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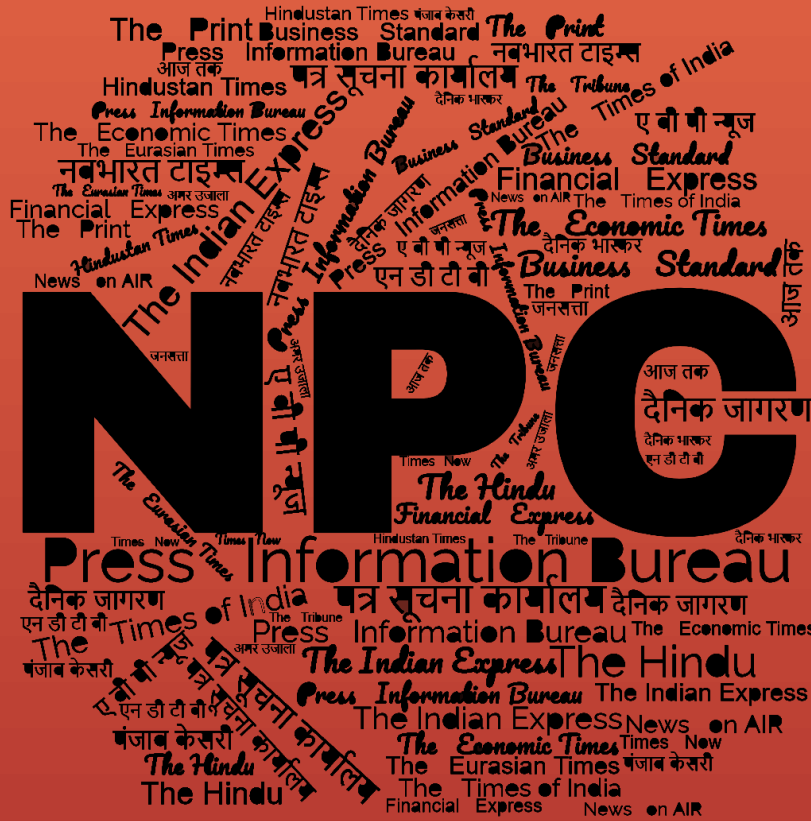
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# समाचार पत्रों से चयित अंश Newspapers Clippings

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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Press Information Bureau  
Government of India

Ministry of Defence

Wed, 01 May 2024

## Supersonic Missile-Assisted Release of Torpedo System Successfully Flight-tested by DRDO off the Odisha Coast

Supersonic Missile-Assisted Release of Torpedo (SMART) system was successfully flight-tested at around 0830 hrs on May 01, 2024 from Dr APJ Abdul Kalam Island off the coast of Odisha. SMART is a next-generation missile-based light-weight torpedo delivery system, designed and developed by the Defence Research and Development Organisation (DRDO) to enhance the anti-submarine warfare capability of the Indian Navy far beyond the conventional range of lightweight torpedo. This canister-based missile system consists of several advanced sub-systems, namely two-stage solid propulsion system, electromechanical actuator system, precision inertial navigation system etc. The system carries advanced light-weight torpedo as payload along with parachute-based release system.

The missile was launched from the ground mobile launcher. Several state-of-the-art mechanisms such as symmetric separation, ejection and velocity control have been validated in this test.

Raksha Mantri Shri Rajnath Singh has complimented the DRDO and the industry partners on the successful flight-test of SMART. "The development of the system will further enhance the strength of our Navy," he said.

Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat lauded the synergistic efforts of the entire SMART team and urged it to continue on the path of excellence.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2019266>



Wed, 01 May 2024

## DRDO ने SMART मिसाइल सिस्टम का सफल परीक्षण किया: हिंद महासागर में तैनात किया जाएगा; चीनी नौसेना की पनडुब्बियों पर नजर रखेगा

रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने बुधवार (1 मई) की सुबह 8 बजे ओडिशा के डॉ एपीजे अब्दुल कलाम द्वीप पर 'SMART' मिसाइल सिस्टम की सफल टेस्टिंग की। इसे ग्राउंड मोबाइल लॉन्चर से लॉन्च किया गया।

DRDO ने बताया कि सुपरसोनिक मिसाइल असिस्टेड रिलीज टॉरपीडो सिस्टम (SMART) इंडियन नेवी के लिए तैयार किया गया है। ये नेक्स्ट जनरेशन मिसाइल बेस्ड लाइटवेट टॉरपीडो डिलीवरी सिस्टम है। इससे एंटी सबमरीन वॉर कैपेसिटी बढ़ाने में मदद मिलेगी।



# नेवी को स्मार्ट बनाएगा SMART

SMART यानी सुपरसोनिक मिसाइल असिस्टेड रिलीज ऑफ टॉरपीडो से लॉन्च मिसाइल 643 किमी की दूरी तय कर सकती है।

इसमें 20 किमी की रेंज वाला हल्का टॉरपीडो और 50 Kg हाई एक्सप्लोसिव वारहेड जोड़ा जा सकता है।

ये कनिस्टर बेस्ड मिसाइल सिस्टम है, जिसमें टू स्टेज प्रोपल्शन, इलेक्ट्रोमैकेनिकल एक्चुएटर, प्रिंशिपल इंटीरियल नेविगेशन जैसे एडवांस सब सिस्टम शामिल हैं।

इसमें सिमेट्रिक सेपरेशन, इजेक्शन और वेलोसिटी कंट्रोल जैसी अत्याधुनिक तकनीक भी है।

SMART को हिंद महासागर में तैनात किया जाएगा। चीनी नौसेना की पनडुब्बियों की लगातार बढ़ती तैनाती के चलते यह फैसला किया गया है।



SMART को हिंद महासागर में बढ़ती चीनी पनडुब्बियों के मुकाबले के लिए इंडियन नेवी तैनात करेगी।

