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पत्र सूचना कार्यालय  
भारत सरकार

रक्षा मंत्रालय

Wed, 17 Apr 2024

### भारतीय नौसेना के लिए डीआरडीओ द्वारा स्थापित सोनार प्रणालियों के लिए एक प्रमुख परीक्षण और मूल्यांकन केंद्र-स्पेस का केरल में उद्घाटन किया गया

रक्षा विभाग (आरएंडडी) के सचिव और डीआरडीओ के अध्यक्ष डॉ. समीर वी कामत ने आज केरल में इडुक्की के कुलमावु में अंडरवाटर एकोस्टिकरिसर्च फेसिलिटी में ध्वनिक विशेषता एवं मूल्यांकन के लिए एक अत्याधुनिक सबमर्सिबल प्लेटफॉर्म (स्पेस) का उद्घाटन किया। डीआरडीओ की नौसेना भौतिक और महासागरीय प्रयोगशाला द्वारा स्थापित स्पेस को जहाजों, पनडुब्बियों और हेलीकॉप्टरों सहित विभिन्न प्लेटफॉर्मों पर भारतीय नौसेना के लिए निर्धारित सोनार प्रणालियों के लिए एक प्रमुख परीक्षण और मूल्यांकन केंद्र के रूप में डिजाइन किया गया है।

स्पेस नौसेना प्रौद्योगिकी प्रगति में एक महत्वपूर्ण उपलब्धि है। इसमें दो अलग-अलग संयोजन शामिल होंगे- एक प्लेटफॉर्म जो पानी की सतह पर तैरता है, और एक सबमर्सिबल प्लेटफॉर्म जिसे विंच सिस्टम का उपयोग करके 100 मीटर तक किसी भी गहराई तक उतारा जा सकता है। परिचालन पूरा होने पर, सबमर्सिबल प्लेटफॉर्म को विंच किया जा सकता है और फ्लोटिंग प्लेटफॉर्म के साथ डॉक किया जा सकता है। स्पेस का उपयोग मुख्य रूप से संपूर्ण सोनार प्रणाली के मूल्यांकन के लिए किया जाएगा, जिससे सेंसर और ट्रांसड्यूसर जैसे वैज्ञानिक पैकेजों की त्वरित तैनाती और आसान रिकवरी उपलब्ध होगी। यह आधुनिक वैज्ञानिक उपकरणों का उपयोग करके वायु, सतह, मध्य जल और जलाशय तल मापदंडों के सर्वेक्षण, नमूनाकरण और डेटा संग्रह के लिए उपयुक्त होगा। यह आधुनिक और अच्छी तरह से सुसज्जित वैज्ञानिक प्रयोगशालाओं में डेटा प्रोसेसिंग और नमूना विश्लेषण की जरूरतों को पूरा करने के साथ-साथ पनडुब्बी रोधी युद्ध अनुसंधान क्षमताओं के एक नए युग की भी शुरुआत करेगा।

<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2018136>



Press Information Bureau  
Government of India

Ministry of Defence

Wed, 17 Apr 2024

### SPACE, a Premier Testing & Evaluation Hub for Sonar Systems for Indian Navy, Set up by DRDO, Inaugurated in Kerala

A state-of-the-art Submersible Platform for Acoustic Characterisation and Evaluation (SPACE) was inaugurated by Secretary, Department of Defence (R&D) and Chairman DRDO Dr Samir V Kamat at Underwater Acoustic Research Facility, Kulamavu in Idukki, Kerala on April 17, 2024. The

SPACE, set up by the Naval Physical & Oceanographic Laboratory of DRDO, has been designed as a premier testing and evaluation hub for sonar systems destined for Indian Navy onboard various platforms including ships, submarines and helicopters.

The SPACE marks a milestone in naval technology advancement. It will consist of two distinct assemblages - a platform which floats on the water surface, and a submersible platform which can be lowered to any depth upto 100 m using winch systems. Upon completion of operations, the submersible platform can be winched up and docked with the floating platform.

The SPACE will mainly be utilised for evaluation of complete sonar system, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers. It will be suitable for survey, sampling, and data collection of air, surface, mid-water, and reservoir floor parameters using modern scientific instrumentation. It will cater to the needs of data processing and sample analyses in modern, well equipped scientific laboratories heralding a new era of Anti-Submarine Warfare research capabilities.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2018127>



*Wed, 17 Apr 2024*

## **DRDO Chairman Samir Kamat Inaugurates Indian Navy's 'SPACE' in Kerala**

A state-of-the-art Submersible Platform for Acoustic Characterization and Evaluation (SPACE) was inaugurated at Kerala's Idukki on Wednesday.

Samir V Kamat, Secretary, Department of Defence--Research and Development (R&D)--and Chairman, DRDO, inaugurated the platform at Underwater Acoustic Research Facility in Kulamavu in Idukki, a Defence Ministry release said.

