

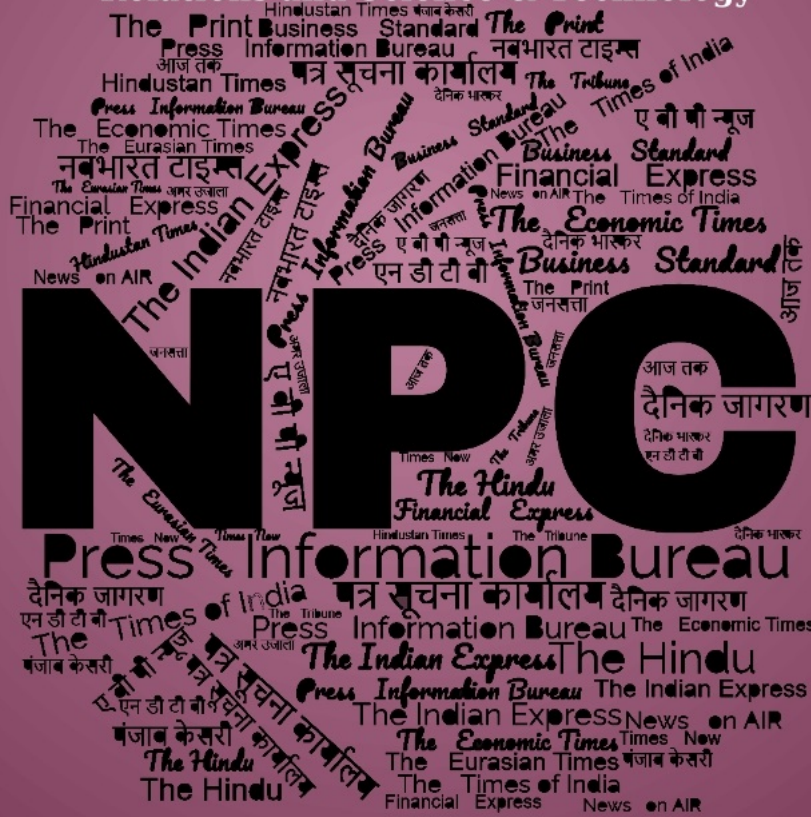
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

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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## भारत के रक्षा कवच में नहीं लगेगी सेंध, पलभर में खाक होगा दुश्मन का विमान; आ गई VSHORADS मिसाइल

दुश्मनों के लड़ाकू विमान, ड्रोन अब भारत के अचूक रक्षा कवच में सेंध नहीं लगा सकेंगे। इतना ही नहीं दुश्मनों को भागने या बच निकलने का भी मौका नहीं मिलेगा। कहीं से भी लांच करने में सक्षम भारत की पूर्ण स्वदेशी पोर्टेबल रक्षा कवच या वीएसएचओआरएडीएस (बेहद कम दूरी की वायु रक्षा मिसाइल प्रणाली) दुश्मनों के विमानों, ड्रोनों और अन्य हवाई खतरों को पलभर में ही मार गिराएंगी।

भारत ने राजस्थान के पोखरण फायरिंग रेंज में शनिवार को वीएसएचओआरएडीएस के तीन सफल परीक्षण किए। इस दौरान वीएसएचओआरएडीएस मिसाइल लक्ष्य को भेदने और मार गिराने में सफल रही। रक्षा मंत्री राजनाथ सिंह ने चौथी पीढ़ी की वीएसएचओआरएडीएस मिसाइलों के उड़ान परीक्षणों के लिए रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) और भारतीय सेना को बधाई दी है।



डीआरडीओ ने किया है विकसित

उन्होंने कहा कि आधुनिक तकनीकों से लैस यह नई मिसाइल सशस्त्र बलों को हवाई खतरे के खिलाफ और अधिक सशक्त करेगी। रक्षामंत्री के कार्यालय ने एक्स पर पोस्ट किया, 'डीआरडीओ इंडिया ने पोखरण से चौथी पीढ़ी की तकनीकी रूप से उन्नत वीएसएचओआरएडीएस के तीन उड़ान परीक्षण सफलतापूर्वक किए हैं।'

बता दें कि वीएसएचओआरएडीएस पोर्टेबल वायुरक्षा प्रणाली है, जिसे डीआरडीओ के रिसर्च सेंटर इमारत रीसर्च (आरसीआई) ने अन्य डीआरडीओ प्रयोगशालाओं और भारतीय उद्योग भागीदारों के सहयोग से स्वदेशी

रूप से डिजाइन और विकसित किया गया है। मिसाइल में लघु प्रतिक्रिया नियंत्रण प्रणाली (आरसीएस) और एकीकृत एवियोनिक्स सहित कई प्रौद्योगिकियां शामिल हैं।

कम दूरी के हवाई खतरों को करेगी बेअसर

इस मिसाइल को हवाई खतरों को कम दूरी पर बेअसर करने के लिए डिजाइन किया गया है। इसकी उच्च अनुकूलित डिजाइन के कारण इसे आसानी से ले जाया जा सकता है। यह एयर डिफेंस सिस्टम रूस के एस-400 की तरह है। इसका वजन 20.5 किलोग्राम और लंबाई 6.7 फीट है। यह अपने साथ दो किलोग्राम वजन का हथियार ले जा सकती है। इसकी रेंज 250 मीटर से छह किलोमीटर तक है। अधिकतम गति 1800 किलोमीटर प्रतिघंटा है।

<https://www.jagran.com/news/national-drdo-successfully-conducted-flight-tests-of-vshorads-portable-air-defence-system-in-pokharan-23810540.html>



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

**Ministry of Defence**

*Sat, 05 Oct 2024*

## **DRDO successfully flight-tests 4th Generation Very Short Range Air Defence System at Pokhran Field Firing Ranges in Rajasthan**

Defence Research and Development Organisation (DRDO) successfully conducted three flight-tests of the 4th Generation, technically-advanced miniaturised Very Short Range Air Defence System (VSHORADS) at the Pokhran Field Firing Ranges in Rajasthan on October 03 & 04, 2024. The tests were carried out against high speed target, demonstrating very critical parameters of maximum range and maximum altitude interception. These development trials showcased repeatability of hit-to-kill capability of the weapon system in various target engagement scenarios covering approaching, receding and crossing modes.

The development of VSHORADS missiles has been completed and two production agencies have been engaged in the Development cum Production Partner (DcPP) mode. In these trials, the missiles realised through DcPPs have been successfully used, thus paving the way for early User trials and Production in a short time span in line with Prime Minister Shri Narendra Modi-led Government's vision of 'Aatmanirbhar Bharat'.

VSHORADS is a Man Portable Air Defence System designed and developed indigenously by Research Centre Imarat (RCI) in collaboration with other DRDO laboratories and DcPPs. The three Services have been associated with the project right from the beginning and participated during the developmental trials.

Raksha Mantri Shri Rajnath Singh has congratulated DRDO, Armed Forces and the Industry involved in the successful development trials. This new missile equipped with modern technologies will give further technological boost to the Armed Forces against aerial threats, he said.

Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat also congratulated the DRDO team, industry partners and users for the successful flight-tests.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2062339>

## THE ECONOMIC TIMES

Sun, 06 Oct 2024

### **India will be among leading exporters of defence equipment in 10 years, says DRDO chairman**

India will be among the leading exporters of defence equipment in ten years, and the imports will come down to five to ten per cent, DRDO chairman Samir V Kamat said here on Saturday. Kamat said the country's defence imports have been decreasing, and out of the capital acquisition budget last year, nearly 90 per cent was used on indigenous systems. Kamat was speaking at Chhatrapati Shahu College of Engineering, where he inaugurated the Defence Innovation Challenge for Excellence (DICE) organised by the Marathwada Accelerator for Growth and Incubation Council (MAGIC).

"It is true that ten years ago, we were leading importers of defence systems. But if we look at last year's figures, out of our capital acquisition budget, nearly 90 per cent was used on indigenous systems. I am confident that in ten years the imports will be negligible. A country can't make everything. So five to 10 per cent (import) will remain," he said. India will be among the leading exporters of defence equipment in ten years, he added.

Talking to reporters after the event, Kamat said India has set a target to achieve exports worth Rs 50,000 crore by 2028 and Rs 1 lakh crore by 2035. He said, "The spending on defence-related research should be more. However, we are not a developed country yet, and there are other priorities. We have to invest more in technology." Director of MAGIC Prasad Kokil said applications for the innovation challenge are open till October 31, and the final round will take place in December.

<https://economictimes.indiatimes.com/news/defence/india-will-be-among-leading-exporters-of-defence-equipment-in-10-years-says-drdo-chairman/articleshow/113966097.cms>



**Press Information Bureau**  
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*Sun, 06 Oct 2024*

### **Long Range Training Deployment Of First Training Squadron To Muscat, Oman**

Indian Naval Ships Tir, Shardul and Indian Coast Guard Ship Veera of First Training Squadron (1TS) of the Indian Navy on long range training deployment arrived at Muscat, Oman on 05 Oct 24. The port call further signifies strengthening of existing defence relations between India and Oman in maritime domain.

During the visit from 05 -09 Oct 24, the Indian Navy will engage with Royal Navy of Oman on various aspects of maritime security and interoperability, including harbour interactions and joint exercises. The deployment will also focus on training exchanges, professional interactions and friendly sports fixtures between the two Navies. In the last ten years, this is the third visit of 1TS to Muscat, Oman. These interactions play a key role in consolidating gains in Naval cooperation and keeping the existing partnerships between both the Navies.

Coinciding with the visit of 1TS, VAdm V Srinivas, Flag Officer Commanding-in-Chief, Southern Naval Command will be on an official visit to Sultanate of Oman from 06 to 09 Oct 24. During the visit, FOCINC South will hold bilateral discussions with VAdm Abdullah bin Khamis bin Abdullah Al Raisi, Chief of Staff Sultan's Armed Forces (COSSAF) and RAdm Saif bin Nasser bin Mohsen Al -Rahbi, Commander of Royal Navy of Oman (CRNO). He will also visit key defence and training installations in Oman.