## नौसेना की मारक क्षमता को बढ़ाएगा SMART

इस SMART सिस्टम की मदद से नौसेना को टॉरपीडो की मारक रेंज बढ़ाने में मदद मिलेगी। इससे सुमद्र में दुश्मन की अधिक दूरी वाली पनडुब्बियों को भी ट्रैक और टारगेट किया जा सकेगा।

ये कनिस्टर बेस्ड मिसाइल सिस्टम है। जिसमें टू स्टेज प्रपल्शन, इलेक्ट्रोमैकेनिकल एक्चुएटर, प्रिसिशन इनर्शियल नेविगेशन सिस्टम जैसे एडवांस सब-सिस्टम शामिल हैं। इसमें पैराशूट बेस्ड रिलीज सिस्टम के साथ लाइट वेट टॉरपीडो को पेलोड की तरह ले जाया जा सकता है।

अधिकारियों की माने तो यह सिस्टम सिमैट्रिक सेपरेशन, इजेक्शन और वैलॉसिटी कंट्रोल जैसी एडवांस टेक्निक से लैस है।

SMART से नौसेना की ताकत बढ़ेगी: रक्षामंत्री SMART के सफल परीक्षण पर देश के रक्षा मंत्री राजनाथ सिंह ने DRDO की सराहना की। उन्होंने कहा कि इस सिस्टम के विकास से हमारी नौसेना की ताकत और बढ़ेगी। DRDO के प्रेसिडेंट और सचिव अध्यक्ष डॉ. समीर वी कामत ने SMART को डेवलप करने वाली टीम को शुभकामनाएं दी हैं।

<https://www.bhaskar.com/national/news/drdo-supersonic-anti-submarine-missile-system-testing-update-132956726.html>

# नवभारत टाइम्स

Wed, 01 May 2024

## भारत ने बनाया पाकिस्तानी हंगोर का काल, अब समुद्र में दुश्मन की पनडुब्बियों का SMART से बचना नामुमकिन

भारत ने बुधवार को सुपरसोनिक मिसाइल-असिस्टेड रिलीज ऑफ टॉरपीडो (स्मार्ट) सिस्टम का परीक्षण किया। रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) ने बताया कि स्मार्ट मिसाइल प्रणाली 500 किमी से अधिक दूर दुश्मन की पनडुब्बियों पर हमला करने में सक्षम है। डीआरडीओ ने भारतीय नौसेना के लिए 2018 में स्मार्ट मिसाइल सिस्टम को बनाना शुरू किया था। इसे पाकिस्तान की हंगोर क्लास की पनडुब्बियों का काल माना जा रहा है। पाकिस्तान को चीन से हंगोर क्लास की पहली पनडुब्बी मिलने वाली है। यह पनडुब्बी एआईपी सिस्टम से लैस है, जिसे अपनी बैटरियों को चार्ज करने के लिए सतह पर आने की जरूरत नहीं होगी। ऐसे में इस पनडुब्बी को 500 किमी की रेंज में कहीं भी भारत के स्मार्ट मिसाइल सिस्टम की मदद से निशाना बनाया जा सकेगा।

### SMART मिसाइल सिस्टम कब काम आएगा

स्मार्ट मिसाइल सिस्टम तब काम में आएगा जब कोई उपग्रह या गैर-लड़ाकू खुफिया, निगरानी और टोही प्रणाली जैसे मानव रहित हवाई वाहन, दुश्मन की पनडुब्बी का पता लगाएगा। अगर उस वक्त उक्त जगह पर भारत का कोई युद्धपोत, पनडुब्बी या पी-8 आई पोसाइडन जैसा एंटी सबमरीन वारफेयर में माहिर जहाज नहीं होता है तो स्मार्ट मिसाइल सिस्टम की मदद से हमला किया जाएगा। वर्तमान में, भारतीय नौसेना पनडुब्बी, जहाज या हेलीकॉप्टर से टॉरपीडो लॉन्च कर सकती है लेकिन इनकी गति सीमित होती है और इनकी सीमा केवल 20 से 40 किमी तक होती है। ऐसे में टॉरपीडो को ले जा रही मिसाइल उसे हमले वाली जगह तक आसानी से पहुंचा देगी।

### SMART मिसाइल क्यों खतरनाक है?

इस कनिस्टर-आधारित मिसाइल प्रणाली में कई उन्नत उप-प्रणालियां शामिल हैं। इसमें दो-चरणों वाली ठोस प्रणोदन प्रणाली, इलेक्ट्रोमैकेनिकल एक्चुएटर प्रणाली और सटीक जड़त्वीय नेविगेशन प्रणाली लगी हुई हैं। यह प्रणाली



पैराशूट-आधारित रिलीज मैकेनिज्म के साथ पेलोड के रूप में एक उन्नत हल्के वजन वाले टारपीडो को ले जाती है। SMART सिस्टम में स्वदेशी तकनीक से बने टॉरपीडो एडवांस्ड लाइट (TAL) का इस्तेमाल किया जाता है। यह DRDO द्वारा विकसित एक विद्युत-चालित सेल्फ-होमिंग टॉरपीडो है। इसमें संचालन के सक्रिय और निष्क्रिय दोनों तरीके हैं, और सभी-डिजिटल नियंत्रण और मार्गदर्शन प्रणालियां हैं।

### रक्षा मंत्रालय ने SMART सिस्टम के परीक्षण पर क्या कहा

रक्षा मंत्रालय ने कहा कि SMART मिसाइल को ग्राउंड-मोबाइल लॉन्चर से लॉन्च किया गया था। इसमें कहा गया है कि इस परीक्षण में सेपरेशन, इजेक्शन और वेलोसिटी को कंट्रोल करने जैसे कई सिस्टम को टेस्ट किया गया। सूत्रों ने कहा कि ऐसा तंत्र रखने वाला दूसरा ज्ञात देश रूस है। उन्होंने कहा कि परीक्षणों के अगले चरण में सतह के जहाजों से स्मार्ट मिसाइल की फायरिंग शामिल होगी। बाद में टारपीडो को पनडुब्बी या समुद्र के नीचे की वस्तु पर हमला करने के लिए टेस्ट किया जाएगा। इसे अगले डेढ़ साल के अंदर भारतीय नौसेना में शामिल कर दिया जाएगा।