According to the release, SPACE, set up by the Naval Physical & Oceanographic Laboratory of DRDO, has been designed as a premier testing and evaluation hub for sonar systems destined for Indian Navy onboard various platforms, including ships, submarines and helicopters.

The SPACE marks a milestone in naval technology advancement. It will consist of two distinct assemblages- a platform that floats on the water surface, and a submersible platform that can be lowered to any depth up to 100 m using winch systems. Upon completion of operations, the submersible platform can be winched up and docked with the floating platform, the release mentioned. The release stated that SPACE will mainly be utilised for the evaluation of complete sonar systems, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers. It will be suitable for survey, sampling, and data collection of air, surface, mid-water, and reservoir floor parameters using modern scientific instrumentation. It will cater to the needs of data processing and sample analyses in modern, well equipped scientific laboratories, heralding a new era of Anti-Submarine Warfare research capabilities, it added.

<https://www.aninews.in/news/national/general-news/drdo-chairman-samir-kamat-inaugurates-indian-navys-space-in-kerala20240417184504/>



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

**Ministry of Defence**

*Tue, 16 Apr 2024*

## **1st International Workshop on ‘Emerging Technologies & Challenges for Exoskeleton’ Organised by DRDO in Bengaluru**

The first international workshop on ‘Emerging Technologies & Challenges for Exoskeleton’ is being held in Bengaluru on April 16-17, 2024. The workshop, which has been organised by the Defence Bio-Engineering & Electromedical Laboratory of Defence Research & Development Organisation (DRDO), was inaugurated by Secretary, Department of Defence R&D & Chairman DRDO Dr Samir V Kamat, in the presence of Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC) Lt Gen JP Mathew.

In his keynote address, the DRDO Chairman emphasised the importance of the transformational exoskeleton technology and its immense applications in military & civilian environments. He urged the diverse stakeholders including the R&D community, the Armed Forces, industry, and academia to work together to address the challenges and chalk out the roadmap for the future of Exoskeletons. Speaking on the occasion, the CISC traced back the history of exoskeleton research, its earlier prototypes, and challenges. His address traversed through the challenges which are being currently addressed by the R&D Community. He underscored the significance of exoskeleton technologies in rehabilitation, occupational therapy, and augmentation. He also brought out that the exoskeleton technology being a dual use technology has tremendous commercial potential.

Informative in-depth technical talks were delivered by Prof Robert Reiner of ETH, Zurich and Prof Arun Jayaraman of Northwestern University, Chicago, Illinois. Director General (Life Sciences) Dr UK Singh spoke about the imminent challenges and requirements from the Armed Forces. He urged the community of researchers to collectively address the challenges in their endeavour for future exoskeleton technologies to meet the requirements of all stakeholders.

The two-day workshop is being attended by more than 300 participants from DRDO, Services, Industry, Academia, and Researchers. Exoskeleton technology involves wearable structures which enhance the capabilities of the human body.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2018073>

## **अमर उजाला**

*Wed, 17 Apr 2024*

### **DRDO: बंगलूरु में बोले डीआरडीओ अध्यक्ष, एक्सोस्केलेटन तकनीक में चुनौतियों के समाधान के लिए मिलकर करना होगा काम**

डीआरडीओ अध्यक्ष ने समीर वी कामत ने मंगलवार को हितधारकों से एक्सोस्केलेटन तकनीक में चुनौतियों का समाधान करने के लिए मिलकर काम करने का आग्रह किया। उन्होंने अनुसंधान और विकास समुदाय, सशस्त्र बलों, उद्योग और शिक्षा जगत से कहा कि ऐसा करने से प्रौद्योगिकी के लिए एक रोडमैप तैयार करने में भी आसानी होगी।

## बंगलुरु में बोले डीआरडीओ अध्यक्ष

दरअसल, बंगलुरु में 16 से 17 अप्रैल तक पहली अंतर्राष्ट्रीय कार्यशाला आयोजित की जा रही है। इसका 'उभरती प्रौद्योगिकियों और एक्सोस्केलेटन के लिए चुनौतियां' खास विषय है, जिसपर खूब चर्चा हो रही है। यह कार्यशाला, रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की रक्षा जैव-इंजीनियरिंग और इलेक्ट्रोमेडिकल प्रयोगशाला द्वारा आयोजित की गई। इसका उद्घाटन रक्षा अनुसंधान एवं विकास विभाग के सचिव और डीआरडीओ के अध्यक्ष ने चीफ ऑफ इंटीग्रेटेड डिफेंस स्टाफ के अध्यक्ष चीफ ऑफ स्टाफ कमेटी (सीआईएससी) लेफ्टिनेंट जनरल जेपी मैथ्यू की उपस्थिति में किया।