Indian Navy and Royal Navy of Oman engage with each other on avenues of operations, training and collaborative efforts in various fields. Recently, the 6th edition of Indian Navy and Royal Navy of Oman Staff talks were held in Jun 24 at New Delhi. The visit of 1TS and CINC, SNC further cement bilateral relations between the two friendly nations.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2062601>



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*Fri, 04 Oct 2024*

**Govt is committed to make defence industry export-oriented  
with India as a global manufacturing hub, says Raksha  
Mantri at 7th annual session of SIDM**

Raksha Mantri Shri Rajnath Singh has reaffirmed the Government's commitment to empower India's defence industry by working hand-in-hand with them, and realise Prime Minister Shri Narendra Modi's vision of making the country a global manufacturing hub. Addressing the seventh annual session of Society of Indian Defence Manufacturers (SIDM) in New Delhi on October 04, 2024, Raksha Mantri described the ongoing Russia-Ukraine conflict as a reminder to build a strong defence industrial base, which can be bolstered and expanded with time.

Shri Rajnath Singh asserted that the Government, in its third consecutive term, will provide a renewed thrust to its ongoing efforts towards developing a robust, innovative and self-reliant defence ecosystem. He enumerated the steps taken to attain 'Aatmanirbharta' in defence, including creation of defence industrial corridors in Uttar Pradesh & Tamil Nadu, issuance of positive indigenisation lists (PILs), corporatisation of Ordnance Factory Board, handholding of private industries by DRDO, and unveiling of Defence Acquisition Procedure 2020.

On the 10 PILs notified with over 5,500 items, Raksha Mantri stated that the idea is to equip the Armed Forces with platforms/equipment manufactured on Indian soil. Terming the lists as dynamic & not static, he exhorted the industry to achieve complete self-reliance for these items within the stipulated time, and keep shortening the list. He also urged them to assess and identify products that can be added to the PILs in view of the rapid changes being witnessed in the field of defence across the globe.

Shri Rajnath Singh emphasised that due to the Government's efforts, an environment conducive to ease of doing business in the country has been created, and a target set for making India's defence industry export-oriented. While he lauded the major contribution of the private sector in taking the defence exports to a record high of over Rs 21,000 crore in Financial Year (FY) 2023-24, he called upon the industry to keep in mind the export and import figures, and strive to reduce the ratio between the two with a target-oriented approach.

Raksha Mantri expressed happiness over the fact that the annual defence production touched a record high of Rs 1.27 lakh crore in FY 2023-24. While the share of DPSUs was Rs one lakh crore, private companies contributed with about Rs 27,000 crore. He stated that there is a huge scope for increasing the share of private industries, and the next target should be to bring their participation to at least half of the total defence production. He promised full support of the Government in achieving this target.



Highlighting the Government's focus to encourage foreign companies and Original Equipment Manufacturers (OEMs) to invest in India or open joint ventures with the private industry, Shri Rajnath Singh called upon SIDM to prepare a roadmap for collaboration on a firm-to-firm basis. He was of the view that the Indian industry has the potential of bringing niche technologies or processes to India.

Recognising the potential of small & medium enterprises (SMEs) and start-ups in the defence sector, Raksha Mantri acknowledged the challenges they face in achieving ease of doing business. He urged SIDM to work closely with the government to address ground-level issues & help these enterprises to play a larger role in defence manufacturing. "It is important to ensure that our policies translate into ease of doing business at the ground level. SIDM can help in identifying the practical challenges faced by start-ups and SMEs so that we can address them," he said.

Shri Rajnath Singh urged the industry to invest more in cutting-edge technologies, such as artificial intelligence (AI), cyber defence, & autonomous systems. "India's defence industry must keep pace with global trends and focus on high-end technology. There is a need to increase investments in areas like AI & autonomous systems, which will define the future of warfare. The government is ready to provide all necessary support," he said.

During the session, Raksha Mantri also presented the SIDM Champion Awards, which recognise outstanding achievements in defence manufacturing. He termed the awards as a reflection to the dedication & excellence of Indian manufacturers, which will serve as a benchmark for best practices in the sector.

Chief of Defence Staff General Anil Chauhan, Secretary (Defence Production) Shri Sanjeev Kumar, SIDM President Shri Rajinder Singh Bhatia and captains of the industry were among those present on the occasion. The theme of the session was 'Empowering Indian Defence Industry: Catalysing Exports and Indigenous Innovation'. It served as a forum for stakeholders to discuss India's growing role as a global defence exporter and innovation hub.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2061953>



**Press Information Bureau**  
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**Ministry of Defence**

*Sun, 06 Oct 2024*

## **Indigenous defence innovations for self-reliance: Raksha Mantri Shri Rajnath Singh to inaugurate DefConnect 4.0**

Raksha Mantri Shri Rajnath Singh will, on October 07, 2024, inaugurate DefConnect 4.0 at Manekshaw Centre, Delhi Cantt, a significant step towards advancing indigenous innovation and celebrating the growing defence ecosystem of the country. The event is being organised by

Innovations for Defence Excellence - Defence Innovation Organisation (iDEX-DIO), under Department of Defence Production, Ministry of Defence.

DefConnect 4.0 marks a milestone in India's defence innovation journey, bringing together the Armed Forces, Defence Public Sector Undertakings (DPSUs), industry leaders, innovators, start-ups and MSMEs, academia, incubators, investors and policymakers.

The event will feature an exciting Technology Showcase, presenting iDEX innovators with a unique opportunity to exhibit their cutting-edge technologies, advanced capabilities and groundbreaking products. This showcase is designed to engage a diverse audience of stakeholders, fostering collaboration and sparking dialogue that drives innovation forward with focus on forging powerful collaborations.

DefConnect 4.0 will feature launches and announcements by Raksha Mantri, alongside interactive and engaging sessions featuring industry leaders and defence stalwarts. The event will also include a themed session focusing on recent budget announcements, key takeaways for the defence innovation ecosystem, and the latest initiatives in the semiconductor domain.

Till date, iDEX has launched 11 editions of Defence India Start-up Challenges, and has garnered over 9,000 applications. It is currently collaborating with more than 450 start-ups/MSMEs on important projects. Launched by Prime Minister Shri Narendra Modi in 2018, iDEX continues to provide a unified platform for various stakeholders in the defence and aerospace sectors, contributing to the vision of Viksit Bharat by 2047.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2062643>



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*Fri, 04 Oct 2024*

## **India's vision for Indo-Pacific is based on fostering partnerships through sustainable development, economic growth & mutual security: Raksha Mantri at Indo-Pacific Regional Dialogue 2024**

“India's vision for the Indo-Pacific is based on Prime Minister Shri Narendra Modi's idea of SAGAR (Security and Growth for All in the Region) as we believe in fostering partnerships that prioritise sustainable development, economic growth and mutual security,” said Raksha Mantri Shri Rajnath Singh while addressing the Indo-Pacific Regional Dialogue (IPRD) 2024 in New Delhi on October 04, 2024. Raksha Mantri emphasised that India's engagement with its partners is guided by the understanding that true progress can only be achieved through collective action &

synergy, and due to these efforts, it is now considered as a credible & preferred security partner and first responder in the region.

Shri Rajnath Singh reiterated India's unwavering resolve to a rule-based international order, respect for international law, and adherence to the principles enshrined in the UN Convention on the Law of the Sea, describing them as the cornerstones of foreign policy. "India has consistently advocated for a peaceful resolution to disputes and has sought to promote cooperation among nations in the Indo-Pacific, with a strong emphasis on the centrality of ASEAN in fostering regional dialogue, stability & collective growth," he said.

Raksha Mantri also underscored India's commitment to ensuring the safety and security of the vital international maritime routes. He added that the engagement with regional partners, including joint exercises and information-sharing initiatives, is aimed at strengthening the collective maritime security framework. Shri Rajnath Singh underlined that the Indian Armed Forces, especially Navy, has been at the forefront of cooperative endeavours with countries of the region, and are continuously working towards building their capacity and capabilities. "While India's endeavour for maritime cooperation continues, its interests are not in conflict with any other country. At the same time, interests of any other nation should not come in conflict with other nations. This is the spirit in which we must work together," he added.

Raksha Mantri pointed out that the rapidly evolving global maritime landscape is shaped by shifting power dynamics, resource competition & emerging security threats. He added that the emergence of the Indo-Pacific theatre reflects a visible balancing of global power. "The Indo-Pacific region has emerged as the world's most dynamic geopolitical zone and is the centre of gravity of the economic & strategic interests. It also carries a degree of pre-existing international tension, rivalry and conflict. While some challenges are of local nature, many challenges have global ramifications. With respect to marine resources, we are witnessing a significant increase in geopolitical competition. As populations continue to grow, the demand for marine resources has surged, leading to heightened tensions and competition among nations," he added.

Sharing insights on the subject of 'Global Commons', the natural resources such as the ocean, outer space, climate, clean air, etc., which is shared by all of humanity, Shri Rajnath Singh stated that these are essential to maintain a sustainable planet. He stressed on the need to create a balance of competing interests, which can offer numerous ecological, economic, and social benefits transcending national boundaries. Raksha Mantri also touched on the concept of 'tragedy of the commons', a scenario where individuals, acting in their own self-interest, deplete shared resources, leading to collective ruin. He termed it as a looming threat, which can only be dealt with if the international community comes together and acts swiftly for sustainable management of shared global commons.