### चीन से 8 पनडुब्बियां खरीद रहा पाकिस्तान

पाकिस्तान ने चीन से हंगोर क्लास की 8 पनडुब्बियों को खरीदने की डील साइन की है। इस क्लास की पहली पनडुब्बी को चंद्र दिनों पहले चीन के वुचांग शिपबिल्डिंग इंडस्ट्री ग्रुप (डब्ल्यूएसआईजी) के शुआंगलियू बेस पर लॉन्च किया गया था। कुल आठ पनडुब्बियों में से चार का निर्माण चीन के डब्ल्यूएसआईजी द्वारा किया जाना है, जबकि शेष चार का निर्माण प्रौद्योगिकी हस्तांतरण (टीओटी) समझौते के तहत पाकिस्तान में कराची शिपयॉर्ड एंड इंजीनियरिंग वर्क्स में किया जा रहा है। उन्नत स्टील्थ विशेषताओं वाली पनडुब्बियों को कई तरह के खतरे वाले वातावरण में संचालित करने के लिए अत्याधुनिक हथियारों और सेंसरों से सुसज्जित किया जाना है और लंबी दूरी पर लक्ष्य पर हमला किया जा सकता है।

<https://navbharattimes.indiatimes.com/world/pakistan/india-drdo-tests-pakistan-hangor-class-submarine-killer-smart-anti-submarine-missile-system/articleshow/109762290.cms>



Wed, 01 May 2024

## DRDO Tests Missile-assisted Torpedo Delivery System

The Defence Research and Development Organisation (DRDO) on May 1 announced the successful flight test of the Supersonic Missile-Assisted Release of Torpedo (SMART) system from Dr APJ Abdul Kalam Island off the coast of Odisha.

SMART is a next-generation missile-based light-weight torpedo delivery system designed and developed by DRDO to enhance the anti-submarine warfare capability of the Indian Navy far beyond the conventional range of lightweight torpedoes.

“This canister-based missile system consists of several advanced sub-systems, namely two-stage solid propulsion system, electromechanical actuator system, precision inertial navigation system etc. The system carries advanced light-weight torpedo as payload along with parachute-based release system,” DRDO said in a statement.

The missile was launched from the ground mobile launcher. Several state-of-the-art mechanisms such as symmetric separation, ejection and velocity control have been validated in this test, it added. The SMART system has been tested earlier.

<https://www.thehindu.com/news/national/drdo-tests-missile-assisted-torpedo-delivery-system/article68129035.ec>

## **Before Redesigning DRDO, Learn fully about it**

*By K G Narayanan and Vasudev K Aatre*

The Defence Research and Development Organisation (DRDO) makes news often with public announcements of its achievements, drawing the admiration of many Indians. There are also discordant voices at times, casting doubts on DRDO's capabilities. It is time to tell the story objectively and in public. In full disclosure, the authors state that we have been intimately associated with DRDO for many decades and that we have had little to do with DRDO since our superannuation nearly two decades back. We believe our article to be credible because the arguments are evidence-based.

When the DRDO was established under the Ministry of Defence in 1958, the development mandate of the organisation was limited to import substitution of components. The annual budget was meagre, with a very little foreign exchange component. When the Department of Defence R&D came into being in 1978, the emphasis was restated in favour of indigenous development of complete systems and weapon platforms. An increase in budget allocations came in the mid-1980s, taking it closer to 5% of the defence budget. A cluster of major weapon system development projects such as guided missiles, main battle tank Arjun, multi-barrel rocket launchers, the Tejas fighter aircraft and an Aerial Early Warning System for the IAF, torpedoes and sonars for the Navy, UAVs, radars, communication systems and Electronic Warfare systems were taken up by the DRDO during the 1980s and 1990s, responding to the felt needs of the Services.

It is a matter of record and great satisfaction that most of these development programmes succeeded and their outputs found their place in the Indian arsenal, through serial production in the defence PSUs such as HAL, BEL, BDL and the Ordnance Factories. However, many of the development projects exceeded the timelines stipulated, causing problems in induction plans of the Services. Despite some dissatisfaction on this count, it is a fact that the cumulative value of these first-generation weapons and systems accepted by the Services between the years 2000 and 2020 exceeded Rs 3 lakh crore, and climbing.

The imperative of indigenous development from the financial angle and for the skills and employment generation in the country is obvious. A little less obvious is the fact that the technology and systems development capabilities of DRDO has helped to make India "a smart buyer" when the need arises.

To get a good overall assessment of where DRDO has arrived in 2024, we only need to note the highlights which made an impact on the minds of the people at large as well as the leadership of the country over the last 5 years.

In April 2024, India delivered the first batch of BrahMos supersonic cruise missiles to Philippines under a \$375-million deal concluded in 2022. All the 3 Services in India are already equipped with BrahMos, the product of a joint venture between DRDO/India and Russia.

In March 2024, DRDO performed a spectacular technological feat with the successful test-flight of the Agni-5 nuclear-capable intercontinental ballistic missile (ICBM) with a strike range of more than 5,000 km and equipped with Multiple Independently Targetable Re-entry Vehicle (MIRV) technology. Prime Minister Narendra Modi publicly lauded the efforts of DRDO.

The Annual Report of the Ministry of Defence lists a dozen successful test flights and other events concerning indigenous guided missiles during the year 2022 alone. They include Submarine Launched Ballistic Missile (SLBM) from the nuclear-powered submarine INS Arihant, Ballistic Missile Defence interceptor AD-1 missile, Hypersonic Technology Demonstrator Vehicle, and others.

