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## **DRDO Successfully Tests Command of TAPAS UAV from Ground Station to Warship**

In a remarkable feat, the Indian Navy and the Defence Research and Development Organisation (DRDO) on Friday successfully carried out the transfer of command and control capabilities of TAPAS Unmanned Aerial Vehicle (UAV). The demonstration that took place on Friday involved commanding the UAV from a distant ground station to the onboard INS Subhadra, a warship situated 148 km away from Karnataka's Karwar naval base.

Tapas UAV operated at an altitude of 20,000 feet above sea level and completed three-hour and 30-minute flight, with the INS Subhadra assuming control of the operations for 40 minutes.

The Tapas UAV took off at 07:35 am from the Aeronautical Test Range (ATR) in Chitradurga and covered 285km distance to reach the naval base. To facilitate the control of the UAV, one Ground Control Station and two Ship Data Terminals were installed on the INS Subhadra, DRDO said in a statement. Following the successful trial, the Tapas UAV landed back at the ATR.

The Tapas UAV, developed by DRDO, is a Medium Altitude Long Endurance (MALE) unmanned aerial vehicle. The vehicle, which was publicly showcased during its first flight at Aero India 2023 in Bengaluru earlier this year, has a range of more than 18 hours and can operate at altitudes of up to 28,000 feet. It was developed in response to the ISTAR (Intelligence, Surveillance, Target Acquisition, Tracking, and Reconnaissance) requirements of the tri-services.

TAPAS UAV can fly autonomously or be remotely controlled, depending on pre-programmed flight plans, and it can operate in both day and night conditions.

<https://www.hindustantimes.com/india-news/drdo-successfully-tests-command-of-tapas-uav-from-ground-station-to-warship-101687085881455.html>

## **THE TIMES OF INDIA**

### **DRDO Achieves Key Milestone for Tapas UAV with Navy**

In a key milestone, the Defence Research and Development Organisation (DRDO) on Sunday said that the transfer of command and control capabilities of the Tapas unmanned aerial vehicle (UAV) was successfully demonstrated in collaboration with the Indian Navy. According to DRDO, the demonstration involved commanding the UAV from a distant ground station to the onboard INS Subhadra, a warship situated 148 km away from the Karwar naval base. The demonstration was carried out on June 16.

The Tapas took off at 7.35am from the Aeronautical Test Range (ATR) in Chitradurga, 285 km from the Karwar naval base and some 200 km from Bengaluru. “The Tapas UAV operated flawlessly at an altitude of 20,000 feet above sea level. It completed a three-hour and 30-minute flight, with the INS Subhadra assuming control of Tapas’ operations for a duration of 40 minutes... One ground control station and two ship data terminals were installed on board the INS Subhadra. Following the successful trial, Tapas safely landed back at the ATR,” DRDO said in a series of tweets. DRDO describes Tapas as: “A MALE (medium-altitude long-endurance) UAV with an operating altitude of 30,000 ft, endurance of 24 hours with earth observation and SAR (synthetic aperture radar) payloads and a range of more than 250 kms.”

Enabled to carry a variety of payloads up to a maximum of 350 kgs, the UAV is designed to perform intelligence, surveillance, missions for Indian armed forces. “Its mission requirements are to provide continuous wide area coverage and yet be able to identify small targets. It is comparable in the same class as Israeli HERON UAV,” DRDO had said earlier.

<https://timesofindia.indiatimes.com/city/bengaluru/drdo-achieves-key-milestone-for-tapas-uav-with-navy/articleshow/101093493.cms>

## The Statesman

Sat, 17 Jun 2023

### **Puri, L-G Launch Bioplastic Carry Bag Developed by DRDO**

Hardeep Singh Puri, Union Minister for Petroleum, and Lieutenant Governor Manoj Sinha launched the bioplastic carry bag developed by Defence Research and Development Organisation (DRDO) under polythene-free Jammu initiative. Puri called upon the people to shun polythene bags and switch to sustainable bags developed by DRDO.

Prime Minister Narendra Modi has converted the challenges of urbanization into opportunities. The Swachhtha Andolan, under the guidance of the Prime Minister, is leading the country, especially the urban centers on the path of sustainable growth and development, said the Union Minister.

Swachhtha has become the priority of the government. It has become the very principle for effective implementation of all other government schemes, he added

Lt Governor Sinha lauded the DRDO for developing the bioplastic carry bag as an alternative to the polythene bags. It is a significant step towards transforming urban landscape, faster sustainable development and ease of living of citizens, he added.

“This edible and water soluble bag is the best alternative to curb growing menace of plastic pollution. Strategy to Re-orient besides 6R-Reduce, Reuse, Recycle, Remove, Refuse and Report will provide sustainable options to people and promote alternatives for packaging and designing,” the Lt Governor said. The Lt Governor called upon the people from every section of the society, all the stakeholders to discharge their duties towards nature and rededicate themselves to realize the goals of sustainable growth.

“Youth will play a crucial role in combating climate change and building a sustainable future. Youth will also lead the communities to reduce the plastic pollution and to strengthen economic, commercial and social activities in our cities,” the Lt Governor added.

“We need both technology innovations and calibrated action to reduce plastic pollution, enable sustainable alternatives to ensure success of our sustainable development programmes,” he said.

<https://www.thestatesman.com/india/puri-l-g-launch-bioplastic-carry-bag-developed-by-drdo-1503191162.html>

## Amarnath Yatra: बालटाल में DRDO का 100 बेड का अस्पताल तैयार, यात्रा मार्गों पर बनेंगे 29 हेल्थ सेंटर


बाबा अमरनाथ यात्रा की तैयारियां जोरों पर हैं। यात्रा के आधार शिविर बालटाल में सौ बेड का डीआरडीओ (DRDO) अस्पताल बन कर तैयार हो गया है। इस अस्पताल में चिकित्सा की पर्याप्त सुविधाएं उपलब्ध होंगी।

### श्रद्धालुओं का होगा इलाज

अगर कोई श्रद्धालु बीमार होता है तो उसका वहां पर इलाज होगा। यात्रा मार्ग पर बीमार होने वाले श्रद्धालुओं को भी इस अस्पताल में इलाज के लिए लाया जाएगा। बाबा अमरनाथ यात्रा एक जुलाई से शुरू हो रही है जो 62 दिन चलकर 31 अगस्त को रक्षा बंधन वाले दिन संपन्न होगी।

<https://www.jagran.com/jammu-and-kashmir/jammu-drdo-100-bed-hospital-ready-in-baltal-for-amarnath-yatra-23444536.html>

## DRDO on Twitter



**DRDO** @DRDO\_India · 18 Jun  
#DRDOUpdates | DRDO and @indiannavy team successfully demonstrated transferring of command & control capabilities of TAPAS UAV from a distant ground station to onboard INS Subhadra, 148km from Karwar naval base on 16 Jun 2023.  
@DefenceMinIndia @SpokespersonMoD



20 351 1,954 128.4K

**DRDO** @DRDO\_India  
The UAV was seamlessly flying around an altitude of 20,000ft (ASML). INS Subhadra controlled UAV operations for 40min during its 3.30hrs flight duration.