रक्षा मंत्रालय के बयानों के अनुसार अपने मुख्य भाषण में, डीआरडीओ अध्यक्ष ने परिवर्तनकारी एक्सोस्केलेटन प्रौद्योगिकी के महत्व और सैन्य और नागरिक वातावरण में इसके व्यापक अनुप्रयोगों पर जोर दिया। उन्होंने अनुसंधान और विकास (आरएंडडी) समुदाय, सशस्त्र बलों, उद्योग और शिक्षाविदों सहित हितधारकों से चुनौतियों का समाधान करने और एक्सोस्केलेटन के भविष्य के लिए एक रोडमैप तैयार करने के लिए मिलकर काम करने का आग्रह किया।

### लेफ्टिनेंट जनरल मैथ्यू ने प्रोटोटाइप और चुनौतियों का पता लगाया

लेफ्टिनेंट जनरल मैथ्यू ने एक्सोस्केलेटन अनुसंधान के इतिहास, इसके पहले के प्रोटोटाइप और चुनौतियों का पता लगाया। अपने संबोधन में, उन्होंने उन चुनौतियों का जिक्र किया जिनका वर्तमान में अनुसंधान एवं विकास समुदाय द्वारा समाधान किया जा रहा है।

लेफ्टिनेंट मैथ्यू ने पुनर्वास, व्यावसायिक चिकित्सा और संवर्धन में एक्सोस्केलेटन प्रौद्योगिकियों के महत्व को रेखांकित किया। उन्होंने इस बात पर भी जोर दिया कि एक्सोस्केलेटन तकनीक में जबरदस्त व्यावसायिक क्षमता है। जारी बयानों के अनुसार, ईटीएच, ज्यूरिख के प्रोफेसर रॉबर्ट रेनर और नॉर्थवेस्टर्न यूनिवर्सिटी, शिकागो, इलिनोइस के प्रोफेसर अरुण जयारमन द्वारा जानकारीपूर्ण गहन तकनीकी व्याख्यान दिए गए।

<https://www.amarujala.com/india-news/drdo-chairman-in-bengaluru-urges-stakeholders-work-together-address-challenges-in-exoskeleton-tech-2024-04-17>

**THEWEEK**

Wed, 17 Apr 2024

## **DRDO Chairman Urges Stakeholders to Work together to Address Challenges in Exoskeleton Tech**

DRDO chairman Samir V Kamat on Tuesday urged the research and development community, the armed forces, industry and academia to work together to address the challenges involved in developing 'exoskeletons' and chalk out a roadmap for the technology.

Exoskeleton technology involves wearable structures which enhance the capabilities of the human body, the defence ministry said in a statement.

The first international workshop on 'Emerging Technologies and Challenges for Exoskeleton' is being held in Bengaluru from April 16 to 17.

The workshop, organised by the Defence Bio-Engineering and Electromedical Laboratory of Defence Research and Development Organisation (DRDO), was inaugurated by Secretary, Department of Defence R&D and DRDO chairman in the presence of Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC) Lt Gen JP Mathew, it said.

In his keynote address, the DRDO chairman emphasised the importance of the transformational exoskeleton technology and its immense applications in military and civilian environments.

He urged the stakeholders, including the research and development (R&D) community, the armed forces, industry and academia, to work together to address the challenges and chalk out a roadmap for the future of exoskeletons, the statement said.

Lt Gen Mathew traced back the history of exoskeleton research, its earlier prototypes and challenges. In his address, he traversed through the challenges which are being currently addressed by the R&D community.

He underscored the significance of exoskeleton technologies in rehabilitation, occupational therapy and augmentation. He also stressed that exoskeleton technology has tremendous commercial potential.

Informative in-depth technical lectures were delivered by Prof Robert Reiner of ETH, Zurich and Prof Arun Jayaraman of Northwestern University, Chicago, Illinois, the statement said.

Director General (Life Sciences) U K Singh, DRDO, spoke about the imminent challenges and requirements from the armed forces. He urged the community of researchers to collectively address the challenges in their endeavour to develop exoskeleton technologies to meet the requirements of all stakeholders.

The two-day workshop is being attended by more than 300 participants from DRDO, services, industry, academia, and researchers.