"Evidence of this tragedy, including environmental degradation, over-extraction of certain resources, and increasing geopolitical tensions is already visible. We are witnessing localised incidents of conflict and a wider undercurrent of international tension in recent years. As the world transforms from an industrial world to a technological world, from a fossil fuel-based economy to renewables, this threat is only going to increase, unless we take pre-emptive steps to control possible damage," said Shri Rajnath Singh. Raksha Mantri expressed concern over certain attempts

to monopolise and weaponise critical resources for strategic reasons, terming these tendencies as not conducive for the global good. He underscored peaceful coexistence and comity among nations, and drew upon the ancient Indian philosophy of humankind's symbiotic existence in harmony with nature as a way ahead in the exploration and management of marine resources.

In his address, Chief of the Naval Staff Admiral Dinesh K Tripathi emphasised the relevance of the oceanic spaces, specifically the Indo-Pacific, for India's economic growth and security. Stressing that India's maritime policy of SAGAR envisioned collective prosperity and security for all in the region, he advocated collaboration and cooperation as the principal means to achieve this end-state. On the occasion, Raksha Mantri also released a book titled 'Maritime India: Temporal and Spatial Continuum', published by the National Maritime Foundation (NMF). Chief of Defence Staff General Anil Chauhan; Chief of the Army Staff General Upendra Dwivedi; Chief of the Air Staff Air Chief Marshal AP Singh; Chairman, NMF Admiral Karambir Singh (Retd); DG, NMF Vice Admiral Pradeep Chauhan (Retd); senior officials of Ministry of Defence, foreign delegates and representatives of think-tanks of India & abroad attended the event.

The IPRD is an annual apex-level regional strategic dialogue of the Indian Navy which aims to sequentially flesh-out the seven spokes of the Indo-Pacific Oceans Initiative (IPOI). This year, the three-day conference opened on a vibrant and intellectually stimulating note on October 03, 2024. Through its central theme of 'Resource-Geopolitics and Security in the Indo-Pacific', this year's conference focuses on 'Marine Resources' and 'Maritime Security' pillars of IPOI.

The IPRD-2024 is being organised by the Indian Navy in association with NMF as its knowledge partner. Established in 2005, the NMF is one of India's foremost maritime think-tanks that concentrates its research upon issues relevant to India's maritime interests, and has gained significant international traction for conduct of independent, original, and policy-relevant research on all 'matters maritime'.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2062068>



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

**Ministry of Defence**

*Fri, 04 Oct 2024*

## **Delivery Of Ammunition Cum Torpedo Cum Missile Barge, LSAM 21 (YARD 131)**

The delivery of 'Ammunition Cum Torpedo Cum Missile Barge, LSAM 21', 7th Barge of 11 x ACTCM Barge Project, built by MSME Shipyard, M/s Suryadipta Projects Pvt Ltd, Thane for Indian Navy, was undertaken on 04 Oct 24 at Naval Dockyard, Mumbai for NAD(Karanja). The Induction Ceremony was presided over by Cmde SV Shidore, AGM (PR), ND (Mbi).

The contract for building 11 X ACTCM Barge was signed between MoD and M/s Suryadipta Projects Pvt Ltd, Thane on 05 Mar 21. Induction of these Barges would provide impetus to operational commitments of IN by facilitating Transportation, Embarkation and Disembarkation of articles/ ammunition to IN Platforms both alongside jetties and at outer harbours.

These Barges are indigenously designed and built under relevant Naval Rules and Regulation of Indian Register of Shipping. The model testing of the Barge during design stage was undertaken at Naval Science and Technological Laboratory, Visakhapatnam. These Barges are proud flag bearers of Make in India initiative of Government of India.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2062253>

## THE ECONOMIC TIMES

*Sun, 06 Oct 2024*

### **Maritime Exercise 'Malabar 2024' to commence from Oct 8 in Visakhapatnam, have participation from Quad nations**

Maritime Exercise Malabar 2024 is set to commence on October 8 in Visakhapatnam. The exercise, which is hosted by India this year, will also have participation from Quad nations, which include Australia, Japan, and the US. The exercise will take place in two phases, beginning with the Harbour phase in Visakhapatnam, followed by a sea phase.

A 'Distinguished Visitors' Day' is also planned for October 9 2024 during the Harbour Phase, during which the delegations from all four nations, would be hosted by Vice Admiral Rajesh Pendharkar, Flag Officer Commanding-in-Chief, Eastern Naval Command. The exercise will also feature a Joint Press Conference as part of the Harbour phase, co-chaired by heads of delegations from all participating countries.

Notably, Exercise 'Malabar', which began in 1992 as a bilateral naval drill between the United States and the Indian Navy, has now evolved into a key multilateral event aimed at enhancing interoperability, fostering mutual understanding, and addressing shared maritime challenges in the Indian Ocean and Indo-Pacific region.

The exercise will feature participation of various Indian naval platforms, including guided missile destroyers, multi-purpose frigates, submarines, fixed wing MR, fighter aircraft and helicopters. While Australia will deploy HMAS Stuart, an Anzac Class Frigate with its MH-60R helicopter and P8 Maritime Patrol Aircraft, the United States Navy will field the USS Dewey, an Arleigh Burke-Class Destroyer with its integral helicopter and P8 Maritime Patrol Aircraft. Japan will join the exercise with JS Ariake, a Murasame-class Destroyer.

The special Forces from all four nations will also be participating in the exercise. Malabar 2024 will focus on a broad range of activities designed to enhance cooperation and operational

capabilities, including discussions on special operations, surface, air, and anti-submarine warfare through a Subject Matter Expert Exchange (SMEE).

Complex maritime operations such as anti-submarine warfare, surface warfare, and air defence exercises will be conducted at sea, with an emphasis on improving situational awareness in the maritime domain. Malabar 2024 is expected to be the most comprehensive version of all editions so far, incorporating complex operational scenarios.

<https://economictimes.indiatimes.com/news/defence/maritime-exercise-malabar-2024-to-commence-from-oct-8-in-visakhapatnam-have-participation-from-quad-nations/articleshow/113963731.cms>

# THE ECONOMIC TIMES

*Fri, 04 Oct 2024*

## **China ahead in tech and infrastructure along LAC, but India's superior training gives it an edge, asserts IAF chief**

Air Chief Marshal Amar Preet Singh expressed concern over China's swift infrastructure development along the Line of Actual Control (LAC), particularly in the Ladakh region. Singh made these comments during a press conference ahead of Air Force Day. He emphasized that India is not sitting idle, but is also rapidly enhancing its own infrastructure in response to China's growing presence along the LAC.

Singh said, "We have done our analysis. We don't have a design to go offensive unnecessarily. Only when we are pushed will we be doing something. So we have our plans in place. One place we can positively say we are training much better than them. We have exposure much better than them."

### **India's Strategic Response to China's Military Advancements**

Addressing questions regarding China's military advancements, Singh acknowledged that while India has been behind in certain technological aspects, the Indian Air Force (IAF) maintains a qualitative edge in training and preparedness. "As far as our people behind the machine are concerned, we are way ahead of them," he said, underlining the difference in human capabilities between the two nations' forces.

However, Singh also stressed the need for India to catch up in technology and production rates. "As far as technology is concerned, we may be not so good as of now. We have lagged. We were better than them in technology also some time back. But have lagged in that and we need to catch up with it," he remarked. In terms of production, he said, "We are way behind. We need to catch up with that. And that will happen over a period of time. It cannot happen overnight."

### **Push for Indigenous Weapons Systems**

Singh emphasized the importance of building indigenous capabilities to ensure India's long-term security, highlighting that the Indian Air Force aims to have its entire inventory produced domestically by 2047.

"If you need to fight the war, you have to have them (weapons) being manufactured in India. You cannot afford to have them being bought and rely on that supply chain," Singh explained, stressing the strategic risks associated with dependence on foreign suppliers. He also elaborated on the role of Indian manufacturing agencies, calling on them to increase production capacity.

"When it comes to conflict situations, if you are relying on getting your weapons from outside, there will always be different interests and changing interests which can create a choke point for you," he said. Singh highlighted that domestic production is crucial for conflict preparedness, as relying on external supply chains poses long-term risks to national security.

### **Strategic Importance of Self-Reliance in Defence**

Singh further pointed out that stockpiling weapons isn't a sustainable option due to their limited shelf life. "We can't be stocking up everything forever. These things will have life. If we keep stocking up, we'll have wastage," he said. Singh emphasized the need for India to not only build capacity but also increase production rates to ensure adequate supplies for potential conflicts.

### **India-China Tensions**

Along the LAC India and China have experienced rising tensions along the LAC since 2020, particularly in the Eastern Ladakh sector. The most recent formal disengagement between the two countries occurred in September 2022, when both sides withdrew their troops from Patrolling Point-15 in the Gogra-Hot Springs area of Eastern Ladakh.

Over the last four years, progress has been made at several friction points, including the Galwan Valley, north and south banks of Pangong Tso, and the Gogra-Hot Springs area. These regions have seen partial resolution through the establishment of buffer zones. However, both nations continue to deploy troops along the LAC, keeping a state of alert while avoiding any incidents that could heighten tensions.

In his comments, Singh referenced the recent disengagements and ongoing efforts to address the remaining issues. "As far as the LAC is concerned, the process of disengagement has been a long one. It will take time for complete resolution, but there has been progress," he noted. On September 12, External Affairs Minister S. Jaishankar mentioned that about 75% of the disengagement issues with China have been sorted out, although militarization remains a concern.

### **Recent Developments in Disengagement Efforts**

Tensions between the two nations have eased slightly with recent disengagement agreements, but significant challenges remain. India and China have reportedly made "significant progress" on addressing pending issues along the LAC, particularly in the Eastern Ladakh sector. Discussions have focused on finding a possible solution that considers their respective pre-April 2020 positions while also addressing issues in Arunachal Pradesh.

Indian and Chinese troops remain deployed along the LAC in a state of alert, though officials have stressed the importance of avoiding any confrontation that could derail redeployment plans. As

Singh emphasized, India's approach remains one of preparedness rather than unnecessary provocation.