11:29 am · 18 Jun 2023 · 24.7K Views



## Defence News

## Defence Strategic: National/International



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Fri, 16 Jun 2023*

### **Raksha Mantri Chairs Meeting of Consultative Committee for MoD on Self-Reliance in Bengaluru**

**National security being strengthened & Armed Forces becoming technologically advanced:  
Shri Rajnath Singh**

Raksha Mantri Shri Rajnath Singh chaired a meeting of the Consultative Committee for the Ministry of Defence on 'Self-reliance in Defence Manufacturing' in Bengaluru, Karnataka on June 16, 2023. During the meeting, the members of the committee from both the Houses of Parliament were apprised about the initiatives taken by the Ministry of Defence (MoD) to achieve 'Aatmanirbharta' in defence and the progress achieved, so far, due to the decisions.

The Raksha Mantri highlighted the Government's constant endeavour to enhance the security of the country and make the Armed Forces technologically advanced to deal with challenges emanating out of the ever-evolving global scenario. Terming demand assurance as one of the most important

aspects to ensure self-reliance, he stated that a number of decisions have been taken to achieve the objective. These include constant increase in defence budget, including capital outlay; earmarking of record 75 per cent of defence capital procurement budget for domestic industry in Financial Year 2023-24 and issuance of positive indigenisation lists.

Shri Rajnath Singh asserted that the Government's decisions have started to bear fruit and today the country is indigenously manufacturing submarines, fighter jets, helicopters and weapons. He added that the growing defence industry is not only catering to the domestic requirements, but also fulfilling the security needs of friendly countries. "In the last financial year, our defence production crossed Rs one lakh crore and exports touched Rs 16,000 crore. This is proof that the defence sector and the nation at large are on the right path," he said.

The Raksha Mantri appreciated the fact that irrespective of the ideology, there has always been consensus from all quarters towards attaining the goal of complete self-reliance. "If we wish to make India a defence exporter instead of an importer, we must stand together in every situation with the idea of 'Nation First'. Only then will we be able to achieve the goal of Aatmanirbhar Bharat," he said.

During the course of the discussion, the members of the committee gave valuable suggestions, which were appreciated by the Raksha Mantri. He stated that efforts will be made to incorporate the suggestions.

Raksha Rajya Mantri Shri Ajay Bhatt; Chief of Defence Staff General Anil Chauhan; Defence Secretary Shri Giridhar Aramane; Secretary (Ex-Servicemen Welfare) Shri Vijoy Kumar Singh and Secretary, Department of Defence R&D and Chairman, DRDO Dr Samir V Kamat were also present in the meeting.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1932833>



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

**Ministry of Defence**

*Sat, 17 Jun 2023*

## **Self-Reliance a Necessity as India Faces Double Border Threat & New Dimensions of Warfare: Raksha Mantri in Lucknow**

**"Strong & self-reliant military backbone of a sovereign nation; Govt ensuring that Armed Forces are not dependent on foreign equipment"**

**"Self-reliance in niche technologies must for India to become a military power at global level"**

**"95% of land in UP Defence Corridor acquired; 109 MoUs signed with estimated investment of over Rs 16,000 crore"**

**Shri Rajnath Singh calls for developing dual use technology that benefits both defence & civilian sectors**

Self-reliance is not an option but a necessity, as India is facing a double threat on its borders, along with new dimensions of warfare that are emerging in today's fast-changing world. This was stated by Raksha Mantri Shri Rajnath Singh during a defence dialogue on 'Aatmanirbhar Bharat'



organised by STRIVE think-tank, a veterans' initiative, and a media organisation in Lucknow, Uttar Pradesh on June 17, 2023.

The Raksha Mantri termed a strong & self-reliant military as the backbone of a sovereign nation, which besides protecting the borders, safeguards the country's civilisation and culture. He asserted that the Government, under the leadership of Prime Minister Shri Narendra Modi, is ensuring that the Armed Forces are not dependent on foreign weapons & equipment, emphasising that the real strength lies in being 'Aatmanirbhar', especially when an emergency situation arises.

Shri Rajnath Singh shared his insights on the paradigm shift brought about by technology in the nature of warfare. He stressed on the need to develop indigenous state-of-the-art weapons and platforms that equip & prepare the Armed Forces to tackle new and emerging challenges.

"Most of the weapons today are electronic-based systems, which can reveal sensitive information to the adversaries. As imported equipment has certain limitations, we need to go beyond the horizon and achieve self-reliance in niche technologies. Latest weapons/equipment are equally important as the bravery of our soldiers. If India wishes to become a military power at the global level, there is no other option than being self-reliant in defence manufacturing," the Raksha Mantri said.

Listing out the advantages of being 'Aatmanirbhar', Shri Rajnath Singh stated that it would not only decrease the expenditure on imports, but also multi-dimensionally benefit the civil sector. He called for developing dual use technology that, besides strengthening the defence sector, improves the standard of living of the people.

The Raksha Mantri enumerated the steps taken by the Government to create a robust defence ecosystem, which not only caters to the domestic requirements, but also fulfills the security needs of friendly countries. These include setting up of Defence Industrial Corridors (DIC) in Uttar Pradesh and Tamil Nadu; earmarking of record 75 per cent of defence capital procurement budget (approx. Rs one lakh crore) for domestic industry in Financial Year 2023-24; 25 per cent R&D budget for private industry and Innovations for Defence Excellence (iDEX) initiative & Technology Development Fund to promote start-ups.

On the UP DIC, Shri Rajnath Singh said that the work is going on in mission mode and 95% of around 1,700 hectares of land has been acquired till date. Of these, 36 industries and institutions have been allotted nearly 600 hectares of land. 109 MoUs have been signed, with an estimated investment value of more than Rs 16,000 crore. So far, a total investment of about Rs 2,500 crore has been made in UPDIC by various entities. The corridor will not only produce spare parts, but also manufacture and assemble Drones/Unmanned Aerial Vehicles, Electronic warfare, Aircraft & BrahMos missiles.

The Raksha Mantri highlighted that the Government's efforts in the last few years have resulted in over Rs one lakh crore defence production and nearly Rs 16,000 crore exports in Financial Year 2022-23. He exuded confidence that the defence exports will soon cross Rs 20,000 crore mark. "We are moving ahead at an unprecedented pace to achieve the Prime Minister's vision of making India a developed nation by 2047. The aim is to build an economically powerful and completely self-reliant India, which is also a net defence exporter," he added.

Chief Nodal Officer for UP DIC Air Chief Marshal RKS Bhadauria (Retd), officers of the Armed Forces & DRDO and representatives of the industry and academia were present on the occasion.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1933019>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Sun, 18 Jun 2023*

## **MoD to Hold Two-day ‘Chintan Shivir’ to Discuss Challenges Faced by its Departments & Evolve New Ideas for Better Governance**

Ministry of Defence (MoD) is organising brainstorming sessions ‘Chintan Shivir’ in New Delhi on June 19 & 20, 2023 to discuss various issues & challenges faced by its departments, with the aim to come out with new ideas for better governance & functioning. Department of Defence (DoD), Department of Defence Production (DDP), Department of Military Affairs (DMA) and Department of Ex-Servicemen Welfare (DESW) have identified a number of themes, on which eminent subject matter experts will share their views with the officers of the Ministry.