Earlier, in March 2019, Prime Minister Modi surprised the world with his announcement that India had become the fourth country in the world to conduct an anti-satellite (ASAT) missile test to destroy an orbiting satellite kinetically (that is, by direct collision).

In January 2021, the procurement of 73 LCA Tejas Mk-1A fighter aircraft and 10 Trainer aircraft at a cost of Rs 46,000 crore was approved by the Union Cabinet. Then then IAF Chief R K S Bhadauria asserted that the DRDO/HAL Tejas is far better than the Chinese-Pakistani JF-17 fighter jets. In December 2023, a second deal for 97 additional Tejas fighters was cleared by the Defence Acquisition Council. In April 2023, HAL inaugurated a third production line for the Tejas at Nashik, increasing annual production capacity. All this from the seeds sown by DRDO in 1980s.

DRDO developed Airborne Early Warning and Control System (AEW&CS) Netra played a crucial role during the Balakot strike in 2019. Following the induction of the first system in 2017, subsequent acquisition of the second and third Netra systems by the IAF is a testimony to the programme's success.

In November 2020, DRDO successfully flight-tested the enhanced version of Pinaka, the multi-barrel rocket launcher (MBRL) system used by the Indian Army and which saw combat action in Kargil in 1999. In August 2020, the government signed a Rs 2,580 crore contract with Tata Power Company, L&T and Bharat Earth Movers Limited for supplying six regiments of Pinaka Mk I MBRL systems to the Indian Army, to be delivered by 2024

### **What of the crucial subsystems, components and materials which render these systems truly indigenous?**

Many accomplishments such as the test flight of the Autonomous Flying Wing Technology Demonstrator (2023) (a big step towards the realisation of combat UAVs of the future), the Uttam Active Electronically Scanned Array Radar (AESAR) Fire Control System for Tejas Mk2 and other frontline fighters of the IAF, and many other such systems can be counted. The DRDO achieved an important milestone in the development of Air Independent Propulsion (AIP) system for submarines by proving the land-based prototype in March 2021, to enhance the submerged endurance of diesel-electric submarines. A contract has been signed with a major Indian engineering industry to build two AIP system modules for Indian Navy submarines. The aircraft carrier INS Vikrant and other frigates make extensive use of the special grade steels developed by the DRDO. The technology developed by DRDO for naval grade plates was adopted successfully by the Rourkela Steel Plant (RSP) and supplied to the naval constructors in thousands of tonnes.

Thus, one sees DRDO as a vibrant S&T organisation of long standing and a great track record of delivery, focussed on carrying out its mandate of helping the Armed Forces to become more and more technologically self-reliant and adapting itself to the new milieu of international cooperation, Indian private industry participation and creative interactions with the academia.

Despite all these contributions over the last three decades, one is not surprised to see an amount of discordant criticism of DRDO's performance in the public space, unmindful of the actual track record. It is natural for a public-funded institution in a free and open society to be subjected to scrutiny, even criticism, whether deserved or due to information gaps. Citizens are quite justified to be concerned about why India should continue to depend heavily on imports for defence. Of course, we cannot lose sight of the global arms bazaar and other vested interests – those who stand



to lose significantly if indigenous development succeeds -- and their role in generating and propagating erroneous perceptions.

The questions and criticisms can and should be answered, and improvements brought about by persistent efforts, with more objectivity on all sides, better communication, and national policy affirmation favouring self-reliance.

That is why one is astonished, even shocked, to see the recommendations of a recent expert committee constituted by the Ministry of Defence under the chairmanship of a former Principal Scientific Adviser to the Government of India on "Redesigning DRDO." Going by what has appeared in the media so far, the committee recommends many radical changes.

At the outset, everyone would be glad to see the recommendation of the committee regarding the creation of a 'Defence Technology Council' under the chairmanship of the Prime Minister, conveying the importance and urgency of the Atmanirbharta mission in defence systems procurement. Similarly, the recommendation regarding empowering DRDO to undertake even more forward-looking research would be welcomed by many.

However, quite astonishingly, the report proceeds to recommend fundamental changes in the well-proven structure and mandate of DRDO, without throwing any light on what actually is the shortcoming in the existing system. One is surprised to see the measurable accomplishments of DRDO and the Department of Defence Production over the last five decades brushed aside casually as "some achievements." Worse, the report appends the presentation made by DRDO to the committee highlighting its achievements amidst the challenges and distances itself from it with the statement that the committee does not endorse the DRDO presentation. It is difficult to believe that any good review can come out of such adversarial attitudes.

The creation of a new 'Department of Technology and Innovation' within the Ministry of Defence has been recommended without explaining why the existing Department of Defence R&D and the Department of Defence Production are not adequate to promote and manage a larger involvement of MSMEs, Indian corporates and foreign companies. The committee restricts DRDO's role to carrying out frontier research of relevance to futuristic goals in defence application, displaying a lack of comprehension of what it takes to navigate the waters of research, development and production of defence systems.

It is not our case that Indian industry cannot be entrusted with this entire chain of responsibilities. Many big and medium-scale industries are already engaged successfully in these activities for over three decades, with the full support of DRDO. There is certainly a strong case for the Indian industry to take up full responsibility for the development and production of select projects, based on objective assessment of capabilities. That is the way to go in the long run. How does one determine that we have arrived there already, without analysis of evidence and realistic planning? To exclude the DRDO and its decades of experience in defence systems development is to commit hara-kiri with national security.

It is also not understandable how one can consider redesigning the "defence technology ecosystem" without due attention to the issues concerning forward planning and requirements formulation in weapons and systems acquisition by the Services, budgetary allocations on a long-term basis, role and utilisation of existing defence production infrastructure, and many other issues. And how would the new system interface and interact with the Defence Acquisition Board under the Raksha Mantri and the Defence Procurement Policy, evolved through painstaking efforts over the last 20 years?