### **India's Defence Infrastructure Goals**

India's efforts to enhance its infrastructure along the LAC and improve its defence preparedness reflect its strategic shift toward self-reliance. Singh's comments underline the importance of strengthening domestic production capabilities to ensure that India is equipped to handle future security challenges.

With a clear focus on technology upgrades, indigenous weapons systems, and enhanced manufacturing capacity, the Indian Air Force is positioning itself to face future conflicts with greater resilience.

<https://economictimes.indiatimes.com/news/defence/china-outpaces-in-tech-and-infrastructure-along-lac-but-indias-superior-training-gives-it-an-edge-reveals-iaf-chief/articleshow/113938878.cms>

# THE ECONOMIC TIMES

*Sun, 06 Oct 2024*

## **IAF proved capability to strike down Chinese spy balloon-type targets at very high altitude**

The Indian Air Force proved its capability to strike down Chinese spy balloon type targets at a very high altitude of 55,000 plus feet along the eastern front recently. In early 2023, the US government had used a fifth generation F-22 Raptor fighter jet to shoot down a Chinese spy balloon over the sea. The IAF had been holding discussions on the issue of tackling the challenge posed by such balloons which fly at very altitude and also held discussions with the American Air Force last year.

Defence sources told that the Indian Air Force used a Rafale fighter jet to shoot down a Chinese spy balloon type target over the area of responsibility of the Eastern Air Command a few months ago. The force used a relatively smaller balloon in size than the Chinese spy balloon which was shot down by the US Air Force.

The balloon was released in air with some payload tied to it and it was then shot down using an inventory missile at an altitude of over 55,000 feet, they said. The capability was proven by the Indian Air Force when present chief Air Chief Marshal AP Singh was in-charge of overall operations as Vice Chief of Air Staff and present Vice Chief Air Marshal SP Dharkar was the Eastern Air Commander.

The then Director General Air Operations Air Marshal Surat Singh is now the Eastern Air Commander. In early 2023, the US Air Force F-22 shot down a Chinese spy balloon off the coast of South Carolina that traversed across North America for several days. There were at least two other instances within a week after that. Similar balloon had been sighted over the Andaman and



Nicobar Islands territory in India and it is believed that the balloons are used for carrying out surveillance over a large area. However, no action was taken against it in the three to four days it was sighted after which it drifted away.

It was also believed that the Chinese spy balloons have some kind of steering mechanism and they can be used to stabilise over their areas of interest. The force has also been preparing its standard operating procedures to act against such threats in future.

<https://economictimes.indiatimes.com/news/defence/iaf-proved-capability-to-strike-down-chinese-spy-balloon-type-targets-at-very-high-altitude/articleshow/113988065.cms>

## THE ECONOMIC TIMES

*Sun, 06 Oct 2024*

### **When missiles come raining down: Success of Israel's Iron Dome air defence system brings the spotlight on India's capabilities**

In military circles, it is usually offensive weaponry that gets the adrenaline going. But these days, there is a defensive system that has captured the military geek's—and, indeed, the world's—attention. The ongoing crisis in West Asia has piqued the curiosity around the Israeli Air Defence system—the Iron Dome.

It has been successfully thwarting enemy rockets, missiles, drones and other projectiles ever since the latest crisis started almost a year ago on October 7, 2023. It neutralised a massive Iranian missile offensive in April 2024, and then, just a few days ago, on October 1, it shot down over 80% of missiles Iran launched its way. Israel has a three-tier air defence system.

The first layer, Arrow missile system, forms the outermost envelope meant to destroy the incoming enemy missiles outside earth's atmosphere. The second, a 300 km envelope within the atmosphere, is created by David's Sling. The innermost envelope is formed by the Iron Dome, with its Tamir interceptor missiles.

In a world where the threat from the air is from missiles, drones and other projectiles, having a similarly comprehensive air defence system is critical.

Israel's ally, the United States of America, too has developed its own Terminal High Altitude Area Defence System (THAAD) to cover short- and intermediaterange missile threats. India is emerging as one of the top military powers in Asia, and there should be a more detailed conversation on India having a similarly comprehensive air defence shield, more so given the nature of its neighbourhood.

But to make that conversation more fruitful, there is a need to pay heed to various strategic, tactical and economic aspects, since simply mimicking the Israeli model may not be ideal for India. Air Chief Marshal AP Singh echoed this sentiment on Friday, while answering a question about India's

air defence at a press conference. “With the systems we have already procured, and with the systems that are in the pipeline, as a combination of the two we will have fairly competent air defence systems.” He also stressed the importance of prioritising, adding, “What is true is that we will need them in much higher numbers if we have to protect the entire country. With the numbers we have currently, we must prioritise the vital areas that we need to protect.”

### **Strategic Factor**

Right off the bat, Indian requirements are clearly different from those of Israel. A simplistic comparison between India and Israel will be a gross mistake. India has two major nuclear powers as adversaries, which Israel does not. India has a vast area to defend, which Israel does not. Critically, India has its own political dynamics, which isn't mirrored in Israel. Israel is a small country with an area of roughly 22,000 sq km and if the occupied territories of West Bank, Gaza Strip and Golan Heights are removed, the net effective area is less than 14,000 sq km. Factor in most of the Israeli population being settled in Northern and Central Israel, and the area it needs to protect contracts further.

India's area is 300x that of Israel and its population is 140x more. India's air defence requirements and the quantum of protection would be much larger and significantly more diverse. India would not require the entirety of the country to be protected with anti-missile defence, and would need to prioritise vulnerable areas and cities. Threat perception also plays an important role in designing the right air defence for India. The tactical and strategic threat arising out of India's two hostile neighbours— China and Pakistan—are different. The threat of rockets or projectiles is ever present in Israel unlike India, where unless there is a full- fledged war, it is not a constant.

### **Expensive Affair**

An important factor in having such a system is simply its cost. Spoiler. It doesn't come cheap. As per reports, the single missile interception cost of Tamir, David's Sling and Arrow missile system comes close to \$1,50,000, \$8,00,000 and \$3.5 million respectively. This does not include R&D expenditure, primarily borne by America.

The total interception cost of the Iron Dome defence system since October 7 last year comes to around \$6 billion. In contrast, India's entire defence budget for 2024-25 is less than \$75 billion, of which the lion's share goes towards civilian employees and pensions. India, with its vast area and diverse defence requirements, can in no way afford such expensive systems. The only solution is to develop low-cost alternatives that dovetail into India's strategic goals.

### **Status Check**

The good news is that it has started to happen. Till a decade back, India's entire air defence system was reliant on 70- to 80- year-old obsolete missile systems like S-125M Pechora, SAM8 OSA-AK, SAM-6 Kvadrat, SA-13 Strela 10M and man-portable air defense systems like Igla. While it is disheartening to see that the country is still operating old gun systems like L-70, Zu-23mm twins and the ZSU-23mm self-propelled Shilka awaiting modernisation, there is some ray of light. The old gun systems are being phased out systematically and are being replaced by more resilient missile systems.

India has been procuring systems like Spyder, Barak and S-400, and developing Akash and QRSAM indigenously. For exo-atmospheric interceptions, it has Prithvi Air Defence (PAD). For medium- range (over 100 km), it has Advanced Air Defence (AAD) missiles, and the newly inducted S400 range.

For lower ranges and quick reaction interception, it now has missiles like Barak-8, Aakash, Spyder and a few old but effective systems integrated with new radars. Today India is also producing, under licence, various next-generation, surface-to-air missiles like MRSAM and LRSAM under Make in India. The indigenous anti-ballistic missile system has completed all tests and is on the verge of induction into the arsenal of the country's armed forces.

### **What's On The Radar?**

Radars and sensors form the backbone of any air defence system and ballistic missile defence. In the recent past, India has not only developed its own but has also imported several state-of-the-art radars for detection and tracking of any incoming object. These include indigenously developed long-range track radars capable of detecting an object over 1,500 km away and guiding a missile onto it.

India has established an overlapping grid of radar systems to cover long-, medium- and close-range threats across altitudes, which is achieved by integrating surveillance radars of the army, navy and the air force. All these radars are connected to the air defence operational controls managed by the Indian Air Force for a realtime imaging of the air picture. A critical area where things could be better is the command, control and reporting system.

When it comes to air defence, there is a division into the three wings of army, navy and air force, which although integrated physically, lacks true synergy. An integrated, secure data link across the services is a must to fight modern-day warfare. Today, India is certainly capable of handling threats better, but the country cannot rest and must keep up the momentum, for which strong political will is required.

<https://economictimes.indiatimes.com/news/defence/when-missiles-come-raining-down-success-of-israels-iron-dome-air-defence-system-brings-the-spotlight-on-indias-capabilities/articleshow/113971628.cms>

## **THE ECONOMIC TIMES**

*Sat, 05 Oct 2024*

### **Alarm after defence PSU sells explosives to banned German Company**

Alarm bells have rung after a state-owned defence public sector unit sold and delivered close to 500 tons of explosives to a German company, Rheinmetall, which has been debarred from business on corruption charges since 2012. The deliveries took place late last year and early 2024, with a final

shipment believed to have been stopped after the matter was brought to notice within the government.

The Indian company, Munitions India Limited (MIL) has had a bonanza of orders from the international market for the past two years as the global demand for explosives has peaked since the Russia-Ukraine conflict. The company has a fully booked production capacity with multiple nations lining up to place orders.

As per records seen by ET, the deal to sell explosives was struck through an intermediary and the first shipment of 144 tons was sent in October 2023. The supply was made to a Spanish company named Expal, which had already been acquired by Rheinmetall as per public records. Two additional shipments were sent, with the final one dispatched in March 2024.

Sources said that while the original contract for delivery was to Expal, the company changed ownership to Rheinmetall and this was not informed to higher authorities. A detailed questionnaire sent to MIL and the defence ministry was not responded to.