### **Department of Defence**

The DoD will deliberate on the following topics:

Comprehensive approach to national security

Cyber security challenges

National Information Security Policy and Guidelines

Performance Audit

Sainik School education system

Capacity Building in Defence Acquisitions

Department of Defence Production

The DDP will have discussions on the following themes:

Enhancing production & defence exports

Increasing Aatmanirbharta: Road ahead for indigenisation

Industrial Ecosystem and Skilled Workforce

Enhancing Level Playing Field

Quality Reforms

### **Department of Military Affairs**

The topics chosen by the DMA will cover critical issues of Integrating and optimising Human Resource aspects, Training and Operational issues towards achieving greater synergy and modernisation & capability augmentation of Armed Forces in the realms of strategic domain. It will also include discussions on measures to identify and abolish colonial practices and obsolete laws and further incorporate the country’s own ethos and practices in functioning of the Armed Forces.

### **Department of Ex-Servicemen Welfare**

**The themes identified by DESW include:**

Leveraging SPARSH for better pension services and other welfare measures for veterans

Resettlement of veterans by improving employability and promotion of entrepreneurship for start of micro enterprises by veterans

### **Improvement in the health services of the veterans**

The Chintan Shivir will conclude with an open-house session for inviting ideas & suggestions for enhancing organisational efficiency in various departments. The event is being organised in line with the Government's directions to have a real time audit of the objectives achieved till date and carve a way forward towards achieving the desired goals in realistic timelines.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1933204>

# **अमरउजाला**

*Sat, 17 Jun 2023*

## **तीनों सेनाओं में दो और तीन स्टार अफसरों के लिए समान गोपनीय रिपोर्ट को मंजूरी, जल्द लागू होगी व्यवस्था**

भारतीय सेना के तीनों अंगों में मेजर जनरल और लेफ्टिनेंट जनरल रैंक यानी दो और तीन स्टार वाले अधिकारियों के लिए एक समान गोपनीय रिपोर्ट को मंजूरी दे दी गई है। रक्षा बलों के बीच संयुक्तता लाने के लिए उठाए जा रहे कदमों के तहत यह फैसला किया गया है। इस व्यवस्था को अगले तीन से चार महीने में लागू कर दिया जाएगा।

यह जानकारी देते हुए रक्षा प्रतिष्ठान से जुड़े सूत्रों ने कहा कि यह सुधार प्रक्रियाओं, आकलनों में समानता प्राप्त करने की दिशा में सहायक साबित होगा। इसके परिणामस्वरूप बेहतर परिणाम प्राप्त होंगे। यह सुधार प्रक्रियाओं, आकलनों में समानता प्राप्त करने की दिशा में सहायक साबित होगा और इसके परिणामस्वरूप बेहतर परिणाम प्राप्त होंगे, जिससे सेना के तीनों अंगों के बीच समानता और एकीकरण लाने में मदद मिलेगी।

यह प्रक्रिया महत्वपूर्ण है क्योंकि यह ऐसे समय में हो रही है जब भारतीय सशस्त्र बल एक थिएटरकमान की तरफ बढ़ रहे हैं और जिसके लिए संयुक्तता और एकीकरण लाने के लिए विभिन्न क्षेत्रों में पहले ही कदम उठाए जा चुके हैं। वर्तमान में संयुक्त सेनाओं में पोस्टिंग या तीनों सेनाओं में नियुक्तियों के लिए चयन प्रणाली मूल सेवा वाले बल के मापदंडों पर आधारित होती है। हाल में बड़ी संख्या में अधिकारियों की पोस्टिंग एक-दूसरे रक्षा बलों में हुई है।

<https://www.amarujala.com/india-news/india-defence-decided-to-go-for-common-annual-confidential-reports-for-senior-armed-forces-officers-soon-2023-06-17>



*Sun, 18 Jun 2023*

## **DRDO Lab to Get Knowhow of Critical Tech as Part of GE Deal, will Help Indigenous Engine Programmes: Officials**

Gas Turbine Research Establishment-- a DRDO lab involved in the development of indigenous engines-- would be part of the proposed deal with American GE for manufacturing jet engines in India, which would help them gain expertise in the field, government officials said.

The officials said the American firm in an "unprecedented move" is sharing manufacturing technology for engines which is 80 per cent by cost.

GTRE is a Defence Research and Development Organisation laboratory based in Bengaluru and has developed the Kaveri engine which was supposed to originally power the LCA Tejas aircraft variants.

Due to delays in the project, India has been forced to go for the GE-404 engines for the initial 113 LCA aircraft and GE-414s for the LCA Mark 2 and the fifth generation planes planned to be produced in India.

Government officials said, subsequently the percentage of the Transfer of Technologies (ToT) is expected to increase further.

With this Transfer of Technology, the parts will be made in the country and GTRE will be receiving all the know-how including that of processes and coatings for the crystal blades etc will be transferred.

Officials said the proposed ToT is unprecedented and GE has not transferred this level of ToT even to their NATO allies.

India has plans of going in for another bigger jet aircraft engine to power its futuristic versions of the Advanced Medium Combat Aircraft for which it has been in talks with the French side.

However, the present status of the talks between the two sides on the matter is not clear.

The deal may be announced during PM Narendra Modi's visit to the US in the coming week.

<https://www.aninews.in/news/national/general-news/drdo-lab-to-get-knowhow-of-critical-tech-as-part-of-ge-deal-will-help-indigenous-engine-programmes-officials20230618201847/>

## THE TIMES OF INDIA

Sat, 17 Jun 2023

### **Vice Army Chief Urges Industries to Work towards Indigenous Solutions for Modernisation of Army**

The Vice Chief of Army Staff (VCOAS) Lt Gen MV Suchindra Kumar urged defence industries and research institutes to work towards more indigenous solutions for the modernisation of the Indian Army on Friday.

The general officer visited various defence industries and research laboratories, including Defence Research and Development Organisation (DRDO) in Pune, said the sources.

"During the visit, he was briefed on ongoing defence-related projects. The general officer appreciated the efforts of various stakeholders and exhorted them to work towards more indigenous solutions for the modernisation of the Indian Army," the sources added.

The vice army chief also visited the Armament Research and Development Establishment (ARDE) laboratory of the DRDO.

"He was briefed on the indigenously developed Laser-Guided Anti Tank Guided Missile (ATGM), which was successfully test-fired from Main Battle Tank (MBT) Arjun, last year. He also interacted with senior DRDO scientists on crucial projects of the ARDE," said a senior DRDO official on condition of anonymity. He also interacted with Southern Army Commander Lt Gen AK Singh at Headquarters, Southern Command. They interacted on contemporary issues about the transformation of the armed forces and self-reliance in the defence manufacturing sector, army sources said.

The general officer assumed the position of the VCOAS on March 1.

<https://timesofindia.indiatimes.com/education/news/vice-army-chief-urges-industries-to-work-towards-indigenous-solutions-for-modernisation-of-army/articleshow/101059963.cms>



*Fri, 16 Jun 2023*

## **145 Made-in-India Light Combat Helicopters 'Prachand' to Enter Mass Production Soon**

Government sources have confirmed that the highly anticipated mass production of the 145 Light Combat Helicopter (LCH) "Prachand" will commence soon. On June 15, Air Marshal Ashutosh Dixit, Deputy Chief of the Air Staff, visited Hindustan Aeronautics Limited (HAL) and personally flew the series production trainer-01 of the LCA Tejas. During the meeting, he received a comprehensive briefing on the production status of the indigenous combat helicopter.

