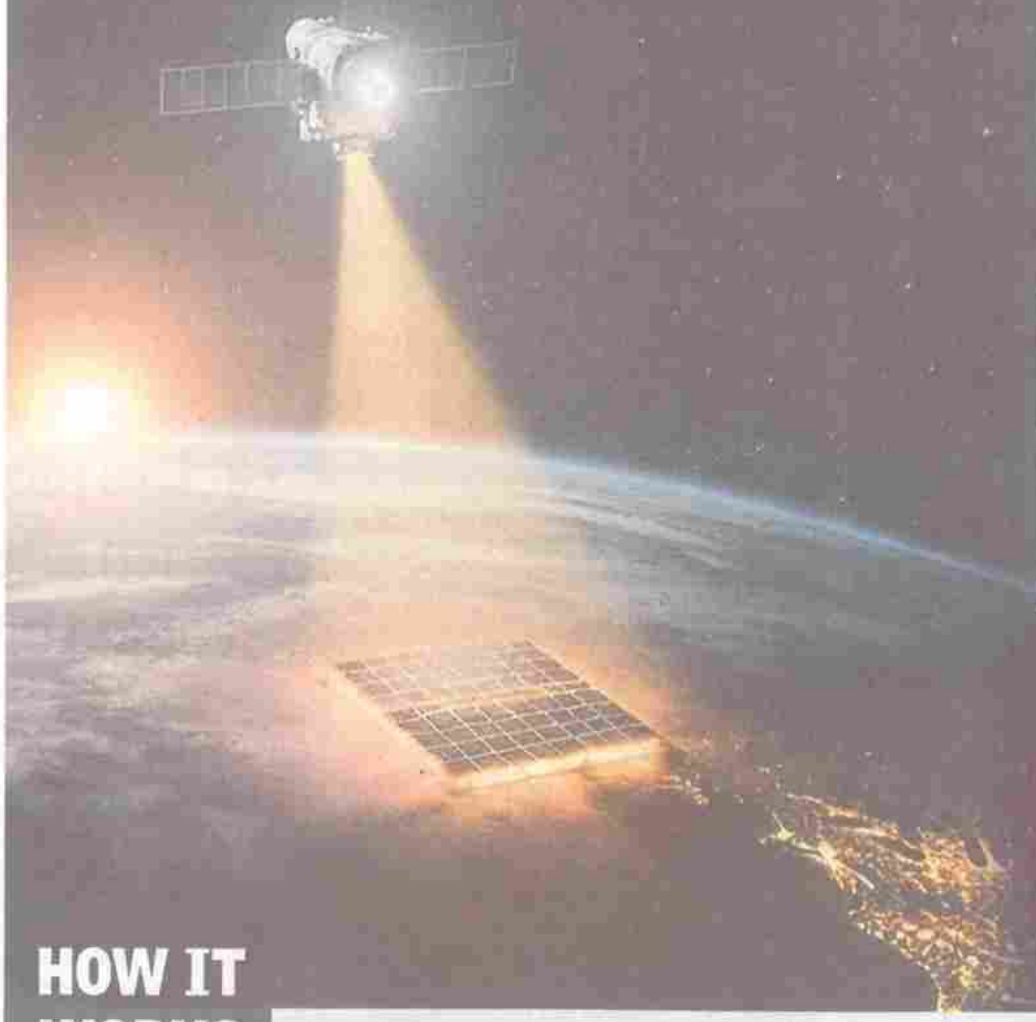
Astronomers fear this could outshine the Moon, overwhelm telescopes and affect wildlife. Reflect Orbital, which could not be reached for comment, insists its beams will be “brief, predictable and targeted”, but it could permanently transform the night sky.