<https://economictimes.indiatimes.com/news/defence/alarm-after-defence-psu-sells-explosives-to-banned-german-company/articleshow/113971338.cms>

## THE ECONOMIC TIMES

Mon, 07 Oct 2024

### **Maldives first, but President Muizzu says 'Won't hurt India's security for China's sake'**

Maldives President Mohamed Muizzu, during his first official state visit to India, has reiterated that his country would never take actions that undermine India's security. Muizzu's visit comes amid concerns in India about the Maldives' growing relationship with China. However, the president emphasized that while the Maldives seeks to strengthen ties with other countries, India remains a crucial partner.

"Maldives would never do anything that undermines the security of India. India is a valued partner and friend of the Maldives, and our relationship is built on mutual respect and shared interests," Muizzu said in an exclusive interview with The Times of India.

This visit marks Muizzu's second trip to India, following his participation in Indian Prime Minister Narendra Modi's swearing-in ceremony in June this year.

The Maldives-India relationship had been strained due to the previous government's decision to expel Indian military personnel and contentious remarks by Maldivian ministers regarding Modi. Muizzu's latest visit aims to mend these diplomatic rifts and reinforce the bilateral partnership.

#### **Commitment to Regional Security**

In his meeting with Indian Prime Minister Narendra Modi, President Muizzu reiterated the Maldives' dedication to maintaining regional stability and security, particularly in the Indian Ocean. "While we enhance our cooperation with other countries in various sectors, we remain committed to ensuring that our actions do not compromise the security and stability of our region," he told TOI.

Muizzu underscored that defence cooperation with India would always be a priority, particularly in light of the current global security environment. He added, "Maldives and India now have a better understanding of each other's priorities and concerns." Muizzu's statements come at a time when regional geopolitics in the IndoPacific are increasingly dominated by China's growing influence. Despite his previous "India Out" campaign, which contributed to his election victory,

Muizzu now emphasizes that his government's policies are centered around national priorities and regional stability. "What I did is what the people of Maldives asked of me. The recent changes reflect our efforts to address domestic priorities. Our review of past agreements is aimed at ensuring they align with our national interests and contribute positively to regional stability," Muizzu said, referring to the decision to remove Indian troops stationed in the Maldives.

### **Strengthening Economic Ties with India**

Another focal point of Muizzu's visit is the strengthening of economic and developmental cooperation between the Maldives and India. India is one of the Maldives' largest trade and development partners, and the president expressed optimism that his visit would lead to further collaboration in these areas.

"India continues to be one of our largest trade and development partners. I am confident that this will be a very successful trip," Muizzu said. One of the key projects discussed during his visit is the Greater Male Connectivity Project, a significant infrastructure initiative aimed at improving connectivity between the islands. Muizzu acknowledged the progress made on this and other critical projects, such as water and sewerage facilities for 28 islands in the archipelago. He also praised India's restructuring of the line of credit arrangement, which has facilitated smoother project execution.

"We are pleased with the progress made on several key projects and initiatives announced during External Affairs Minister Jaishankar's visit. These projects are vital for boosting our local economy and contributing to the Maldives' prosperity," Muizzu remarked.

### **China's Role in the Region**

The growing presence of China in the Maldives has sparked concerns in India, particularly regarding potential impacts on regional security. However, Muizzu has made it clear that his government's relationship with China will not come at the expense of its longstanding ties with India.

"We are confident that our engagements with other nations will not undermine India's security interests," Muizzu said in response to questions about expanding ties with China. In 2017, the Maldives signed a Free Trade Agreement (FTA) with China, which is set to be implemented soon. This development has raised concerns about the Maldives' economic sovereignty, especially given the trade imbalance between the two nations. Addressing these concerns, Muizzu stressed, "We

will continue to engage in transparent and balanced trade practices to address any concerns and uphold the economic interests of our nation."

### **Resetting the Maldives' Foreign Policy**

President Muizzu also took the opportunity to clarify his administration's foreign policy stance, which he describes as a "Maldives First" approach. While some analysts view him as being aligned with China, Muizzu insists that his priority is safeguarding the Maldives' national interests while maintaining friendly relations with all countries, particularly its neighbors.

"My policy is a 'Maldives First' policy. For me, Maldives will always come first. But respect for our neighbors and friends is embedded in our DNA," Muizzu stated.

He acknowledged the historical and geographical significance of the Maldives' relationship with India, saying, "Indians have always been welcome in the Maldives, Indians continue to prosper in the Maldives, and be safe and happy. Indian tourists are welcome in the Maldives." Muizzu emphasized the importance of people-to-people connections, which have been a cornerstone of the Maldives-India relationship for decades.

<https://economictimes.indiatimes.com/news/defence/president-muizzu-in-india-maldives-first-but-president-muizzu-says-wont-hurt-indias-security-for-chinas-sake/articleshow/113997982.cms>

# THE ECONOMIC TIMES

*Sun, 06 Oct 2024*

## **DroneAcharya to foray into US, European markets; eyes \$50 mn revenue**

Drone manufacturer DroneAcharya AerialInnovations Ltd. on Friday said it has signed an agreement with American Blast Systems (ABS) Inc. to deliver advanced drone solutions in the US and European markets. Under the memorandum of understanding (MoU), Pune-based DroneAcharya and California-based ABS will produce drones and facilitate their local production across sectors.

The two companies will offer a diverse range of drone solutions, including hardware, software and services for sectors such as defence, law and order, agriculture, logistics and retail.

DroneAcharya's founder and managing director, Prateek Srivastava, told ET that the company is aiming for \$50 million in revenue over the next three years with this partnership. "We see tremendous potential in this collaboration as it positions India at the forefront of the global drone industry," he said. "Our goal is to deliver cutting-edge, India-made drone technology that ensures secure data transmission and complete data privacy."

These drones will be co-designed, co-developed and manufactured in Los Angeles, certified by local authorities, and branded as 'Made in America', said a statement issued by DroneAcharya. A statement issued by Donald Culver, chairman of ABS, said, "India has long been a trusted partner

for high-quality services. With DroneAcharya, we see the potential to leverage drone technology across defence, law enforcement and industrial sectors."

The drones will feature innovative capabilities, enabling superior performance for border security, surveillance, counterinsurgency and logistics, the statement from DroneAcharya said, adding that the company will cross-sell ABS products in the Asian market as part of the agreement, expanding its footprint. The announcement, made during market hours, sent DroneAcharya's shares up by 2% in intra-day trade on Friday.

<https://economictimes.indiatimes.com/news/defence/droneacharya-to-foray-into-us-european-markets-aims-50-mn-revenue/articleshow/113956408.cms>

## THEWEEK

*Sat, 05 Oct 2024*

### **A game-changer in the Pacific? US Navy's next-generation fighter jets set to contain China's naval ambitions**

Even as China continues to upgrade its naval aviation abilities and ambitions, the US intends to maintain its dominance as the US Navy is expected to award a contract for its next-generation, carrier-based fighter soon.

The Navy is set to decide between Lockheed Martin, Boeing, and Northrop Grumman for awarding the contract for the sixth-generation fighters, as Chief of Naval Operations Adm. Lisa Franchetti said the three companies have proposals for that, and the Navy is in source selection right now.

The move comes even as China is developing its second fifth-generation fighter jet J-35, which will be deployed on its third aircraft carrier, the Fujian. The US intends to deploy the sixth generation aircraft by 2030, effectively making China a generation behind in its Navy's fighter capabilities.

The sixth-generation fighter jets are expected to operate alongside drones and fly missions at long ranges, giving the US Navy a much-required edge over China in a potential future war in the Pacific. "We expect that sixth-generation platform to be able to have advanced sensors, advanced lethality, advanced range, and being able to integrate with manned and unmanned capabilities together," Chief of Naval Operations Adm. Lisa Franchetti was quoted as saying.

The sixth-generation fighter jets, currently being referred to as F/A-XX, is expected to replace Boeing's E/A-18 Growler electronic warfare attack aircraft and F/A-18 Super Hornet multi-role fighters.

The programme, part of the US Navy's broader Next Generation Air Dominance (NGAD) strategy, was first identified in June 2008. The F/A-XX is designed to perform a wide variety of missions,

ground attack, surface warfare, air combat, and provide close air support, and aims to operate effectively in anti-access/area denial environments.

<https://www.theweek.in/news/defence/2024/10/05/a-game-changer-in-the-pacific-us-navys-next-generation-fighter-jets-set-to-contain-chinas-naval-ambitions.html>



*Sun, 06 Oct 2024*

## **IAF looking at 12 early warning aircraft under two different programmes**

The Indian Air Force (IAF), which is short of Airborne Early Warning and Control (AEW&C) aircraft, a critical force multiplier, is looking at the procurement of 12 aircraft under two different programmes.

One of them is a follow-on order of six AEW&C systems mounted on Embraer aircraft, akin to the three Netra systems in service. The other order pertains to six AEW&C systems under development by the Defence Research and Development Organisation (DRDO) that would be mounted on Airbus A-321 aircraft.

“We have three of them, the Embraer based AEW&C. We have plan for six more. We are calling them Mk1A, with minor modifications to the equipment that is inside. [The] idea is to buy the aircraft from Embraer, and being modified by DRDO, Centre for Air Borne Systems (CABS) will be doing the modifications. It is a proven design with minimum risk involved and maximum output,” Air Chief Marshal A. P. Singh said last week. “We should be having it cleared by Defence Acquisition Council very soon.”

The Air Chief said the other development relates to the AEW&C-Mk2, with an Airbusbased system, for which contract negotiations were currently ongoing. “Modification of aircraft is by Airbus, equipment is being developed by DRDO. Initial contract is to be signed with Airbus by DRDO...negotiations are on to come to the correct configurations, as well the price negotiations,” he added. Six Airbus A-321 passenger aircraft with Air India were transferred to the IAF sometime ago and are awaiting modifications to be undertaken, pending the conclusion of the contract.