### **3 Things You Need To Know**

Air Marshal Ashutosh Dixit, Deputy Chief of the Air Staff (DCAS), visited the National Flight Test Centre, Aeronautical Development Agency, and HAL Tejas Division.

Delivery of 10 LCH Limited Series Production aircraft for the Indian Air Force is nearing completion.

The LCH's exceptional combat capability at high altitudes emerged as a groundbreaking advantage, revolutionising operations in the challenging Himalayan region, including Siachen.

In March 2020, the Cabinet Committee on Security (CCS) approved the acquisition of 15 limited series Production (LSP) variants of LCH at the cost of ₹3,887 crore. Out of the 15 helicopters, 10 were allocated to the IAF and five to the Army. The IAF has deployed its LSP variants of the combat helicopter in Jodhpur near the Indo-Bangladesh border, while the Army has stationed the first squadron of LCH just 250 km from the Line of Actual Control (LAC) in Missamari, Assam.

### **Prachand: India's First Indigenous Combat Helicopter**

The twin-engine LCH, designed by HAL, is a 5-8 tonne combat helicopter specifically tailored for high-altitude operations. It boasts a combat radius of 500 km and a service ceiling of 6,000–6,500 metres. The helicopter incorporates stealth features, armour protection, and night attack capability. Equipped with a glass cockpit, low radar cross-section, and integrated systems such as the Integrated Architecture Display System (IADS), Countermeasure Dispensing System (CMDS), electro-optical (EO) pod, and electronic warfare (EW) suite, the LCH is a formidable multirole combat helicopter.

Armed with a 20mm gun, rockets, and air-to-air/air-to-ground missiles, the LCH has a maximum takeoff weight (MTOW) of 5,800 kg, a top speed of 268 km/h, a range of 550 km, and a service ceiling of 6.5 km. It is powered by two HAL/Turbomeca Shakti-1H1 engines, each providing 1,032 kW of power. The engines are fitted with infrared suppressors. The LCH's design enables it to perform various attack profiles, including high-altitude warfare. It excels in anti-infantry, anti-armour, destruction of enemy air defence (DEAD) operations, urban warfare, counter-insurgency operations, counter surface force operations (CSFO), escort to special heliborne operations (SHBO), combat search and rescue (CSAR) operations, and armed aerial scouting duties. The LCH

features a narrow fuselage, stealth profiling, and advanced rotor technology inherited from the HAL Dhruv.

### **Enhancing fighting capabilities**

The Army is strategizing to integrate attack helicopters into all pivot formations, bolstering close anti-armour support. Simultaneously, the Air Force's induction of these helicopters seeks to empower the IAF with the capacity to effectively neutralise high-altitude objectives and counter the dwindling numbers of attack helicopters within its fleet. Notably, the Indian Army has plans to acquire approximately 95 LCH units, while the IAF is slated to receive 65, further enhancing its operational capabilities.

### **Addressing Operational Gaps**

Currently, the LCH lacks an electronic warfare suite, unlike the weapon systems-integrated version of the Advanced Light Helicopter 'Rudra,' which already incorporates Saab's Integrated Defensive Aids Suite (IDAS). IDAS equips the aircraft with radar warning receivers and missile and laser warning systems, enabling the sensors to detect threats from any position relative to the aircraft. Once a hostile target is identified, the system automatically selects an appropriate countermeasure response, deploying countermeasures to deceive incoming projectiles or radar. The initial plan was to develop an indigenous electronic warfare system for the LCH, designed by DRDO (Defense Research and Development Organization). However, the development process is still underway.

October last year, during the Navratri festival, the LCH was inducted into the Indian Air Force and was named Prachand by Rajnath Singh, India's Defence Minister. During the induction ceremony, he said, "The induction of indigenously developed Light Combat Helicopters (LCH) will enhance our capability and boost defence production. There could not have been a better timing for the LCH induction than Navratri and in the land of warriors, Rajasthan."

<https://www.republicworld.com/india-news/general-news/145-made-in-india-light-combat-helicopters-prachand-to-enter-mass-production-soon-articleshow.html>



*Sun, 18 Jun 2023*

## **With IndusX, India and US Seek to Build a Defence Innovation Bridge for the First Time**

With the objective of building a defence innovation bridge between India and the US, on the sidelines of Prime Minister Narendra Modi's state visit to Washington DC, both sides are likely to announce a joint innovation fund, launch joint challenges, and establish a joint working group to enhance collocation between the defence startup ecosystems of both countries, people familiar with the development said.

As part of the initiative on critical and emerging technologies (ICET), the framework launched by the national security advisers (NSAs) of both countries, Ajit Doval and Jake Sullivan, the US-India Business Council is set to host Indus-X, a new platform to accelerate this connection between startups, governments, academia and big capital on June 20 and 21. It is here that the bilateral relationship will enter into the previously uncharted path of working on defence innovation together.

Ambassador (retired) Atul Keshap, president of USIBC which also hosted the public launch of ICET in January, said, “Indus-X is a direct outgrowth of ICET. Both India’s ministry of defence (MoD) and the US department of defense (DOD) have asked us to host a gathering of defence startups in both countries, companies in incubator phase. Both countries want to encourage them to partner with each other. Both NSAs are deeply invested in Indus-X.”

Keshap said that the turbulent geostrategic environment made it imperative for both democracies to demonstrate they can work together, and Modi’s visit will be key step in breaking through the plateau in the relationship on the defence and economic front. “ICET is as important as the nuclear deal. This is very serious business. When you think about how both countries are worried about geostrategic currents, looking at and working together with each other on future tech and deep tech is really important.”

During the initial discussions on ICET, Keshap said, defence industry stakeholders had asked for asked for a security of supply chain agreement, a reciprocal defence procurement agreement, an incubator to enhance connectivity between start ups and movement on technology release. “We are seeing movement on all these asks.”

In this backdrop, he said, Indus-X is aimed to accelerate defence start up ties. In a clear reference to China, Keshap said, “It’s important because great democracies need to show deterrence strength. If you have strong deterrence, the other guy will think twice before starting something. Getting start up accelerators going is critical to enhancing deterrence. Just as we did with our major defence companies, we need to do that with smaller, medium sized companies because they will greatly boost defence production between both countries and make the other guy think twice.”

### **Agenda**

Besides the participation of nine US start-ups and 14 Indian start-ups, the event will witness high-level government involvement.

While the US ambassador to India, Eric Garcetti, US undersecretary of defense for acquisition and sustainment William A LaPlante, and the US secretary of the Air Force, Frank Kendall, will deliver keynote addresses, Pentagon’s deputy assistant secretary for South and Southeast Asia Lindsay Ford will participate in a panel on investing in the future of the defence relationship. Vivek Virmani, the chief operating officer of Indian defence ministry’s Innovation for Defence Excellence (Idex) initiative will speak about translating innovations into capabilities and startups bridging the distance from ideation to commercial scalability.

Thea Kendler, assistant secretary in the commerce department for export administration, will speak about navigating export controls, procurement and industrial security while Farooq Mitha, DOD director in the office of the small business programs, will address “friendshoring” US-India defence coproduction.

The event will also feature a day-long exhibition at the US Chamber of Commerce, where firms will showcase technologies and platforms that can benefit both countries in areas of border security, maritime domain awareness, space situational awareness, among others.