Regrettably, the recommendations of the committee on reconfiguring a scientific institution like the DRDO into 10 national laboratories, and other such statements, disclose a strong preference to pre-determined ideas, with little inclination to analyse the root causes of what keeps India in the top

place in the global arms importers list for over a decade now. We hope earnestly that the government will decide the course of action keeping in mind the moral of the wise fable about the goose that lays golden eggs.

*(Dr Narayanan was formerly Director, Aeronautical Development Establishment, and Chief Adviser, DRDO; Dr Aatre was formerly Scientific Adviser to the Defence Minister and Secretary, Department of Defence R&D)*

<https://www.deccanherald.com/opinion/before-redesigning-drdo-learn-fully-about-it-3003915>

## Defence News

## Defence Strategic: National/International



**Press Information Bureau**  
Government of India

**Ministry of Defence**

*Wed, 01 May 2024*

### **Vice Admiral Krishna Swaminathan, AVSM, VSM Assumes Charge as Vice Chief of Naval Staff**

Vice Admiral Krishna Swaminathan, AVSM, VSM assumes charge as Vice Chief of Naval Staff on 01 May 2024. On assuming charge, the Flag Officer paid homage to Bravehearts that made the supreme sacrifice in service of the nation by placing a floral wreath at the National War Memorial.

The Flag Officer was Commissioned into the Indian Navy on 01 Jul 87 and is a specialist in Communication and Electronic Warfare. He is an alumnus of the National Defence Academy, Khadakwasla; the Joint Services Command and Staff College, Shrivenham, United Kingdom; the College of Naval Warfare, Karanja; and the United States Naval War College, Newport, Rhode Island, USA.

A recipient of Ati Vishisht Seva Medal and Vishisht Seva Medal, the Admiral has held several key operational, staff and training appointments in his naval career including the Command of missile vessels INS Vidyut and INS Vinash; the missile corvette INS Kulish; the guided missile destroyer INS Mysore and the aircraft carrier INS Vikramaditya.

On promotion to the rank of Rear Admiral, he served as the Chief Staff Officer (Training) at Headquarters, Southern Naval Command, Kochi and played a key role on the conduct of training across the Indian Navy. He was also instrumental in raising the Indian Naval Safety Team that oversees operational safety across all verticals of the Navy. He then went on to head the Work-Up Organisation of the Navy as the Flag Officer Sea Training after which he was privileged to be appointed as the Flag Officer Commanding, Western Fleet. After commanding the Sword Arm, he

was appointed as the Flag Officer Offshore Defence Advisory Group and Advisor, Offshore Security and Defence to the Government of India.

On promotion to the rank of Vice Admiral, the Flag Officer was Chief of Staff of the Western Naval Command and Controller of Personnel Services at NHQ. Prior to his current assignment as Vice Chief of the Naval Staff, he served as Chief of Personnel at NHQ.

VAdm Swaminathan's educational qualifications include a BSc degree from Jawaharlal Nehru University, New Delhi; MSc in Telecommunications from Cochin University of Science and Technology, Kochi; MA in Defence Studies from King's College, London; MPhil in Strategic Studies from Mumbai University; and PhD in International Studies from Mumbai University.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2019267>



**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Wed, 01 May 2024*

## **Air Marshal Nagesh Kapoor Takes over as Aoc-in-C Training Command**

Air Marshal Nagesh Kapoor assumed the appointment of Air Officer Commanding-in-Chief (AOC-in-C) Training Command (TC) on 01 May 2024.

Air Marshal N Kapoor was commissioned into the Fighter stream of the Indian Air Force on 06 December 1986. He is an alumnus of the National Defence Academy, Defence Services Staff College and National Defence College. A Qualified Flying Instructor and a Fighter Combat Leader, he has more than 3400 hours of flying experience.

During his illustrious career, the Air Marshal has held numerous field and staff appointments. His operational tenures include being the Commanding Officer of a fighter squadron in the Central Sector, Station Commander of a flying base in the Western Sector and Air Officer Commanding of a premier air base. He has done instructional tenures as Chief Instructor (Flying) at Air Force Academy and Directing Staff at the prestigious Defence Services Staff College, Wellington. During his tenure at Air Force Academy, the Air Officer was instrumental in the induction and operationalisation of PC-7 MK II aircraft in the IAF. He has also undertaken a diplomatic assignment as Defence Attaché, Pakistan. His staff appointments include Assistant Chief of Air Staff Operations (Strategy) at Air HQ, Air Defence Commander at South Western Air Command and Senior Air Staff Officer at HQ Central Air Command. Before assuming the present appointment, he served as the Air Officer-in-Charge Personnel at Air HQ.

In recognition of his meritorious service, the Air Marshal was awarded with Vayu Sena Medal in 2008 and Ati Vishisht Seva Medal in 2022.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2019284>

## Chief of Defence Staff Gen Chauhan Participates in US Indo-Pacific Command Meeting

India's senior-most military official, Chief of Defence Staff, Gen Anil Chauhan, recently interacted with senior military leaders of 27 countries during the meeting of Chiefs of Defence hosted by US Indo-Pacific Command virtually.

The discussions were held on strengthening military-to-military relationships, common security issues and opportunities to foster cooperation in the Indo-Pacific, in addition to reviewing the progress of agreed-upon objectives, according to Defence officials.

The meeting by Admiral John C Aquilino, US Commander of Indo-Pacific Command hosted the virtual Chiefs of Defence meeting at the USINDOPACOM headquarters in Hawaii to strengthen military-to-military relationships, discuss common security issues and foster regional cooperation on April 29, according to an official release of US-Indo Pacific Command.