Defence officials said that the modifications required for the aircraft turned out to be significantly more extensive and complex than anticipated, and thus the negotiations over the cost too have dragged on, and the process has been delayed. One official involved in the project said the AEW&C mounted on the Airbus aircraft would provide 300-degree coverage. The IAF also operates three Israeli Phalcon Airborne Warning and Control Systems (AWACS) in addition to the Netra AEW&C systems.

While the Phalcons, which have a radome mounted on top of an IL-76 transport aircraft, provide 360-degree coverage, the Netra provides 240-degree coverage of airspace. A shortage of these force multipliers was felt during the aerial engagement with the Pakistan Air Force a day after the



Balakot air strike in February 2019. A long-pending proposal to procure two additional Israeli Phalcons has not materialised.

In July, the IAF issued a 'Request For Information' for the procurement of six AEW&C along with the associated ground segment from registered Indian vendors. According to the requirements, the primary radar should be a multimode/multifunctional solid state 4D AESA (Active Electronically Scanner Array) radar incorporating 360-degree coverage with range not less than 400 km, and be able to detect airborne targets flying as low as 30 metres from the ground to as high as 20 km.

The platform requirement is for a customised jet aircraft configured with payloads/systems of AEW&C and on-board workstations, have endurance of eight hours and above, with an operational altitude of 40,000 feet and above, and also featuring airto-air refuelling and fuel dumping capability.

<https://www.thehindu.com/news/national/iaf-looking-at-12-early-warning-aircraft-under-two-different-programmes/article68725847.ece>



*Sat, 05 Oct 2024*

## **Medium Transport Aircraft to be procured will replace AN-32 and IL-76 fleets of IAF**

The Medium Transport Aircraft, in the 18-30 tonne category, that is planned to be procured by the Indian Air Force (IAF) is going to be a common replacement for the aging AN-32 and IL-76 transport aircraft fleet.

The AN-32 is the workhorse of the IAF with over 100 aircraft in service and the IL-76 with over 40 tonne load capacity is in the heavy lift category. A combined replacement shows the changing transport requirements of the force.

“As far as the MTA is concerned, the fleet that is aging is the AN-32 and IL-76. We need to find a replacement for these. The decision that has been taken is we will go for a common aircraft of 18-30 tonnes and for that the RFI has been issued. We have not shortlisted which aircraft we will be going for,” IAF Chief Air Chief Marshal A.P. Singh said on Thursday.

The IAF issued a Request for Information (RFI) for a MTA in December 2022 with a load carrying capacity between 18 to 30 tonnes for up to 80 aircraft. A comprehensive study was also carried out to identify the current and future payload carrying requirements of the force. There are three responses to the RFI which include Airbus A-400M, Lockheed Martin C-130 and Embraer C-390.

Among them, the A-400M has a maximum carrying capacity of 37 tonnes, the C-130 close to 20 tonnes and the C-390 can carry up to 26 tonnes. The 2020 standoff with China in Eastern Ladakh has changed the nature of airlift and the support for the Army required in high altitude areas. There is a huge gap in carrying capacities at the moment with the current aircraft which needs to

adjusted, as reported earlier. The transport fleet of the IAF currently consists of over 100 AN-32s, 56 AVROs in the process of being replaced with the Airbus C-295, IL-76 heavy transports, and IL-78 midair refuelling tankers from Russia, 12 C-130J Super Hercules and 11 C-17 Globemaster strategic airlift aircraft from the U.S. Of these, the IL-76 has a capacity to list 45-50 tonnes and the C-17 up to 70 tonnes.

As the deal makes progress, U.S. defence major Lockheed Martin and Tata Advanced Systems Limited (TASL) announced collaboration for establishing a Maintenance, Repair and Overhaul (MRO) facility in India to support the IAF's fleet of 12 C-130J Super Hercules transport aircraft as well as other global C-130J fleets. Similarly, Brazilian aircraft manufacturer Embraer Defense & Security and Mahindra signed a Memorandum of Understanding (MoU) to jointly bid for the MTA tender.

The MTA fits a critical requirement of the Army which is looking on the process of procuring a light tank weighing up to 25 tonnes for deployment in the mountains especially in Eastern Ladakh. So, IAF needs sizeable number of aircraft to airlift them. In September 2021, the Defence Ministry signed a ₹21,935 crore contract with Airbus and Space S.A., Spain for procurement of 56 C-295MW transport aircraft, with a capacity of nine tonnes, to replace the Avro aircraft in service.

While the RFI did not specify the number of MTA required, vendors have been asked to provide "Rough Order of Magnitude (ROM) cost of aircraft and associated equipment" for a batch of 40, 60 and 80 aircraft. With the IAF deciding to make MTA replacement for both AN-32 and IL-76, clarity on the numbers is now awaited.

<https://www.thehindu.com/news/national/medium-transport-aircraft-to-be-procured-will-replace-an-32-and-il-76-fleets-of-iaf/article68722466.ece>



*Sun, 06 Oct 2024*

## **How are tanks armouring Ladakh sector? | Explained**

The story so far: The Ukraine war front has showcased the adaptability of battle tanks, proving that armour is even more essential in the new-age battlefield in addition to long-range firepower. In another arena, after the May 2020 stand-off in the Eastern Ladakh sector between India and China, armies and tanks of both have been deployed at altitudes of 13,000-15,000 feet, in some cases barrels facing each other 100 metres apart.

### **What is the current situation?**

In September 2024, the Army demonstrated the capabilities of its armour deployed close to the Line of Actual Control (LAC) in Eastern Ladakh. T-90 tanks and BMP-2 armoured carriers demonstrated their capabilities including crossing the Indus river at Nyoma located at an altitude of 13,700 feet and around a 30 km straight line from the LAC. Army personnel explained the

challenges in maintaining the machines and keeping them optimally functional in extreme weather conditions to a group of visiting journalists.

“We are fully prepared to destroy our enemy at this altitude. It (T-90) can be deployed anywhere and remove obstacles to cross the area. It is capable of deep-fording (the technique used to cross water bodies),” said tradesman Manoj Kumar. He termed the T-90, manufactured in India as the Bhishma, as one of the best tanks in the world.

### **What happens when the temperature dips?**

The performance of tanks can be affected due to the rarefied air (with low oxygen level). “When the temperature dips at night, we have to start the engine two-three times so that it can remain functional,” Mr. Kumar explained.

The T-90, manned by a threemember crew and powered by a 1,000-hp engine, has a 125-mm main gun, a 7.62-mm machine gun and a 12.7-mm gun for aerial targets. It can also fire an Anti-Tank Guided Missile (ATGM). The Army is also planning to upgrade the T-72s with a 1,000-hp engine. The BMPs can go under water and even float and are much faster than tanks, one officer observed as several T-90s and BMPs raced across the uneven terrain raising waves of dust all around, the ground vibrating as they passed.

Since 2012, India has been significantly augmenting its infrastructure and deployments in Ladakh. For instance, the Army began deploying troops on longer tenures along the LAC instead of loop battalions on six-month tenures. This has meant availability of more acclimatised troops and increased patrols in the claim areas. Beginning 2014, India started deploying tank regiments consisting of T-72s in Eastern Ladakh. One tank regiment each was deployed in 2014, 2016 and 2018 completing the full brigade. More tanks, BMPs as well as artillery guns were pushed in since the stand-off. Eastern Ladakh has several plains in between the mountain ranges and the terrain permits use of tanks and mechanised elements. India has deployed tanks in Sikkim since long.

### **What happened after 2020 Galwan clash?**

After May 2020, there was a major force accretion as well as reorientation of troops from the western to the northern borders. As the stand-off unfolded, the Indian military went all-out in mobilisation to counter Chinese build-up as well as its ingress into Indian-held territory. The Indian Air Force (IAF) pressed its entire transport fleet, airlifting over 68,000 troops, 330 infantry vehicles and over 90 tanks in addition to artillery guns in the initial phase, according to defence sources.

In all, over 9,000 tonnes were airlifted including radars and surface-to-air guided weapon systems. At the height of the tensions in Eastern Ladakh, the Army deployed one regiment of K9 Vajra tracked self-propelled Howitzers to augment its long-range fire power to counter a massive Chinese build-up.

The K9 Vajra is a 155-mm, 52 calibre tracked self-propelled Howitzer built by Larsen & Toubro (L&T) with technology transfer from South Korean defence major Hanwha Defence. Impressed with their performance, the Army is now in the process of procuring another 100 of these guns. “Acceptance of Necessity (AON) for repeat order of 100 Guns was granted. Further process is on,” said Lt Gen Adosh Kumar, Director General of the Regiment of Artillery.

At the end of August in 2020, as tensions flared up once again on the north and south banks of Pangong Tso, tanks of both sides came dangerously close, about 100 metres apart, on the Kailash ranges. They were subsequently pulled back some distance from the friction points as part of the disengagement reached between the two countries.

### **What are the challenges due to high altitude?**

Dialling back to the 1962 war, the Indian Army had attempted using tanks at these heights as six AMX-13 tanks were airlifted to Ladakh in AN-12 transport aircraft. However, their trust was blunted as both the men and the machines were not prepared for the high altitude. Oxygen levels go down at high altitudes while temperatures dip to minus 40 degrees.

Most military hardware, especially built by other countries, is not designed to operate in those conditions. There is also high wear and tear and degradation, requiring quicker turnaround of spares and systems. This time too, transporting the tanks to these locations and then ensuring they are fully operational was a Herculean task.

The tanks which have been transported remain there as troops and units rotate. The Army has created maintenance facilities for the tanks and armoured vehicles at Nyoma and also on the axis to Daulat Beg Oldi. Special lubricants and fuel are used to keep the tanks running, and engines are revved-up to keep the systems in order. For the K9s too, to ensure their optimal performance, the Army has procured winterisation kits to protect batteries, oils and lubricants and such. There are nine items, which don't freeze at -20 degrees, as reported by The Hindu earlier.