### **Rationale and outcomes**

In a paper published this week, Carnegie India’s Rahul Bhatia and Konark Bhandari pointed to the mushrooming of the private defence and space ecosystem in India. “Today, Indian defence start-ups are developing a wide spectrum of cutting-edge technologies for the Indian armed forces to employ. These range from unmanned platforms and body armour to surveillance systems and advanced imaging capabilities.” Carnegie is among the partner organisations at Indus-X.

Since India opened up the space sector in 2020, space start-ups too have established a presence. “Skyroot Aerospace recently launched India’s first private rocket and aims to put a satellite into

orbit this year. Digantara, another startup, has built an observatory to track space debris and military satellites over the South Asian region. Some space startups, such as Pixxel and Dhruva Space, have also committed to building satellite manufacturing and assembly facilities—something that would benefit from scale if there were a possibility to build for defense applications as well,” Bhatia and Bhandari note.

It is in this context, Carnegie’s authors point out, that Indus-X offers an opportunity for “matchmaking” between Indian and American startups with “established defence companies, venture capitalists, incubators, accelerators, universities”. It could also establish mentor-protégé relationships between startups and larger defence companies, which can help smaller Indian outfits in accessing US government contracts and vice versa. The paper suggests that Indus-X could also fill a vital information gap on how to navigate the US regulatory environment.

Kriti Upadhyaya, founding director of the IndUS Tech Council, another partner organisation at the event, said there remained many regulatory and export control issues that made it difficult for the private sectors of both countries to work together. “However, pathways exist and are slowly being employed especially by Indian startups and US primes and investors. For example, other transaction authorities can allow Indian startups to supply to US DoD. Similarly, technical assistance agreements enable technology transfer and vendor development to and in India while manufacturing licensing agreements help ease ITAR (International Traffic in Arms Regulation) restrictions when manufacturing in India.”

She said that while working through these pathways was crucial, Indus-X provides an opportunity to all stakeholders to get together, brainstorm and learn in building an effective defence innovation bridge. Pointing out that this was in stark contrast to the top-down Russia-India military industry complex, Upadhyaya added, “A private sector-led US-India defence innovation agenda can represent democratised supply chains and democratised innovation paradigms of the future. What I hope we can achieve is a win-win partnership where Indian firms can bring supply chain resiliency, skilled and talented workforce, and cost efficiency for US primes and partners and the US ecosystem can help infuse fresh investments and transfer of technology to India.”

Those involved with the event hope to see the launch of joint challenges focusing on common dual-use cases for both countries, the setting up of a joint working group to encourage interactions between startups and governments, the unveiling of a joint fund and greater partnerships with academic institutions, and more steps on the US side to ease their regulatory and export control regimes to enable the Indian and American defence ecosystem to work more closely together.

<https://www.hindustantimes.com/india-news/usindia-to-announce-joint-innovation-fund-for-defense-startups-during-pm-modi-s-visit-to-washington-dc-101687007594010-amp.html>



*Fri, 16 Jun 2023*

## **Exploring Potential Collaboration: India and Egypt’s Partnership in Defense, Security, and Space**

India and Egypt have the potential to forge strong cooperation in defense, security, and space domains. During the visit of Prime Minister Narendra Modi to that country, the talks are expected to focus on my sectors including defence, space and maritime cooperation.



On Friday (June 16, 2023) the Ministry of External Affairs officially announced the travel schedule of PM Modi. This will be PM Modi's first visit to the Arab nation.

PM Modi will be on a state visit to the Arab Republic of Egypt from June 24-25 at the invitation of Abdel Fattah El-Sisi, President of Egypt. The Egyptian leader had extended this invitation earlier this year in January 2023 when he was the chief guest at Republic Day celebrations.

### **Defence Cooperation**

Both countries can enhance collaboration through joint military exercises, technology transfer, and defense equipment procurement. Sharing intelligence and expertise in counterterrorism efforts would further strengthen their security cooperation.

### **Possible Space Cooperation**

In space exploration and research, the two can collaborate on satellite launches, data sharing, and joint space missions. This could involve areas such as remote sensing, climate monitoring, and telecommunication. Encouraging partnerships between their respective space agencies and promoting scientific exchange would foster mutual growth and benefit.

Furthermore, both sides can explore avenues for cooperation in cybersecurity, capacity building, and training programs. By exchanging best practices and knowledge in these areas, both countries can enhance their capabilities to counter cyber threats and protect critical infrastructure.

The two countries, by leveraging their respective strengths and expertise, can establish a comprehensive partnership in defense, security, and space. This cooperation would not only contribute to the stability and security of both nations but also foster technological advancements and scientific discoveries in these domains.

### **Egypt's Space Programme**

Egypt has sought international partnerships to further its space program. The country has collaborated with other nations, including Russia, China, and France, for satellite launches, technology transfers, and training programs. There are areas where the Egyptian Space Agency can collaborate with Indian

The Arab nation has been actively developing its space program in recent years. The Egyptian Space Agency (EgSA) is the primary entity responsible for coordinating and overseeing the country's space activities. The agency was established in 2019 and aims to advance Egypt's space capabilities, foster scientific research, and contribute to socioeconomic development.

Egypt has launched its own satellites as part of its space program. In 2007, Egypt successfully launched its first satellite, EgyptSat-1, which was primarily used for remote sensing and earth observation purposes. Later, in 2019, Egypt launched EgyptSat-A, an advanced imaging satellite with enhanced capabilities. These satellites have been instrumental in applications such as environmental monitoring, urban planning, and resource management.

In addition to satellite development and utilization, Egypt has also focused on developing space-related infrastructure and capabilities. The country has established the Egyptian Space City, a dedicated hub for space research, technology development, and education. This facility aims to promote collaboration among scientists, engineers, and academia to drive advancements in space-related fields.

### **India-Egypt Maritime Cooperation**

India and Egypt have been actively pursuing maritime cooperation in recent years and recognize the strategic importance of the Indian Ocean and the Red Sea. During the visit of defence minister

Rajnath Singh last year both sides have sought to enhance their bilateral ties in various maritime domains.

As reported earlier in Financial Express Online, India and Egypt have been engaging in joint naval exercises and information sharing to combat piracy, smuggling, and other maritime threats. These collaborations contribute to the overall security and stability of the region.

Aimed at fostering economic growth and promoting regional integration the two countries are focused on promoting maritime trade and connectivity and are exploring opportunities to enhance maritime infrastructure, such as ports and logistics, to facilitate smoother trade flows between the Indian subcontinent, Africa, and the Middle East.

<https://www.financialexpress.com/business/defence-exploring-potential-collaboration-india-and-egypts-partnership-in-defense-security-and-space-3129030/>



Sun, 18 Jun 2023

## **GE Deal with US for Jet Engines to Strengthen 'Make in India' Programme in Defence**

*By Manjeet Negi*

The General Electric (GE) engine deal with the US for manufacturing jet engines in India is expected to further strengthen the 'Make in India' programme in the defence sector.

The deal would give a boost to the DRDO lab that is working on similar projects to get the know-how on critical technologies, which will help them in developing similar products in India.

Gas Turbine Research Establishment (GTRE) -- the DRDO lab involved in the development of indigenous engines -- will be working along with Hindustan Aeronautics Limited (HAL) and GE on the project and get the required know-how and technical expertise for working in such high-tech projects, government officials said.