<https://www.theweek.in/wire-updates/national/2024/04/17/des43-def-drdo-worshop.html>

## अमर उजाला

Wed, 17 Apr 2024

### DRDO: भारत इस साल अस्त्र मार्क-2 मिसाइल का करेगा परीक्षण; युद्ध के दौरान विरोधियों पर भारी पड़ेगी वायुसेना

वायुसेना के लड़ाकू बेड़े की क्षमता को बढ़ाने के मकसद से भारत इस साल अस्त्र मार्क-2 हवा से हवा में मार करने वाली मिसाइल का पहला परीक्षण करेगा। इस मिसाइल की मारक क्षमता 120-130 किलोमीटर बताई जा रही है।

100 किलोमीटर की मारक क्षमता वाली अस्त्र मार्क-1 मिसाइल पहले से ही भारतीय वायु सेना के बेड़े में शामिल है। अस्त्र मार्क-1 एलसीए तेजस और एसयू-30 एमकेआई लड़ाकू विमानों पर तैनात है। एक वरिष्ठ रक्षा अधिकारी ने बताया कि अस्त्र मार्क-2 मिसाइल पर काम चल रहा है। हम जल्द ही इसका पहला परीक्षण करेंगे। उन्होंने कहा कि एस्ट्रा मार्क 2 भारतीय वायु सेना को हवा से हवा में युद्ध के दौरान विरोधियों पर बढ़त देगा।

#### डीआरडीओ अस्त्र मार्क-3 पर भी काम कर रहा

उन्होंने आगे कहा कि रक्षा अनुसंधान और विकास संगठन(डीआरडीओ) अस्त्र मार्क-1 और एस्ट्रा मार्क 2 के साथ-साथ एक लंबे संस्करण अस्त्र मार्क-3 को भी विकसित कर रहा है। उन्होंने कहा कि पाकिस्तान के पास लंबी दूरी की चीनी पीएल-15 हवा से हवा में मार करने वाली मिसाइल है, लेकिन इसकी क्षमताओं के बारे में स्पष्ट जानकारी नहीं है। उन्होंने कहा, रक्षा मंत्रालय ने पहले ही भारतीय वायु सेना और नौसेना के लिए हवा से हवा में मार करने वाली मिसाइलों की आपूर्ति के लिए भारत डायनेमिक्स लिमिटेड (बीडीएल) के साथ एक अनुबंध पर हस्ताक्षर किए हैं।

<https://www.amarujala.com/india-news/drdo-astra-mark-2-missile-test-in-india-this-year-air-force-will-overpower-opponents-during-war-2024-04-17>

## **Defence Ministry to Test Astra Mark 2 Air-to-Air Missiles with 130 Km Strike Range**

In a significant development aimed at bolstering the firepower of the Indian Air Force's fighter aircraft, the Defence Research and Development Organisation (DRDO) is gearing up to conduct the inaugural test of the Astra Mark 2 air-to-air missile. This missile boasts a strike range of 130 km and has the capability to target adversaries beyond visual range.

The Astra series of air-to-air missiles are part of the Astra program, which aims to enhance the aerial combat capabilities of the Indian Armed Forces. The Astra Mark 1 missiles, a predecessor to the Mark 2, have already been successfully inducted into both the Indian Air Force and the Navy.

Senior defence officials informed India Today that work is currently underway on the Astra Mark 2 missiles and the first test for this 130 km strike range missile is scheduled to take place in the coming months. DRDO is focusing on developing a special motor to extend the missile's range. The existing Astra Mark 1 missile has a range of up to 100 kilometres, with potential for further extension. The journey towards developing an indigenous air-to-air missile system began in 2001 when DRDO initiated discussions with various stakeholders. The aim was to design and develop a missile system capable of engaging adversary targets beyond visual range.

Hyderabad's Defence Research and Development Laboratory (DRDL) was subsequently identified as the nodal lab for this project. A dedicated task force was formed to undertake preliminary studies and drive the project forward.

<https://www.indiatoday.in/india/story/defence-ministry-to-test-astra-mark-2-air-to-air-missiles-with-130-km-strike-range-2528041-2024-04-16>

**Defence News**

**Defence Strategic:  
National/International**

**THE TIMES OF INDIA**

*Wed, 17 Apr 2024*

## **India-Uzbekistan Defence Collaboration: General Manoj Pande Inaugurates State-of-the-Art IT Lab**

In a significant step forward in strengthening bilateral ties between India and Uzbekistan, General Manoj Pande, the Chief of the Army Staff, inaugurated a high-tech IT Laboratory at the Uzbek Academy of Armed Forces



The Army Chief is in Uzbekistan on a visit from April 15-18.

This development marks a milestone in the defence cooperation between the two nations, following a commitment made during the Defence Ministers' meeting in September 2018.

The request to establish an IT Lab was initially made during this high-level discussion, and the project gained momentum with approval in 2019, funded through the Ministry of External Affairs' 'c' initiative.

It has been learnt that the bids exceeded the envisaged budget of Rs 6.5 crore. Therefore, a sum of Rs 8.5 crore was allotted for the project. An Indian firm won the contract, made the lab fully operational well in time.

The IT Laboratory is equipped with state-of-the-art technology, including nine rooms which house two lecture halls, a cutting edge Cybersecurity Lab, a Hardware Programming Lab, an Object-Oriented Programming Lab, a Web Programming Lab, a Server Room, a Multimedia Room, and a Virtual Reality Room.