### **What is India up against?**

The Chinese People's Liberation Army (PLA) has rapidly upgraded its troop strength and fire power along the LAC. It has deployed the ZTQ 15 (Type 15) 3rd generation modern light tank, in addition to the Type 96A 2nd generation tanks. Chinese mechanised brigades opposite Eastern Ladakh have inducted new wheeled APCs as also the CSK series of assault vehicles. Not just India and China, several European countries have outlined major tank acquisition plans, while major tank producers, like the U.S., the U.K., Germany among others, are adding new protective systems to existing tanks. France and Germany recently announced plans for the joint development of a new tank.

### **What lies ahead?**

From lessons drawn from Ukraine, the Armenia-Azerbaijan war and the Israeli offensive in Gaza and Lebanon, among the top threats are long-range projectiles, drones of various kinds and loitering munitions. Measures are already being implemented to counter them and protect armoured columns and other assets. The Army is looking for air burst ammunition to be fired from 30mm cannons on the BMP-2s to shoot down drones as well as more potent ammunition for the tanks.

This is in addition to planned upgrades for the armoured carriers, which includes a 3rd gen ATGM replacing the existing 2nd gen Konkurs wire guided ATGM. Procurement of other variants of the BMP are in the pipeline while a range of specialised vehicles have been inducted since the stand-off. The U.S. Stryker infantry combat vehicle is also under evaluation and a few hundred vehicles could possibly be procured. Aside from the upgrades, the hunt is on for new Future Ready Combat

Vehicles (FRCV) and Future Infantry Combat Vehicles (FICV) to replace the existing tanks and BMPs in service. These are long-term projects, which have failed to take off in the past, but are now expected to see faster progress given the relative development of the domestic industry in the last few years.

With the main battle tank proving to be pivotal in modern day battlefields, the Indian Army is looking to procure a new generation 'Future Tank' under the FRCV project in a phased manner, with expected induction by 2030, according to official sources. In the immediate term, the most pressing project is the light tank weighing 25 tonnes, the need for which was felt by the Army during the stand-off, as China deployed its own light tanks along the LAC which are agile and more manoeuvrable.

The indigenous light tank 'Zorawar' being developed by the Defence Research and Development Organisation (DRDO) along with L&T has just successfully completed preliminary automotive as well as firing trials. After a series of trials, the light tank is planned to be handed over to the Army for user trials by August 2025, officials said. Given the hectic pace of developments, tanks and armoured platforms are adapting to the changing nature of warfare, and are going to remain a potent force for both offensive and defensive purposes.

<https://www.thehindu.com/news/national/how-are-tanks-armouring-ladakh-sector-explained/article68722834.ece>



*Sun, 06 Oct 2024*

## **India and Kazakhstan forces train for combat ops ahead of critical SCO meeting in Islamabad**

The 8th edition of the India-Kazakhstan Joint Exercise KAZIND is in full swing at the Surya Foreign Training Node, Auli, Uttarakhand, as both countries gear up for the upcoming Shanghai Cooperation Organisation (SCO) Meeting in Islamabad. With the theme of Joint Sub-Conventional Operations under Chapter VII of the United Nations Mandate, this exercise emphasizes collaboration and counter-terrorism preparedness.

The exercise, which commenced on September 30, 2024, includes a 120-member Indian contingent, primarily from the Kumaon Regiment, alongside Indian Air Force personnel and support units. Together, the troops aim to sharpen their operational coordination, focusing on tactics crucial for modern warfare.

So far, participants have engaged in a series of physically and mentally challenging activities, including Yoga sessions, Army Martial Arts Routines, Rock Craft Training, and Special Heliborne Operations. Yoga not only served as a physical training exercise but also as a way to build mental resilience and camaraderie between the two forces. The Army

Martial Arts Routine highlighted Indian troops' expertise in hand-to-hand combat, while Rock Craft Training equipped soldiers with the skills necessary for operating in rugged, mountainous terrains—an essential capability for counter-terrorist missions. Special Heliborne Operations provided critical training in rapid deployment techniques, where troops were inserted into potentially hostile environments via helicopters for swift operations.

Additionally, a weapon and equipment demonstration were held, with a focus on weapon handling and tactical firing positions. The exercises are designed to build operational synergy, ensuring the forces are prepared for close-quarter engagements and other high-stakes combat scenarios.

As the SCO Meeting in Islamabad approaches, both India and Kazakhstan are keen to showcase their commitment to regional stability and security. This joint exercise underscores their readiness to cooperate in addressing shared security challenges in an increasingly volatile geopolitical landscape.

<https://www.financialexpress.com/business/defence-india-and-kazakhstan-forces-train-for-combat-ops-ahead-of-critical-sco-meeting-in-islamabad-3631774/>



*Mon, 07 Oct 2024*

## **India's LCH Prachand "Beats" U.S. AH-64 Apache As Preferred Chopper For Indian Army For High-Altitude Ops**

The delayed Apache AH-64E attack helicopters are not the Indian Army's first choice for high-altitude warfare. Instead, the indigenously developed Light Combat Helicopter 'Prachand' (Fierce) will be deployed in Ladakh along the China border in 2025. Boeing's Apache has been delayed for over six months. The first three helicopters are expected to be delivered by December 2024. The manufacturer has cited supply chain issues as the reason for the delay. The final delivery is likely to be made by early 2025.

The Apaches, also known as 'tank killers,' will be deployed in the deserts, where they are best suited for countering armor. The first Apache unit will be based at Nagtalao Army Base near Jodhpur. The 451 Army Aviation squadron was raised at Nagtalao near Jodhpur on March 15, anticipating the arrival of the US-made helicopters. The helicopter base is fully ready to operate the Apaches. In 2020, the army ordered six Apache attack helicopters from the US for more than ₹4,100 crore.

Armed with fire-and-forget Hellfire missiles, the Apache can track up to 128 targets a minute and prioritize threats. The missiles equip the gunships with heavy anti-armor capabilities. The helicopters will help India strengthen its posture against Pakistan. The Indian Air Force (IAF) has already inducted Apache in its fleet. The IAF has deployed its Apache attack helicopters in

Ladakh, which provided tactical support to the ground forces when needed. However, the helicopter's operability on the upper reaches of the Himalayas has been questioned.

In 2024, an IAF helicopter was stranded at a high altitude for several months because it was proving difficult to bring the rotary-wing aircraft down. The IAF inducted the first batch of US-made Apache AH-64E at the Pathankot Air Force Station and the second one in Jorhat, Assam. This is where the indigenous LCH will factor in. Prachand has a higher operational envelope as it is specifically designed for high-altitude conditions. "We have already tested the Apache helicopters in the operating conditions and have decided to deploy in the desert condition," an Indian Army official told the EurAsian Times.

The Indian AH-64E Guardian version features a more powerful engine, better data networking, and improved composite rotor blades. Engine performance and load-carrying capacity (of helicopters or aircraft) decrease drastically at high altitudes. Flying at the limits of the aircraft requires the meticulous calculation of its 'all-up weight.' A few extra kilograms of cargo could have lethal consequences.

The US deployed Apaches over the mountains of Afghanistan in 2002, operating at around 12,500 feet above sea level, but the pilots were required to perform performance planning before each mission. The LCH has demonstrated an ability to operate in these conditions. In 2015, an LCH conducted several test landings on the Siachen glacier in Ladakh at altitudes up to 15,800 feet while carrying a modest 500-kilogram (1,102-pound) load.

The Defence Acquisition Council has already approved the procurement of 156 LCH at an estimated cost of ₹45,000 crore (\$5.5B), 90 for the Army and 66 for the IAF. These are in addition to the 15 limited series production LCH being procured — 10 for IAF and five for the Army — at a cost of ₹4,264 crore. In addition to the LCH, the Army operates 75 Rudra helicopters, the armed version of the advanced light helicopter.

### **How Does LCH Stack Up Against Apache?**

Both the Boeing AH-64 Apache and the HAL's LCH are two-seat multi-role attack helicopters. There is not much difference between the two choppers in terms of weight. The Apache is 3,148 kilos lighter than the LCH. The LCH is powered by two Shakti turboshaft engines with 1,430 horsepower each. The Boeing Apache helicopter is powered by 2 General Electric T700 GE 701C turboshaft engines capable of delivering 1,890 horsepower each. The powerful engines of Apaches allow them to achieve a top speed of 295 kph while the maximum speed of LCH is 280 kph.

LCH has another advantage over Apaches – that of endurance. It can tail a target for up to 700 kilometers while flying at a height of 6,500 meters. The Apache only has a range of 480 kilometers and can reach a ceiling of 6,400 meters. LCH Prachand's engines are produced in collaboration between HAL and France's Safran company. It can operate at the world's highest battleground – the Siachen Glacier. The pilot and co-pilot, known as the Weapon Systems Operator (WSO), sit in tandem in a glass cockpit and are protected by armored panels.

The weapon complement includes a 20mm nose gun in the front, capable of firing 800 rounds per minute from a range of up to 2 km. A 70mm rocket pod is mounted on the stub wing, with a direct firing range of up to 4 km and indirect up to 8 km.

Above the gun is an electro-optical pod for long-range day and night surveillance and target tracking. Anti-tank guided missile 'Dhruvastra' and French air-to-air missile 'Mistral-2' have a maximum interception range of 6.5 km. Indian LCH can also be deployed in various roles, including tracking slow-moving aerial targets, insurgency, destroying enemy defenses, search and rescue, anti-tank, and scouting.

The Army is looking for another 95 LCH and the IAF another 65. However, the contract has yet to be worked out, and their induction is spread over the next 10-15 years. The Indian Army plans to eventually deploy 70 of its LCH in the mountains. Wing Commander Saurabh Sharma, who is also the Flight Commander of Dhanush Squadron 143 Helicopter Unit, which operates these helicopters, described his experience flying the machines: "To quote a famous boxer, Mohammed Ali, all I can say is this machine flies like a butterfly and stings like a bee." At high altitudes, this bee is going to sting India's adversaries, keeping them at bay.