India and the US are expected to sign or announce the deal during the visit of Prime Minister Narendra Modi to Washington on June 22 as a part of his maiden state visit. The Light Combat Aircraft (LCA) Mk2 is expected to be ready for induction by 2028, while the first flight of the Advanced Medium Combat Aircraft (AMCA) may take seven years and the induction could take ten years.

After his US visit, PM Modi is slated to visit France in July to participate in French National Day. The Indian side is evaluating the performances of both the jet engines as well as the aspects related to price, and the extent of transfer of technology and manufacturing in India.

LCA Tejas Mk2 and AMCA are the two major fighter aircraft whose manufacturing projects are currently going on in India.

There are plans by India to manufacture 114 multi-role fighter aircraft where Indian lenders would partner with foreign defence firms to manufacture advanced fighter jets within the country outside the HAL facilities for the first time.

<https://www.indiatoday.in/india/story/drdo-lab-ge-deal-manufacture-jet-engines-in-india-critical-know-how-manufacturing-capabilities-india-us-pm-modi-state-visit-2394666-2023-06-18>

*Fri, 16 Jun 2023*

## **UK Defence Industry Becomes “AI Ready” with its Latest MoU**

The Defence Science and technology Laboratory (Dstl) has signed a memorandum of understanding (MoU) with Google Cloud on 14 June that will accelerate the adoption of artificial intelligence (AI) in the UK defence sector.

The news was announced by Paul Lincoln, the UK Ministry of Defence’s Second Parliamentary Under Secretary of State at the AI Summit during London’s Tech week (an event that brings technologists and business professionals together to explore the real-world applications of AI).

The collaboration is said to focus on five key areas:

Accelerating technology adoption by enabling Dstl to use Google Cloud’s AI technologies, processes, and people to learn how the company delivers AI solutions to its end-users.

Broadening the supply chain by opening access to, and supporting engagement between, Dstl and the Google Cloud Marketplace, including Google Cloud’s wider partner ecosystem.

Supporting training and upskilling with Google-led learning and development opportunities that are tailored to the defence domain and supporting wider ongoing Dstl initiatives by transforming itself into an “AI ready” organisation.

Increasing cross-sector technology transfer by enabling Dstl to benefit from Google Cloud’s technologies across civilian applications and other industries to explore where tools developed for other purposes can help solve UK defence challenges.

Sharing new ways of working and proven approaches to creating a world-class AI research environment, including tools and infrastructure, technology watch and horizon scanning, and talent attraction and retention.

### **AI in defence**

GlobalData, a leading data and analytics company, estimates the total AI market will be worth \$908.7bn in 2030. The global specialised AI applications market will be worth \$477.6bn in 2030, up from \$31.1bn in 2022.

AI technology could make military operations more efficient, accurate and powerful, while also offering long-term cost-cutting potential. The future of war looks like an AI-assisted one, where man and machine work together, with AI conducting specific tasks more effectively than a human ever could.

“As one of the most transformative and ubiquitous new technologies, AI has enormous potential to transform societies.

“Dstl’s collaboration with Google Cloud is one of the significant steps Dstl is taking to prioritise research, development, and experimentation of technologies in line with our commitment to safe and responsible AI,” Dstl’s Chief Executive Paul Hollinshead stated.

<https://www.army-technology.com/news/uk-defence-industry-ai-ready-with-its-latest-mou/>

## NATO Balances Keeping up Arms to Ukraine without Undermining Defence

With Ukraine's counter-offensive against Russian troops ramping up, Western allies face the challenge of replacing lost equipment and supplying the vast quantities of ammunition Kyiv needs -- without undermining their own defence capabilities.

Russia claims to have destroyed up to 30 percent of NATO-supplied weaponry in recent days, showing off videos of destroyed or abandoned German tanks and US armoured vehicles.

Analysts say Moscow's figures are inflated, although independent verification is impossible.

But there is no doubt about the fact that Russia's extensive minefields, large numbers of loitering munitions and intense artillery bombardments will take a toll on Ukraine's forces as they try to pierce defensive lines.

Most analysts believe Kyiv has yet to commit its full strength to the assault, remaining in a phase of probing enemy positions.

"The fighting will likely get tougher," wrote Jack Watling of Britain's RUSI defence think-tank in an analyst note.

"For Ukraine's international partners, the summer is likely to be deeply uncomfortable. Losses will mount and success will take time."

Already, open-source intelligence website Oryx, which tallies equipment losses based on battlefield imagery, has counted four lost German Leopard tanks, two French AMX-10 RC light tanks and more than 70 infantry fighting vehicles.

"It is vital... that there is no diminution in the strengthening of the training programmes allowing Ukraine to continue to generate combat units, or the mobilisation of defence industry to put supply to the Ukrainian military on a sustainable basis," Watling said.

Some European countries have already flagged up limits to the speed at which they can keep up or increase deliveries.

"We will not be able to replace every tank that is now out of action," German Defence Minister Boris Pistorius said on Monday.

Members of the US-led Ukraine Defense Contact Group met in Brussels Thursday to talk supplies for Kyiv, ahead of a NATO defence ministers' meeting.

### **Multi-year programme'**

"We're looking at how we can keep up our aid to Ukraine while preserving our own defence capability," one European government source told AFP on condition of anonymity.

On Tuesday, the US announced an additional \$325 million of aid including armoured vehicles and air defence systems.

Further pledges could come at NATO's summit in Lithuanian capital Vilnius on July 11-12.

"There is an urgent need to support" Ukraine during the summer offensive, NATO Secretary-General Jens Stoltenberg told broadcaster France 5.

"Most likely, (Vilnius) Summit will make a pledge for a multi-year program to provide support to Ukraine," he added.

The European Commission said in early May it would spend 500 million euros (\$545 million) ramping up EU production of artillery shells to one million per year.

At German arms maker Rheinmetall, "we are pulling out all the stops when it comes to production of ammunition for tanks," Harald Weismueller, head of a factory in Unterlues, Lower Saxony state, told AFP recently.

Europe's top producer of shells for tanks and artillery is working Germany's biggest arms factory hard, aiming to send armoured vehicles and their ammunition to the front in Ukraine as well as rebuilding NATO stocks.

Unterlues' top product is 120mm shells for the main gun of the Leopard 2 main battle tank, which Berlin agreed early this year to supply to Kyiv under intense pressure from allies.

Output is now running at a rate of 240,000 annually, up from 60,000 before Russia's invasion.

NATO's other major task is to maintain Western equipment that Ukraine has put through its paces on the front line.

Weapons have to be swiftly brought up to standard and sent back out to the front.

Ukrainian media reports suggest Berlin and Warsaw will soon reach a deal for a Poland-based maintenance centre for Leopard tanks damaged in fighting across the border.

Such facilities already exist in Slovakia and Romania.

<https://economictimes.indiatimes.com/news/defence/nato-may-remove-some-hurdles-on-ukraines-path-to-membership-germany/articleshow/101040630.cms>

## THE ECONOMIC TIMES

Sat, 17 Jun 2023

### **Pakistan Likely to Ship Next Defence Consignment to Ukraine through Jordan and Poland**

Pakistan is expected to ship the next consignment of defence equipment to Kiev via Jordan and Poland, having emerged as a key supplier to Ukraine in its counteroffensive against Russia since October last year. The next arms consignment from Pakistan Ordnance Factories will be shipped through a US flagged ship from the Aqaba naval base in Jordan to the Polish port of Gdansk and onwards to the Ukrainian armed forces, according to people aware of the matter.