Additional facilities include video conferencing terminals, interactive panels, networking devices, and an assortment of computing equipment comprising large number of high end PCs, workstations and laptops, alongside essential peripherals like printers, cameras, scanners, and storage devices.

This collaborative initiative is not just a leap in technological advancement for Uzbekistan's defence academy but also a bridge reinforcing the expanding partnership between the two nations, promising a future of cooperation in defence and technology.

The establishment of the IT lab is expected to enrich the training resources available to Uzbek armed forces and foster a deeper understanding and cooperation between India and Uzbekistan in the years to come.

<https://timesofindia.indiatimes.com/india/india-uzbekistan-defence-collaboration-general-manoj-pande-inaugurates-state-of-the-art-it-lab/articleshow/109367371.cms>

# The Tribune

Wed, 17 Apr 2024

## India Looks to Buy 6 Mid-Air Refuellers

India is eyeing to get six mid-air refuellers for the Indian Air Force (IAF) from a global supplier. Details of Ministry of Defence's requirements have been shared with the industry. Mid-air refuellers are specialised planes that can refuel fighter jets and helicopters while flying, saving the time they would otherwise take in landing, refuelling it and taking off again.

At present, the Indian Air Force uses the Soviet parentage IL 78 planes to refuel its fleet. These planes are more than 30 years old. The IAF is now looking at American and European options.

The details shared by the IAF with the industry include the vital fact that deal will be under 'Buy Global' category — meaning the refuellers will be sourced from global suppliers. Most of these mid-air refuellers are derivatives of commercial planes produced by Boeing and Airbus.

Boeing's KC-46 Pegasus mid-air refueller for military planes is modelled on its 767 commercial jet. The Airbus Multi Role Tanker Transport is based on its commercial A 330 series plane.

In 2022, Hindustan Aeronautics Limited entered inked a memorandum of understanding with Israel Aerospace Industries to convert civil passenger aircraft into Multi-Mission Tanker Transport aircraft in India.

Hindustan Aeronautics Limited planned to convert pre-owned civil aircraft into mid-air refuelling aircraft with cargo and transport capabilities. On February 16, the Defence Acquisition Council, the apex decision-making body of the Ministry of Defence, cleared the procurement of such planes.

<https://www.tribuneindia.com/news/india/india-looks-to-buy-6-mid-air-refuellers-611457>



*Thu, 18 Apr 2024*

## **India-US Jet Engine Deal is Revolutionary: Defence Secretary**

The India-US deal to jointly produce fighter jet engines for the Indian Air Force is revolutionary, US Defense Secretary Lloyd Austin told lawmakers on Wednesday.

The landmark deal was announced last June during the historic Official State Visit of Prime Minister Narendra Modi to the US. The General Electric signed a memorandum of understanding with Hindustan Aeronautics to make fighter jet engines for the IAF.

Austin told the House Appropriations Subcommittee that the United States has a “great relationship” with India.

“We recently have enabled India to produce a jet weapon, a jet engine in India. And that's kind of revolutionary. That will provide a great capability to them. We are also co-producing an armoured vehicle with India,” he said.

“So, all of these things, when you add them up, are probably more than we have seen happen in that region in a very, very long time,” Austin said.

<https://www.ndtv.com/india-news/defence-secretary-lloyd-austin-says-india-us-jet-engine-deal-is-revolutionary-5466127>



*Tue, 16 Apr 2024*

## **India Took Steps to Modernise its Military and Reduce Dependence on Russian Arms: U.S. Intel Official**

“India in 2023 showcased itself as a global leader as it demonstrated a greater willingness to counter China’s activity throughout the Indo-Pacific region and took steps to modernise its military and reduce its dependency on Russian origin-equipment,” the top U.S. intelligence official has told Congress.

The remarks by Lt. Gen. Jeffrey Kruse, Director of the Defence Intelligence Agency, came during a Congressional hearing on defence intelligence countering China. “During the past year, India has showcased itself as a global leader by hosting the Group of 20 economic summit and demonstrated a greater willingness to counter PRC's (People’s Republic of China) activity throughout the Indo-

Pacific region,” Mr. Kruse told members of the House Armed Services Committee — the subcommittee on intelligence and special operations.

India, he said, has advanced partnerships in the Indo-Pacific with regional South China Sea claimants, such as the Philippines, through training and defence sales and deepening cooperation with the U.S., Australia, France and Japan.

China claims most of the South China Sea as its own, while The Philippines, Vietnam, Malaysia, Brunei and Taiwan have counterclaims over the maritime area.

“In 2023, India took steps to modernise its military to compete with China and reduce its dependency on Russian-origin equipment. India conducted sea trials for its first domestically produced aircraft carrier and also has negotiated with several Western countries on the transfer of key defence technologies,” Mr. Kruse said.