During the meeting, Aquilino discussed the importance of deepening security cooperation opportunities and security challenges within the Indo-Pacific region with an emphasis that USINDOPACOM will continue to work closely with Allies and partners to ensure a free, open, and prosperous Indo-Pacific, the statement read.

USINDOPACOM hosts virtual CHOD meetings quarterly to provide a forum for open dialogue between military leaders and to discuss the regional security environment.

The next in-person CHOD conference will be in September 2024, he said.

At the meeting, Aquilino also introduced Adm. Samuel Paparo, who will become the USINDOPACOM commander upon completion of a change of command ceremony on May 3 this year.

<https://theprint.in/world/chief-of-defence-staff-gen-chauhan-participates-in-us-indo-pacific-command-meeting/2064967/>



## With INS Beas, Navy Begins Converting Steam-powered Warships to Diesel

The Navy has begun the process of converting the propulsion systems of its warships from steam to diesel in a major upgrade aimed at significantly enhancing their life, maintenance support and capability, The Indian Express has learnt.

Officials aware of the development said the conversion of the propulsion system of INS Beas — a Brahmaputra-class frigate — began in early April. The work is being carried out in collaboration with the government-owned Cochin Shipyard Ltd. The move from the older generation steam to diesel propulsion is being carried out along with several other equipment and system upgrades. The complete midlife upgrade programme is expected to take around two years. Top officials told The

Indian Express that once successful, there are plans to convert the remaining ships of the Brahmaputra class — INS Brahmaputra and INS Betwa — from steam to diesel propulsion.

Besides these ships, the INS Vikramaditya and the INS Jalashwa are the only other platforms of the Navy that are powered by steam.

Officials said the move will significantly enhance the life and capability of the warships. INS Beas for instance, which would have otherwise been de-inducted in around 10 to 12 years, is expected to remain in active service for more than 20 years once it is converted to diesel propulsion.

An official explained that several issues crop up in ships with steam propulsion, more so as they age. “There are issues such as steam leaks and high temperatures in the boiler and engine rooms of these ships which contribute to uncomfortable working conditions for the crew,” the official said.

Moreover, it is learnt, the steam propulsion system has several auxiliary equipment and systems associated with it, making it more cumbersome and maintenance-intensive. Ships powered by diesel, on the other hand, are easier to maintain.

Over the centuries, propulsion systems have evolved from wind to steam, gas turbines, diesel, nuclear and electricity. The Indian Navy is among the few in the world to have ships and submarines powered by steam, diesel, nuclear as well as electric. A majority of the Indian Navy’s 150 ships and submarines are powered by diesel engines or gas turbines, or a combination of both. India has one indigenous nuclear-powered ballistic missile submarine, INS Arihant.

INS Anvesh — a technology demonstration vessel developed by the Defence Research and Development Organisation (DRDO) for R&D purposes — is powered by electricity.

As per officials, INS Beas will likely be powered by a Caterpillar marine diesel engine with 6-MW power.

For the subsequent ships, a ‘request for proposal’ for bids will be floated in the next few months.

It is likely that with the indigenous building of the marine diesel engine under the Make-I category — learnt to have been taken up by Kirloskar Oil Engines Ltd and Garden Reach Shipbuilders and Engineers Ltd (GRSE) — the two other ships of the Brahmaputra class would be the first ones with indigenous diesel engines.

Projects under Make-I involve government funding of indigenous defence projects released to the vendor by the Defence Ministry in a phased manner based on the progress of the scheme.

Sources also said that upon successful development of this diesel engine, orders for 30 diesel engines would be placed and next-generation corvettes, among others, would be fitted with these.

<https://indianexpress.com/article/india/with-ins-beas-navy-begins-converting-steam-powered-warships-to-diesel-9302228/>

THE HINDU  
**BusinessLine**

*Wed, 01 May 2024*

## **Defence Startups Need Low-cost Finance, Mentoring, Support from Big Players: Defence Secretary**

Defence Secretary Giridhar Aramane said that the startups working in the Defence space require low-cost financial support and mentoring. The Government, which has begun large-scale



indigenisation of defence products and technologies, is encouraging the startups by ensuring smooth facilitation of procurement.

“The cost of capital has to be reduced for the startups,” he said.

Asking the Defence startups to focus on quality, he said the look and feel of the final products were also very important in the procurement process. He wanted big corporates to support startups.

Addressing the maiden Defence and Aerospace Innovation Summit (DAIS 2024) here on Wednesday, he said a lot of emphasis had been given by the Government in the last few years to promote the local design and manufacturing of both top-end products such as tanks and small components.

“In 2021, the Prime Minister said that the Defence procurement will primarily done locally. Any exception has to be approved by the Defence Ministry,” he said.

The second important thing which is then is that we have ensured that the procurement process itself was speeded up and was delegated to various levels.

“More than 100 contacts have been signed in a period of six to eight months and many supplies have taken place. Last year we concluded more than 80 contracts,” he said.

“We are also ensuring that orders take place soon after the design and development are completed. We are ensuring that whoever designs and develops in the country is rewarded adequately,” he said.

The emphasis was also on promoting the development of critical technologies within the country if they are already available. “If they are not available. They have to be developed and manufactured in India,” he said.

Citing the example of how one batch of poor-quality ammunition caused the death of many soldiers a few years ago, he said quality control is given top importance in all Defence-related manufacturing processes.

### **T-Hub-SIDBI fund**

Meanwhile, startup ecosystem enabler T-Hub has signed an agreement with SIDBI (Small Industries Development Bank of India) to launch a funding programme to promote the domestic defense and aerospace sector. It launched an exclusive Defence vertical to focus on nurturing startups in the sector.

The initiative will foster collaboration and promote innovation in the defence and aerospace sectors.

T-Hub also signed agreements with KAVACHH, the International Institute For Space Studies & Research (IISSR), the Directorate of Defence Research & Development- Israel, Bharat Dynamics Limited (BDL), Collins Aerospace, the College of Defence Management and the Indian School of Business.