The defence items that will be shipped include air defence vehicles, multiple barrel rocket launchers, recovery vehicles, cartridges and spare parts, they said. This is the first time Pakistan is using two countries to transport defence items to Ukraine. Jordan and Pakistan share old defence ties dating back to the Cold War. Jordan has been a supplier of US origin defence equipment to Pakistan in the past.

ET reported last month that Pakistan has set up a defence trading firm in Warsaw to smoothen the process of supplies to Ukraine. The firm has reportedly entered into partnership with Chinese defence firm Beijing Heweyongtai Science & Tech Co Ltd to procure unmanned aerial vehicles for supplies to Ukraine. Pakistan defence trading firm Kestral Trading has reportedly established a firm

in Warsaw under the name Balferrten Investments to facilitate supplies to Ukraine, EThad then reported.

<https://economictimes.indiatimes.com/news/defence/pakistan-likely-to-ship-next-defence-consignment-to-ukraine-through-jordan-and-poland/articleshow/101052861.cms>

## Airforce Technology

*Fri, 16 Jun 2023*

### **Germany Approves \$4.3bn Purchase of Arrow-3 Missile Defence Systems**

The German Ministry of Defence and the Bundestag's Budget and Defence Committees have approved the acquisition of the Arrow-3 air and missile defence system.

The system, developed by Israel Aerospace Industries (IAI), is part of Israel's multi-layer defence array and offers protection against longer-range threats, particularly those carrying weapons of mass destruction.

#### **Protection, at the highest of layers of defence**

With a reported price tag of almost \$4.3bn, the Arrow-3 deal represents the largest defence sale in Israel's history.

Germany has stepped towards procuring Israel's advanced Arrow-3 missile defence system. Reuters has reported that the German Bundestag and Budget Committee have agreed to release advance payments of up to \$610m, marking the initial phase of the procurement process.

The acquisition of the Arrow-3 system comes in response to the growing need for robust ground-based air defence systems in the wake of Russia's war in Ukraine.

With shortages of existing defence systems in Western nations, Germany aims to bolster its defence capabilities by acquiring the Arrow-3, which offers protection at the higher layer of air defence.

While the medium layer is covered by systems like Raytheon's Patriot units and the IRIS-T, the Arrow-3 interceptor ensures defence against ballistic missiles outside Earth's atmosphere.

The funds for this acquisition will be sourced from a special EUR100bn fund initiated by German Chancellor Olaf Scholz following Russia's war on Ukraine.

Tristan Sauer, aerospace, defence, and security analyst at GlobalData, made a point on the matter: "When German Chancellor Olaf Scholz announced a \$109bn investment to modernise the Bundeswehr's capabilities following the invasion of Ukraine in early 2022, many observers expressed scepticism that this commitment would amount to any tangible changes, with the lack of major purchases in 2022 only further legitimising this view."

#### **A relationship steeped in infamous history**

Negotiations between Israel and Germany regarding acquiring the Arrow-3 system gained momentum last year following the conflict in Ukraine. Israeli Prime Minister Benjamin Netanyahu discussed the potential deal with German Chancellor Olaf Scholz in Berlin earlier this year.

According to GlobalData's "Israel Defence Market 2023-2028" report, due to Germany's historical responsibility for the Holocaust and its aftermath, the two nations enjoy a special relationship that makes Germany one of Israel's strongest defence partners in Europe.

The Israeli Ministry of Defense and Israel Aerospace Industries (IAI) welcomed the German approval and affirmed their commitment to finalising the procurement contract.

The joint statement from Defense Minister Yoav Gallant, the Israel Ministry of Defense, and IAI highlighted ongoing discussions with German counterparts and maintained communication with the American administration to ensure the necessary sales approval.

If the deal fell through, Germany would forfeit part or all of its down payment, compensating Israel for the work done thus far.

With the approval from the German Parliament, the Arrow-3 deal paved the way for enhanced defence capabilities and deepened cooperation between Germany and Israel.

<https://www.airforce-technology.com/news/germany-israels-arrow-3-missile-defence/>

## THE ECONOMIC TIMES

*Fri, 16 Jun 2023*

### **Japan Hopes to Shore up Philippines' Defence amid Taiwan Conflict Fears**

Japan is preparing military aid for the Philippines to help secure sea approaches and safeguard Taiwan's western flank, officials say, deepening security ties that could bring Japanese forces back there for the first time since World War Two.

As it steps back from decades of pacifism, Tokyo worries that the Philippines is a weak link in an island chain stretching from the Japanese archipelago to Indonesia through which ships must pass going to or from the Pacific Ocean.

Chief among the Japanese military's concerns is a Chinese attack on neighbouring Taiwan that could spark a wider conflict, with Japanese Prime Minister Fumio Kishida warning that Ukraine today could be East Asia tomorrow. To help address that, Tokyo in April said it would offer like-minded countries military aid, including radars, that the officials said would help the Philippines plug defensive gaps.

"It is very useful giving radars to the Philippines because it means we could share information about the Bashi Channel," said retired admiral Katsutoshi Kawano, referring to the waterway separating the Philippines and Taiwan. It is considered a choke point for vessels moving between the western Pacific and the contested South China Sea.

Three Japanese government officials involved in national security strategy planning told Reuters that Washington was advising Japan on what to supply because it had a close military relationship with the Philippines. One, however, said the aid effort was a Japanese initiative and not anything the United States had pressed for.

The officials declined to be identified because of the sensitivity of the matter.

"We are in the process of selecting equipment that can be used for maritime monitoring and security. We don't know yet what exactly that will be," a spokesperson at Japan's Ministry of Foreign Affairs said.

The Philippines Department of Foreign Affairs said it was not immediately able to comment on security aid from Japan or hosting Japanese troops.

U.S. President Joe Biden's national security adviser, Jake Sullivan, on Friday met with his counterparts from Japan and the Philippines, Takeo Akiba and Eduardo Ano in Tokyo, for the first in a series of regular meetings to discuss security cooperation.

The three "discussed a wide range of regional security challenges, including with respect to the South China Sea and the East China Sea, as well as North Korea", a joint news release said. "In addition, they reiterated the importance of peace and stability across the Taiwan Strait."

### **LOOSENING THE RULES**

The scope of Japanese military aid is limited by a self-imposed ban on lethal equipment exports.

Prime Minister Fumio Kishida in December promised to review that restriction when he unveiled an unprecedented five-year military build-up that will double defence spending within five years.

Looser export rules are expected in coming months, but as pressure grows on industrial economies to help Ukraine, Tokyo has begun testing those restrictions.

After Ukraine President Volodymyr Zelenskiy visited Japan last month for the Group of Seven leaders' summit, Kishida donated military trucks and other vehicles. Tokyo has also told the United States it can buy industrial explosives in Japan for artillery shells destined for Ukraine.

Japan's military aid to the Philippines "will expand step by step and my hope is that it will change to include lethal weapons" such as anti-ship missiles, said Kawano, who served as chief of the Japanese Self-Defence Forces' (SDF) Joint Staff for five years until 2019.