“India has maintained its neutral stance on Russia’s invasion of Ukraine. Russia remains India’s most substantial defence partner and New Delhi continues to acquire weapons from Moscow, such as the S-400 surface-to-air missile system, despite New Delhi’s desire to diversify its defence acquisition partnerships,” Mr. Kruse said.

“In 2024, New Delhi probably will focus on securing its national Parliamentary elections, maintaining economic growth, and building on its ‘Make in India’ initiative as part of its military modernisation effort, which is aimed at countering Beijing,” he told the lawmakers.

Bilateral relations between India and China remain tense following the 2020 Galwan clash that killed 20 Indian soldiers and at least five PLA (People's Liberation Army) soldiers.

“In October 2023, senior Indian and PLA officers failed to resolve disputes about the two remaining standoff locations in eastern Ladakh during their twentieth round of talks. Both sides maintain approximately 50,000-60,000 troops in the area and continue to improve their military infrastructure near the border,” Mr. Kruse told the law-makers.

On Pakistan, Mr. Kruse told law-makers that it has sought international support, including from the UN Security Council, to resolve its dispute with India about Kashmir. Separately, Islamabad and New Delhi have maintained an uneasy ceasefire along the shared Line of Control since February 2021.

“Pakistan has sustained its nuclear modernisation efforts despite its economic turmoil. Terrorist violence against Pakistani security forces and civilians also rose last year,” Mr. Kruse said.

In 2023, militants killed approximately 400 security forces, a nine-year high, and Pakistani security forces have conducted almost daily counterterrorism operations during the past year.

“Pakistan’s contentious relationship with India continues to drive its defence policy. However, cross-border violence between the countries has decreased since their February 2021 recommitment to a ceasefire,” he said.

“Islamabad is modernising its nuclear arsenal and improving the security of its nuclear materials and nuclear C2. In October, Pakistan successfully tested its Ababeel medium-range ballistic missile,” he said.

<https://www.thehindu.com/news/national/india-took-steps-to-modernise-its-military-and-reduce-dependence-on-russian-arms-us-intel-official/article68070743.ece>

## **US Defence Secretary Holds Talks with Chinese Counterpart, First since 2022**

United States Defence Secretary Lloyd Austin and his Chinese counterpart Dong Jun held talks in nearly 18 months and discussed US-China defence relations and regional and global security issues, the Pentagon said.

In the meeting held via videoconference on Tuesday, Austin stressed the importance of keeping military-to-military communication lines between the US and China open, it said.

It is the first time since November 2022 that Austin has held talks with his Chinese counterpart when he spoke with the then defence minister of China Wei Fenghe in Cambodia. Dong was appointed China's Defence minister in December. China then named General Li Shangfu as its defence minister.

In 2018, the US sanctioned Li under the Countering America's Adversaries Through Sanctions Act (CAATSA) when he headed the Equipment Development Department of the Chinese military. The sanctions were related to China's purchase of ten SU-35 combat aircrafts in 2017 and S-400 surface-to-air missile system-related equipment in 2018, according to the State Department, according to a Voice of America report.

Austin and Dong on Tuesday discussed the situations in the South China Sea and around the Taiwan Strait, as well as Russia-Ukraine conflict and North Korea's weapons development program, according to the Pentagon.

Austin "underscored the importance of respect for high seas freedom of navigation guaranteed under international law -- especially in the South China Sea -- and reiterated that the United States will continue to fly, sail and operate safely and responsibly, wherever international law allows," Pentagon Press Secretary Air Force Maj Gen Pat Ryder said during a briefing.

The US secretary reiterated that the US remains committed to its One China Policy, which is guided by the Three Joint Communiques, the Taiwan Relations Act and the Six Assurances.

The video teleconference took place following an agreement between President Joe Biden and his Chinese counterpart Xi Jinping last year in November near San Francisco to reopen direct military-to-military talks at several levels.

In January this year, senior US and Chinese defence officials gathered for two days at the Pentagon to discuss defence relations between the two countries.

Earlier this month, US and Chinese officials held talks aimed at ensuring professional and safe interactions between the two countries' air and naval forces.

High-level military communication channels had been closed since Beijing shut them down to protest the 2022 visit to Taiwan by the then-US House of Representatives Speaker Nancy Pelosi.

China has laid claim on the South China sea while Brunei, Malaysia, the Philippines and Vietnam claim the areas around their coasts.

An international court ruled in 2016 that China's nine-dash line, on which Beijing bases its claim, was without merit.

In his Tuesday meeting with the Chinese defence minister, Austin "underscored the importance of respect for high seas freedom of navigation guaranteed under international law, especially in the South China Sea," the Pentagon said.

Meanwhile, US Treasury Secretary Janet Yellen who was in China recently convened a in Washington a meeting of US-China economic and financial working groups to discuss "balanced growth."