“These collaborations will facilitate knowledge exchange, expedite technological progress, and cultivate a vibrant ecosystem for innovation within the defense and aerospace sectors,” T-Hub Chief Executive Officer M Srivas Rao said.

<https://www.thehindubusinessline.com/companies/defence-startups-need-low-cost-finance-mentoring-support-from-big-players-defence-secretary/article68128822.ece>

# Business Standard

Wed, 01 May 2024

## India, Israel Conduct Security Drill to Counter Potential Future Threats

The Israeli embassy said on Wednesday that it collaborated with Indian security forces in conducting a joint security drill with an objective to counter potential future security threats.

The drill was conducted in Delhi last week.

The exercise witnessed the involvement of various agencies, including the Delhi Police, the National Security Guard and local emergency services, the embassy said.

Israeli envoy Naor Gilon said the joint security drill marked a significant milestone.

"This joint security drill with Indian security forces marks a significant milestone. We extend our gratitude for their efforts," he said. "These collaborative exercises strengthen our nations' cooperation in security and defence and reinforce our shared commitment to global stability. We remain steadfast in our determination to foster continued collaboration for a safer world," Gilon added.

The embassy said the primary objective of the drill was to assess and synchronise the readiness of the security forces to counter potential future threats effectively.

"Over day and night sessions held at the Israeli embassy in New Delhi, participants practised response strategies to potential terrorist incidents," it said.

"Elite units from the participating agencies were activated in simulated scenarios, while the Delhi Traffic Police managed traffic control in the vicinity," it said.

"The exercise served as a platform for both Israeli and Indian forces to refine their coordination, communication and operational procedures, thereby strengthening their joint efforts against terrorism," the embassy said in a statement.

[https://www.business-standard.com/external-affairs-defence-security/news/india-israel-conduct-security-drill-to-counter-potential-future-threats-124050100881\\_1.html](https://www.business-standard.com/external-affairs-defence-security/news/india-israel-conduct-security-drill-to-counter-potential-future-threats-124050100881_1.html)



Wed, 01 May 2024

## Indonesian Defence Establishment could Benefit from India's Experience and Successes: Indian Envoy

"We are aware that Indonesia is also keen to build its own defence industry. We are keen to share our experiences in this endeavour," said Sandeep Chakravorty, Indian envoy in Indonesia addressing the first-ever "India-Indonesia defence industry exhibition-cum-seminar" organised in Jakarta as the two countries mark the 75th year of establishment of diplomatic ties.

This also comes as India looks to expand its defence exports with particular focus on Southeast Asia. The exhibition saw the participation of 36 Indian companies, 12 Defence Public Sector Undertakings (DPSU) and 24 private companies. "The Indian defence industry is today thriving under the clarion call of 'Make in India – Make for the World' initiative. The performance and

order books of Indian defence companies are at an all-time high. Indian defence companies have achieved record exports of \$2.63 billion in the last financial year and India is poised to become one of the leading defence exporters by 2030,” Mr. Chakravorty said at the event on April 30.

My firm belief is that Indonesian defence establishment could benefit from the experience and successes of their maritime neighbour, he said, adding, “It is this experience that we want to share with you today and partner with you for long-term collaborations in defence sector.”

Shedding light on the evolution of Indian military modernisation, huge dependency on imported weapon systems and the constraints of acquisitions without a domestic manufacturing base, Mr. Chakravorty said, “This has created many challenges in maintaining equipment, life cycle support, upgrades and as just mentioned – the cost.”

Such a dispersed range and scale of military hardware required different training and maintenance protocols, different operating philosophies, non-availability of spares due to geo-political developments and in general - huge stress in keeping the military running, he stated noting the diverse origin of procurements. “There were also challenges posed by export controls and end-use requirements. On occasions equipment and spares when needed were not available.”

Noting that India has one of the largest ecosystem of start-ups with a growing number of them now venturing into the “deep tech” and defence sectors, the envoy highlighted the Defence Ministry’s Innovations for Defence Excellence (iDEX) initiative, an effort to nurture start-ups in defence.

Recently, Philippines took delivery of the first batch of BrahMos supersonic cruise missiles becoming the first export customer for the missile system while Indonesia and Thailand have also expressed interest and held discussions over it. Indonesia has also expressed interest in the Light Combat Aircraft among others. During the visit of Prime Minister Narendra Modi to Jakarta in May 2018, the two countries had elevated their ties to “Comprehensive Strategic Partnership”. Both countries also agreed on the “shared vision of India-Indonesia maritime cooperation in the Indo-Pacific”. “Thus they share a similar vision for a free, open, and inclusive Indo-Pacific region which respects ASEAN [Association of South East Asian Nations] centrality. A collaborative approach to defence development is poised to strengthen their collective maritime security posture,” a statement issued by the Indian Embassy said.

In May, Indian and Indonesian navies are scheduled to conduct the 42nd India-Indonesia Coordinated Patrol (IND-INDO CORPAT). Military exercise “Garuda Shakti” and Navy exercise “Samudra Shakti” are planned to take place towards the end of 2024, the statement noted.

As part of expanding military-to-military engagements, an Indian Navy Kilo-class conventional submarine, INS Sindhukesari, docked in Jakarta for the first time in February 2023 for operational turnaround.

<https://www.thehindu.com/news/national/indonesian-defence-establishment-could-benefit-from-indias-experience-and-successes-indian-envoy/article68128992.ece>

# The Tribune

*Thu, 02 May 2024*

## **Fujian in Tow, China Flexes Maritime Muscle**

China today announced the sea trials of its next-generation aircraft carrier Fujian. This is China’s third aircraft carrier and the first equipped with electromagnetic catapults.

US aircraft carriers use the technology of electromagnetic catapults to launch fighter jets from deck.