<https://www.eurasiantimes.com/light-combat-helicopter-vs-apache-the-former/>

## Science & Technology News



**Press Information Bureau**  
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*Fri, 04 Oct 2024*

### **Novel polymer nanocomposite creates base for road safety sensor for accident prone turnings**

A prototype of a road safety sensor that can be implanted at high-risk turning points where accidents are frequent, has been developed from a new polymer nanocomposite with pressure sensing and energy harvesting properties.

Scientists are constantly trying to develop new materials for self-powered energy generating and pressure sensing devices and using them for several applications. Flexible, portable, long-lasting, and wearable sensors and energy harvesting devices can play an essential part in today's artificial intelligence era. Polymers and nanoparticles serve critical roles in today's flexible electronic systems.

Researchers from Centre for Nano and Soft matter Sciences (CeNS), Bengaluru have developed a polymer nanocomposite for pressure sensing and energy harvesting applications and used it to invent a prototype of a road safety sensor.



The prototype may be implanted in the movable ramp and secured to the road just 100 meters before acute and fatal turning points. Thus, any vehicle approaching from the opposite side will see the signal on a screen and be alerted. This prototype works on the principle of piezoelectric effect so it can generate energy that can be stored and used further to power electronic gadgets as well.

The novel polymer nanocomposite, from which the prototype has been crafted, has been made of transition metal dichalcogenide.

The scientists, Shri Ankur Verma, Dr. Arjun Hari Madhu, Dr. Subash Cherumannil Karumuthil synthesized vanadium disulfide (VS<sub>2</sub>) with a very high surface charge which has the capacity of improving the piezoelectric characteristics of polymers. Polymer nanocomposite films were prepared by integrating these nanoparticles at various concentrations into a well-known piezoelectric polymer, poly (vinylidene difluoride) (PVDF).

Further they investigated how the surface charge of nanoparticles will affect the piezoelectric properties of polymer nanocomposite. In addition, a laboratory-scale demonstration of a road safety sensor and smart door was established, with the prototype as a pressure sensor.

This study demonstrates that PVDF-VS<sub>2</sub> nanocomposites will provide significant value to flexible, long-term energy generating and pressure sensing applications. This work was recently published in the Journal of Material Chemistry A and an Indian patent application filed.

This study is part of an ongoing project “Materials for self powered energy generating and pressure sensing devices” funded by Department of Science and Technology under INSPIRE –faculty fellowship programme.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2061992>



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

**Ministry of Science & Technology**

*Fri, 04 Oct 2024*

## **New artificial synaptic chip mimicking biological synapses to transform information technology**

Scientists have created an artificial synaptic device that emulates the behaviour of biological synapses to transform information technology through more efficient computing models.

They have used two-dimensional electron gas in oxide heterostructures for integrating architecture inspired by the biological brain, also called neuromorphic architecture and logic operations on a single chip.

Modern computers inherently segregate memory and computation into independent physical units based on 'von Neumann computing'-- a system which is like a set of instructions that tells the

computer how to handle information and perform tasks. This requires separate units for reading and executing complex operations, and then returning the results to memory, which slows computing. This can create a "bottleneck,". Especially if the computer needs to handle a lot of instructions and data at the same time, it can get slowed down because everything has to travel along the same path.

On the other hand, a human brain is a sophisticated, dynamic, reconfigurable system with direct memory access, with neurons conducting the computational operations. Neuromorphic electronics, inspired by the intricate workings of the biological brain, offer the potential to transform information technology through more efficient computing models.

Scientists at the Institute of Nano Science and Technology (INST), Mohali (Punjab), an autonomous institution of the Department of Science and Technology (DST), Government of India used a new approach that follows the working principal of human brains to overcome the challenges of 'von Neumann computing'.

They utilized the two-dimensional electron gas (2DEG) within the EuO-KTaO<sub>3</sub> (KTO) oxide heterostructure to develop a chip which exhibited neuromorphic properties as well as showed a large change in resistivity known as resistive switching behaviour.

Current is generated at EuO-KTaO<sub>3</sub> interface due to shining of light and this persists even after the light is turned off (demonstrating high persistent photoconductivity) resulting in optoelectronic properties necessary for replicating cognitive functions such as sensory perception, learning, and memory.

The developed chip not only mimics the short- and long-term plasticity observed in biological synapses but also performs logic gate operations, significantly enhancing its versatility and potential for integration in advanced neuromorphic systems.

Supported by the DST's Nanomission, and CSIR in the form of a sophisticated, custom-made instrument called a combinatorial pulsed laser deposition setup, Prof. Suvankar Chakraverty Professor at INST, Mohali (Punjab), have produced 2DEG at the interface composed of chemicals EuO and KTaO<sub>3</sub> acting as artificial synaptic device showing neuromorphic properties. The research was published in the journal 'Applied Physics Letter'.

Neuromorphic design in oxide interfaces can facilitate more energy-efficient and quicker information processing, enhanced AI capabilities, and improved device miniaturisation. These systems may learn and change with time, resulting in more personalized and responsive technology. Furthermore, their resilience and fault tolerance make them perfect for important applications that will ultimately improve everyday life, including healthcare, education, and environmental sustainability.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2061991>

## Scientists map fruit fly brain in neurobiological milestone

Scientists announced on Thursday a milestone in neurobiological research with the mapping of the entire brain of an adult fruit fly, a feat that may provide insight into brains across the animal kingdom, including people.

The research detailed more than 50 million connections between more than 139,000 neurons - brain nerve cells - in the insect, a species whose scientific name is *Drosophila melanogaster* and is often used in neurobiological studies. The research sought to decipher how brains are wired and the signals underlying healthy brain functions. It also could pave the way for mapping the brains of other species.

"You might be asking why we should care about the brain of a fruit fly. My simple answer is that if we can truly understand how any brain functions, it's bound to tell us something about all brains," said Princeton University professor of neuroscience and computer science Sebastian Seung, one of the co-leaders of the work published in a series of studies in the journal *Nature*. While some people may be more interested in swatting flies than studying them, some of the researchers found aesthetic satisfaction peering at the fruit fly brain, less than 0.04 inches (1 mm) wide.

"It's beautiful," said University of Cambridge neuroscientist and research co-leader Gregory Jefferis. The map devised by the researchers provided a wiring diagram, known as a connectome, for the brain of an adult fruit fly. Similar research previously was conducted with simpler organisms, such as the worm *Caenorhabditis elegans* and the fruit fly's larval stage. The adult fruit fly presented more complicated behaviours to study through its brain wiring.

"One of the major questions we're addressing is how the wiring in the brain, its neurons and connections, can give rise to animal behaviour," said Princeton neuroscientist Mala Murthy, another of the co-leaders of the research.

"And flies are an important model system for neurosciences. Their brains solve many of the same problems we do... They're capable of sophisticated behaviours like the execution of walking and flying, learning and memory behaviours, navigation, feeding and even social interactions, which is a behaviour that we studied in my lab at Princeton," Murthy added.

One of the studies analyzed brain circuits underlying walking and discovered how flies halt. Another analyzed the fly's taste network and grooming circuits behind behaviour such as when it uses a leg to remove dirt from its antennae. Another looked at the visual system including how the fly's eyes process motion and colour information. Still another one analyzed connectivity through the brain, discovering a large assemblage of "hub neurons" that may speed up information flow.

The researchers fashioned a map tracking the organization of the hemispheres and behavioural circuits inside the fly's brain. They also identified the full set of cell classes in its brain, pinpointing different varieties of neurons and chemical connections - synapses - between these nerve cells, and

looked at the types of chemicals secreted by the neurons. The work was conducted by a large international collaboration of scientists known as the FlyWire Consortium.

<https://www.thehindu.com/sci-tech/science/scientists-map-fruit-fly-brain-in-neurobiological-milestone/article68712559.ece>



*Sun, 06 Oct 2024*

## **L&T eyes role in NASA's successor to the International Space Station**

New Delhi, After powering ISRO's space missions for more than five decades, India's largest engineering firm Larsen and Toubro has now set its eyes on the international market, particularly the next International Space Station. L&T was earlier in talks with Jeff Bezo's Blue Origin for supplying orbital launch capabilities and space habitat solutions but the negotiations ran into some difficulties.

"Some remnants of that discussion continue till today but now with NASA. So, we are also hopeful that when the US requires its next space station, Indian firms will have a role to play in the supply chain," Vikas Khita, Vice President, L&T Precision Engineering and Systems, told PTI. Khita, who was speaking on the sidelines of an industry meet organised by Geospatial World, said the firm was also interested in building space ports, space parks and manufacturing clusters, areas which are expected to get a boost considering the government's opening up of the space sector for private participation in 2020.

"In commercial terms, we are looking at a fivefold increase in turnover by 2033 of the space economy and a large part of this increase is to come from the upstream and the downstream sectors," he said.

L&T has been involved in the production of a range of hardware for every project of ISRO, including the Chandrayaan, Gaganyaan, and Mars Orbiter missions. The Hindustan Aeronautics Limited-L&T consortium is also producing five Polar Satellite Launch Vehicles , marking the industry's maiden foray in building rockets for the space agency.

The engineering firm is also learnt to have evinced interest in the Small Satellite Launch Vehicle , as ISRO is all set to transfer technology of the newly developed rocket to the private industry. India is set to play a significant role in the future space economy, aiming to capture about eight per cent of the global market by 2033. The global space industry is projected to be worth around USD 1.8 trillion by 2035. India's space economy is also expected to grow from its current value of around USD 8.4 billion to USD 44 billion by 2033.

<https://www.hindustantimes.com/science/lt-eyes-role-in-nasa-s-successor-to-the-international-space-station-101728215350123.html>