She told the meeting that the two countries have made progress on areas of common interest through their discussions to date, including efforts to ensure financial stability, combat money laundering and deal with climate change.

"Following my trip to China last week, I met with the chairs of the US-China Economic and Financial Working Groups after their fourth meeting. We discussed areas of common interest like combatting money laundering, promoting balanced growth, and protecting financial stability," Yellen posted on X.

<https://economictimes.indiatimes.com/news/defence/us-defence-secretary-holds-talks-with-chinese-counterpart-first-since-2022/articleshow/109366895.cms>

# The Tribune

Wed, 17 Apr 2024

## China Continues to Engage in Biological Warfare Acts: US

China continues to engage in biological activities with potential 'biological warfare' (BW) applications, including possible development of toxins for military purposes, says a report of the US State Department.

The report said: "China had reportedly weaponised ricin, botulinum toxins, and the causative agents of anthrax, cholera, plague and tularemia, as part of its historical biological warfare programme".

The report is created annually on 'Compliance with Arms Control, Non-proliferation, and Disarmament Agreements and Commitments'. The report takes into account the year 2023 and was uploaded on Tuesday. Flagging China's activities, the report said the US does not have sufficient information to determine whether China has fulfilled its obligation to eliminate its historical biological warfare programme.

China became a party to the biological warfare convention (BWC) in 1984, however, it never disclosed that it ever pursued an offensive BW programme, the report said. People Liberation Army, China, research organisations have been conducting and directing military research related to dual-use marine toxins.

Military medical institutions conducted toxin and biotechnology research and development with potential BW applications, the report said, which raises concern regarding the China's compliance with the BWC that requires that states "never in any circumstances to develop, produce, stockpile, or otherwise acquire or retain ...microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective, or other peaceful purposes."

The US assesses that China possessed an offensive BW programme from the early 1950s to at least the late 1980s. There is no available information to demonstrate that the China took steps to destroy all items.

### **US to help 50 nations counter pandemics**

US President Joe Biden's administration will help 50 countries identify and respond to infectious diseases, with the goal of preventing pandemics like the Covid-19 outbreak that suddenly halted normal life around the globe in 2020

US officials will offer support in the countries, most of them located in Africa and Asia, to develop better testing, surveillance, communication and preparedness for such outbreaks

<https://www.tribuneindia.com/news/world/china-continues-to-engage-in-biological-warfare-acts-us-611653>

## **THE TIMES OF INDIA**

*Wed, 17 Apr 2024*

### **Australia's New Defence Strategy with an Eye on China**

#### **New strategy**

Australia on Wednesday unveiled its first National Defence Strategy with a focus on countering China's "coercive tactics" as regional tensions rise.

The 80-page document offers a gloomy assessment of Pacific security and sets out a massive increase in defence spending to retool Australia's military to cope.

#### **Changing priorities**

Defence Minister Richard Marles highlighted the shift from Cold War-era defence planning, emphasising the need for a more targeted military approach.

"The optimistic assumptions that guided defence planning after the end of the Cold War are long gone," said Defence Minister Richard Marles, presenting the new strategy.

Warning that "China has employed coercive tactics in pursuit of its strategic objectives," the text describes an Australia vulnerable to foes strangling trade or preventing access to vital air and sea routes.

#### **High on budget**

Australia plans to increase defence spending by A\$50.3 billion (\$32 billion) over the next decade, part of a larger A\$330 billion budget spanning ten years.

The bulk of the new spending, part of an A\$330 billion decade-long budget, will only kick in after five years, and ultimately take defence spending to 2.4% of GDP by 2034 from just over 2% today.

#### **Key military enhancements**

Over 40% of the new budget, up to A\$145 billion, will be allocated to the navy, focusing on enhancing the surface fleet and advancing the AUKUS nuclear-powered submarine program.

Approximately a fifth of the budget, up to A\$74 billion, will be directed towards missile-related programs, including the development of longer-range missiles, missile defence systems, and domestic manufacturing of guided weapons.

## Regional arms race

The heightened defence spending aligns with a broader Pacific arms race, with countries like China, South Korea, and Japan increasing military investments.

According to the Stockholm International Peace Research Institute, military spending in Asia and Oceania has increased 45% since 2013.

## Meanwhile

China insisted Wednesday that it "poses no threat" to any country after Australia's first National Defence Strategy signalled a new focus on deterring Beijing's "coercive tactics".

<https://timesofindia.indiatimes.com/9-australias-new-defence-strategy-with-an-eye-on-china/articleshow/109380909.cms>

# Science & Technology News

## THE TIMES OF INDIA

*Tue, 16 Apr 2024*

### **ISRO Achieves Breakthrough with Lightweight Carbon-Carbon Rocket Engine Nozzle**

In what it describes as a significant advancement, the Indian Space Research Organisation (Isro) Tuesday said it has successfully developed a lightweight Carbon-Carbon (C-C) nozzle for rocket engines, marking a breakthrough in rocket engine technology.