China's two other carriers — Liaoning and Shandong — have ski-jump take-off and use the technique called the short take-off but arrested recovery (STOBAR), the same used by Indian carriers INS Vikramaditya and INS Vikrant.

A catapult launch allows jets to carry heavier payload and reduce the time between the launch of two jets.

Fujian will undertake week-long sea trials in East China Sea. The 80,000 tonne warship is as big as anything the US makes and bigger than carriers made by the UK, France, India and Japan.

“The aircraft carrier Fujian set sail for its first test voyage from a pier at Jiangnan Shipyard in Shanghai on Wednesday morning,” the Chinese Communist Party-owned Xinhua News Agency reported.

China's maritime safety administration had on Tuesday issued two navigation restriction notices — one stating that a large ship will exit the estuary of the Yangtze river on Wednesday and the other stating that military activities will be commenced in an area in East China Sea from May 1 to May 9.

The sea trials focus on the reliability and stability of the Fujian's propulsion and power. In the coming months, the carrier will conduct several sessions of sea trials and test more complicated operational components, including electromagnetic compatibility, weapons systems as well as take-offs and landing of aircraft on its deck.

Fujian is expected to host not only improved versions of the J-15 fighter jet, but also new aircraft, including the next-generation stealth fighter jet J-35, the fixed-wing early warning aircraft KJ-600 and the JL-10 advanced trainer jet.

A US Department of Defense report, “Military and Security Developments Involving the People's Republic of China-2023”, says Fujian will have greater endurance and will increase the striking power of a potential PLAN (PLA-Navy) carrier battle group when deployed to areas beyond China's immediate periphery”.

The Indian Navy's plan for a third carrier has, so far, not been okayed by the government.

<https://www.tribuneindia.com/news/india/fujian-in-tow-china-flexes-maritime-muscle-616800>



*Wed, 01 May 2024*

## **South Korea Considers Joining Alliance for Sharing Military Technology with Australia, U.S. and U.K.**

South Korea is considering sharing advanced military technology with the United States, the United Kingdom and Australia through the so-called AUKUS partnership, South Korean Defence Minister Shin Won-sik said.

Mr. Shin said the possibility was discussed during two days of meetings between South Korea and Australia's Defence and Foreign Ministers that ended in the Australian city of Melbourne on Wednesday.

The United States and the United Kingdom agreed in 2021 to provide Australia with a fleet of submarines powered by U.S. nuclear technology under the AUKUS agreement to counter a growing military presence from China. AUKUS is an acronym for Australia, the United Kingdom and the United States.

The countries could become involved in cooperation on a wider range of security technologies including artificial intelligence, electronic warfare and hypersonic systems through what is known as AUKUS Pillar 2.

Mr. Shin welcomed South Korea's invitation from the three AUKUS partners.

"We do welcome that AUKUS members are considering Korea as an AUKUS Pillar 2 partner and Korea's defense science and technology capabilities will contribute to the peace and stability of the development of AUKUS Pillar 2 and regional peace," Shin said through a translator.

Japan is also moving toward formal talks to become part of AUKUS Pillar 2's technology development and sharing.

Australian Defense Minister Richard Marles welcomed South Korean efforts to build on its relationship with Japan, which along with Australia, the United States and India form a security dialogue known as the Quad.

"We see this is a very, very positive step forward in the strategic landscape of the region and represents a huge opportunity for Australia to engage with both Korea and Japan," Mr. Marles told reporters.

"Korea and Australia are working together to uphold the rules-based order within our region and, in fact, within the world," Mr. Marles added.

<https://www.thehindu.com/news/international/south-korea-considers-joining-alliance-for-sharing-military-technology-with-australia-us-and-uk/article68127831.ece>

## Science & Technology News



*Thu, 02 May 2024*

### **ISRO Study Confirms Water Ice Possibility in Moon's Polar Craters**

The Indian Space Research Organisation (ISRO), in another study, has enhanced the possibility of water ice in the polar craters of the Moon. Data revealed that the amount of subsurface ice in the first couple of metres is about 5 to 8 times larger than the one at the surface in both poles (North and South). This crucial information will aid drilling on the Moon to sample or excavate that ice on future missions, and the long-term presence of humans. Not only this, based on the depth of the water ice, it can help select future landing and sampling sites for Moon missions.

The study, on the 'Reachability and Genesis of Water Ice on the Moon' is being carried out by scientists of the Space Applications Centre (SAC) from ISRO, in collaboration with researchers at



IIT Kanpur, University of Southern California, Jet Propulsion Laboratory, and IIT (ISM) Dhanbad. It was published in the journal International Society for Photogrammetry and Remote Sensing.

The study also revealed that the extent of water ice in the northern polar region is twice that in the southern polar region. Confirming the hypothesis made during the Chandrayaan mission in 2008, the primary source of subsurface water ice was suspected to be in the lunar poles. This result was found by utilizing polarimetric radar data from the Chandrayaan-2 Dual-frequency Synthetic Aperture Radar instrument.

Another interesting point made by the study is that water in the craters was “outgassed during volcanism in the Imbrian period”. On the lunar geologic timescale, the Imbrian period was 3.85 to 3.80 billion years ago, during which intense volcanic activity took place. “The results also conclude that distribution of water ice is likely governed by Mare volcanism (intense bombarding by asteroid-sized bodies) and preferential impact cratering,” noted ISRO’s study.

The space agency said this will help with future in-situ volatile exploration plans on the Moon. The researchers used seven instruments, comprising a radar, laser, optical, neutron spectrometer, ultraviolet spectrometer, and thermal radiometer on board the Lunar Reconnaissance Orbiter to understand the origin and distribution of water ice on the Moon.

<https://www.newindianexpress.com/states/karnataka/2024/May/02/isro-study-confirms-water-ice-possibility-in-moons-polar-craters>