(Brown and Kenworthy are astronomy professors with Monash University and Leiden University, respectively. The article was first published in The Conversation)

AI Image

THE BIG IDEA

- Giant mylar mirrors mounted on satellites to beam sunlight at night
- The goal is to let solar farms generate power after sunset, reducing reliance on batteries or fossil fuels
- The US startup behind the "sunlight on demand" project aims to have 4,000 satellites by 2030



POTENTIAL PROBLEMS

- **LIGHT POLLUTION** Even one satellite could outshine Moon; a constellation would fill the night sky with flashes
- **ASTRONOMY RISK** The reflected sunlight could damage telescopes, blind observers & wash out stars
- **ECOLOGICAL IMPACT** Artificial light can disrupt animal migration, feeding, and sleep patterns
- **TECHNICAL FEASIBILITY** Thousands of satellites would incur huge cost, with limited artificial sunlight coverage

> **Over 60% of invertebrates are nocturnal. They need the dark. What I can't get my head around is the cost. There are parking lots we can clear up for solar panels. That will be cheaper than having thousands of satellites beaming sunlight down — Shweta Kulkarni** | RECIPIENT OF LAST YEAR'S 'DARK SKY DEFENDER' AWARD, FOR DARK SKY CONSERVATION

HOW IT WORKS

- THE PRINCIPLE BORROWS FROM BOUNCING LIGHT OFF THE FACE OF A WATCH ONTO A SURFACE

625 km above Earth, each satellite would beam sunlight

- The Sun is not a spot of light. It looks like a small disc that covers about half a degree of the sky

- Reflected sunlight is faint; thousands of satellites needed to reflect 20% of sunlight's intensity
- Each satellite stays over a location for just minutes. Thousands more would be needed for continuous illumination

THE MISSION PLAN

- A "constellation" of satellites would encircle Earth along the day-night line, in Sun-synchronous orbits for continual exposure to Sun
- The midday Sun produces roughly 1,000 watts per square metre. Reflect Orbital's goal is to deploy "simple satellites in the right constellation" shining on existing solar farms, producing 200 watts/m²

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Chemistry's real life magic bag holds key to cleaner air, water

Source: The Times of India, Dt. 20 Oct 2025

When the 2025 Chemistry Nobel was awarded recently to Susumu Kitagawa, Richard Robson and Omar Yaghi, the chairperson of the award committee compared their discoveries to the magical bottomless bag from the Harry Potter series.

The three scientists had created a class of extremely porous materials known as metal-organic frameworks (MOFs), molecular structures that appear small, but hold huge quantities of gas or molecules inside, which means they can be used to trap greenhouse gases from the atmosphere and even harvest water from arid air. A single gram of MOF could have an internal surface area of a football field, like a massive sponge.

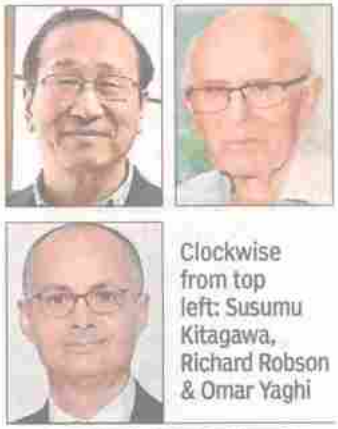
An MOF is made by linking metal ions (or clusters) with organic (carbon-based) linkers, forming structures with vast internal cavities. These 'cavities', or 'rooms', allow gases or molecules to enter, be stored or made to react in controlled ways. Their structures can be like Lego: by picking different metals, linkers, and geometries, scientists can tailor MOFs for specific tasks. And because they can absorb, store and host reactions, they can be used to capture emissions from thin air, store clean hydrogen and filter and break down toxic chemicals.

These are not marginal gains; they target core sustainability issues of our century. Porous materials such as silica gels have long existed, but MOFs surpass them through precision design, higher surface areas and structural tunability. They let scientists create what's needed instead of relying on what nature provides.

Kitagawa, Robson and Yaghi worked separately but kept building on each other's ideas, starting from the late 1980s.

Gradually, they found ways to create stable atomic structures with bespoke hole sizes for specific molecules, all depending on what

NOBEL SEASON



Clockwise from top left: Susumu Kitagawa, Richard Robson & Omar Yaghi

2025 LAUREATES

needed to be stored — water, CO_2 or a toxic gas.

Since then, thousands of MOFs have been synthesised for various applications. But their production needs to be scaled up affordably and sustainably if we are to integrate them into our power plants, water systems and industrial units. Imagine an MOF that can absorb molecules of a toxin from the water supply. That's the future we could have.

MOFs offer incredible new possibilities. They are spaces where even molecules can work for a cleaner, more breathable tomorrow.

(The author is from Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru)

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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
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