This innovation, accomplished by the Vikram Sarabhai Space Centre (VSSC), promises to enhance the vital parameters of rocket engines, including thrust levels, specific impulse, and thrust-to-weight ratios, thereby boosting the payload capacity of launch vehicles.

VSSC has leveraged advanced materials like Carbon-Carbon (C-C) Composites to create a nozzle divergent that offers exceptional properties, Isro said. "...Utilising processes such as carbonisation of green composites, chemical vapour infiltration, and high-temperature treatment, VSSC has produced a nozzle with low density, high specific strength, and excellent stiffness, capable of retaining mechanical properties even at elevated temperatures," Isro said.

A key feature of the C-C nozzle is its special anti-oxidation coating of silicon carbide, which extends its operational limits in oxidising environments. This innovation not only reduces thermally induced stresses but also enhances corrosion resistance, allowing for extended operational temperature limits in hostile environments.

The potential impact of this development is significant, particularly for Isro's workhorse launcher, the Polar Satellite Launch Vehicle (PSLV).

The PS4, the fourth stage of the PSLV, currently employs twin engines with nozzles made from Columbian alloy. However, by replacing these metallic divergent nozzles with C-C counterparts, a mass reduction of approximately 67% can be achieved.

This substitution is projected to increase the payload capability of the PSLV by 15kg, a notable enhancement for space missions.

The successful testing of the C-C nozzle divergent marked a major milestone for Isro.

"On March 19, a 60-second hot test was conducted at the High-Altitude Test (HAT) facility in ISRO Propulsion Complex (IPRC), Mahendragiri, confirming the system's performance and hardware integrity. Subsequent tests, including a 200-second hot test on April 2, 2024, further validated the nozzle's capabilities, with temperatures reaching 1216K, matching predictions," Isro added.

The collaborative effort involved the Liquid Propulsion Systems Centre (LPSC) at Valiamala, which designed and configured the test, and IPRC, Mahendragiri, which conducted the instrumentation and execution of the tests at their HAT facility.

<https://timesofindia.indiatimes.com/india/isro-achieves-breakthrough-with-lightweight-carbon-carbon-rocket-engine-nozzle/articleshow/109339599.cms>



*Thu, 18 Apr 2024*

## **ISRO's Moon Missions to Stay on Course till this One Big Objective is Achieved**

In a big revelation, the Indian Space Research Organisation (ISRO) Chief S Somanath revealed how long India's moon missions will continue. He said that the space agency will keep at it till one thing happens - an Indian lands on the lunar surface.

India's moon mission is fully focused on getting an Indian to land on the moon and till then all the relevant data and technological refinements will be carried out. While Chandrayaan-3 was a big step forward and a total success, the next objective is to get Chandrayaan-4 into space on schedule. "Chandrayaan 3 has done very well. Data has been collected and scientific publication has just started," this was revealed by ISRO Chairman S Somanath on Wednesday.

Among the notable achievements so far have been that India has become the first country to land a spacecraft on the south pole of the Moon during the Chandrayaan-3 mission.

"Now, we want to continue the Chandrayaan series till an Indian lands on the Moon. Before that, we have to master many technologies, such as going there and coming back. That we are trying to do in the next mission," Somanath told reporters at an event in Ahmedabad organised by the Astronautical Society of India.

### **Gaganyaan mission**

While the Moon has been taking up a lot of the time and attention of ISRO, other projects too are continuing apace. In this regard, Gaganyaan, India's first-ever human space flight mission, will see ISRO carry out an uncrewed mission, a test vehicle flight mission and an airdrop test this year, Somanath said.

"The airdrop test will happen on April 24. Then two more uncrewed missions will happen next year and then the manned mission, if everything goes well, by the end of next year," he added.

The Gaganyaan project will launch a crew of 3 members to an orbit of 400 km for a 3-day mission and bringing them back safely to Earth. The landing will be in the sea.



### **C-C Nozzle**

Somanath also spent some time explaining an amazing new part developed by ISRO called Carbon-Carbon (C-C) nozzle for the Polar Satellite Launch Vehicle or PSLV rocket engines. The nozzle is expected to enhance the vital parameters of rocket engines, including thrust levels, specific impulse, and thrust-to-weight ratios and thereby improve payload capacity.

“It gives us a weight advantage in comparison to metal and it also allows us to operate at higher temperatures. Reduction in weight improves the efficiency of engine and payload capacity,” Somanath explained.

<https://www.hindustantimes.com/science/isros-moon-missions-to-stay-on-course-till-this-one-big-objective-is-achieved-101713380832123.html>

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