Kawano and the government officials who spoke to Reuters predicted Manila could give Japan access to its military bases, as it does with the United States, allowing Japanese SDF aircraft to patrol the South China Sea. Japan can monitor waters east of Taiwan from Yonaguni island, about 100 kilometres away.

In February the Philippine President Ferdinand Marcos Jr. and Kishida agreed in Tokyo that their militaries would cooperate in disaster relief.

That meeting, in which Kishida also promised Marcos 600 billion yen (\$4.3 billion) in development aid and private investment, was preceded in December by the first-ever visit to the Philippines by Japanese fighter jets and a series of high-level military meetings. Japan in March observed U.S.-Philippine military drills, and this month their coast guards trained together for the first time.

All of this, experts say, could be a precursor to a reciprocal access agreement (RAA) that would allow both countries to deploy their forces on each other's soil. If Manila accepts such an agreement - Tokyo has RAAs with Britain and Australia - a pact could be concluded within a year, another of the three Japanese government officials said.

"Since the change in administration, the Philippines has been giving very positive signals, and that could mean a quick agreement," said Yusuke Ishihara, a senior fellow at Japan's National Institute for Defense Studies. But he said Japan and the United States are treading carefully in trilateral talks with the Philippines.

"It's sensitive about its relations with China. The trick will be to put the Philippines at ease by discussing economics issues or economic security rather than just defence," he said.

<https://economictimes.indiatimes.com/news/defence/japan-hopes-to-shore-up-philippines-defence-amid-taiwan-conflict-fears/articleshow/101038630.cms>



## Israel Develops New Missile Defence System to Protect against Hypersonic Threats

A week after Iran claimed to have manufactured its first such weapon, the Israeli state-owned defence company behind the Iron Dome and David's Sling air shields announced the creation of the new system.

Rafael unveiled on earlier this week, an interceptor missile called SkySonic that is intended to intercept hypersonic missiles a week after Iran unveiled its new Fattah missile and asserted that it has hypersonic capabilities (speed higher than the speed of sound) that would make it difficult for Israeli defence systems to intercept.

The interception system, according to Rafael, is nearing completion and will shortly undertake its first flying testing. Rafael declined to provide details on the anticipated timelines for the development's completion but noted that engineering teams have been working on it for several years, even before the threat posed by hypersonic missiles. The development's release today coincides with Rafael's plan to display the missile at the Paris Air Show the following week.

The Iron Dome and David's Sling air defence systems were developed by the Israeli government-owned defence firm.

Based on the reports in the public domain, according to Rafael, the Pentagon was informed of the development. It would not specify whether or when the Israeli military will use SkySonic. The Israeli defence ministry was silent at the time.

Hypersonic missiles are challenging to shoot down because they can travel at least five times faster than the speed of sound and on a complicated trajectory.

In an animated SkySonic film released by Rafael, an interceptor missile was seen launching vertically from a launch battery. The warhead of the missile is then shown to separate and fly towards an approaching threat with its own booster.

Iran, Israel's arch-enemy, unveiled Fattah, its first domestically manufactured ballistic hypersonic missile, on June 6. According to Iran's official television, the missile may reach 15,000 km/h and avoid Israeli defences such as the short-range Iron Dome.

Rafael Chairman Yuval Steinitz indicated in a news conference this afternoon that the system's technology is exclusive to Rafael and not owned by any other company in the globe.

### **Iron Dome: Israel's Lifesaving Missile Defense System**

Israel's Iron Dome is a mobile air defense system designed to intercept and destroy short-range rockets and artillery shells fired from distances of 4 to 70 kilometers away. The system is all-weather and has a high success rate, intercepting over 90% of the rockets it targets. Iron Dome has been credited with saving countless lives during the 2012 and 2014 Gaza wars.

### **David's Sling: Israel's Newest Missile Defense System**

David's Sling is an Israeli-American air defense system designed to intercept medium-range rockets and other threats, such as cruise missiles and unmanned aerial vehicles (UAVs). The system is designed to operate in the 40-300 kilometer range, filling the gap between the short-range Iron

Dome system and the long-range Arrow system. David's Sling is still under development, but it has successfully intercepted several test targets.

The system is named after the biblical story of David and Goliath, in which David used a sling to defeat the giant Goliath. David's Sling is seen as a key part of Israel's multi-layered missile defense system, which is designed to protect the country from a variety of threats

### **Skytronics: A History of Innovation**

Skytronics is a company that develops and manufactures electronic warfare systems. It was founded in 1967 by a group of engineers who had previously worked for the Israeli Air Force. The company's headquarters are located in Haifa, Israel.

Rafael Advanced Defense Systems is an Israeli defense company that develops and manufactures a wide range of weapons and defense systems. It was founded in 1948, and its headquarters are located in Tel Aviv, Israel.

### **Skytronics has developed a number of electronic warfare systems for Rafael:**

- The Skyshield EW system, which is designed to protect aircraft from radar-guided missiles.
- The Skyrider EW system, which is designed to protect ground forces from radar-guided missiles.
- The Skyeeye EW system, which is designed to detect and track radar emissions.

These systems are used by the Israeli Defense Forces and by a number of other countries around the world.

In 2018, Rafael acquired Skytronics. This acquisition will allow Rafael to further develop its electronic warfare capabilities and to offer its customers a wider range of solutions.

### **Skytronics systems that Rafael has developed:**

- Skyshield EW system: This system is designed to protect aircraft from radar-guided missiles. It works by emitting a jamming signal that disrupts the missile's radar guidance system.
- Skyrider EW system: This system is designed to protect ground forces from radar-guided missiles. It works in a similar way to the Skyshield system, but it is designed to be used by ground troops.
- Skyeeye EW system: This system is designed to detect and track radar emissions. It can be used to identify the source of radar emissions, and it can also be used to track the movement of radar-equipped aircraft and vehicles.

These systems are used by the Israeli Defense Forces and by a number of other countries around the world. They have been credited with saving lives and preventing damage during a number of conflicts.

<https://www.financialexpress.com/india-news/israel-develops-new-missile-defence-system-to-protect-against-hypersonic-threats/3130073/>

### **Chandrayaan-3 | ISRO's Space Physics Laboratory Gears up for Big Moment**

As India prepares for its third moon mission, scientists at the Space Physics Laboratory (SPL) of the Vikram Sarabhai Space Centre (VSSC) here are looking to turn a four-year-old disappointment into one big triumph.

Two of their scientific payloads were on board the Chandrayaan-2 mission's Vikram lander which, to the dismay of the Indian Space Research Organisation (ISRO), crashed on the lunar surface in 2019.

These payloads — Chandra's Surface Thermophysical Experiment (ChaSTE) and Radio Anatomy of Moon Bound Hypersensitive Ionosphere and Atmosphere (RAMBHA) — are also part of the upcoming Chandrayaan-3 mission, providing the SPL and ISRO a second chance at studying certain vital aspects of earth's lone natural satellite.

ISRO Chairman S. Somanath recently announced the space agency's plans for a mid-July launch for Chandrayaan-3. According to the ISRO, it is meant "as a follow-up mission to Chandrayaan-2 to demonstrate end-to-end capability in safe landing and roving on the lunar surface".

This time too, ChaSTE and RAMBHA will be 'riding' on the lander, which will have four scientific payloads in all.

ChaSTE, developed by the SPL in collaboration with the Physical Research Laboratory, Ahmedabad, is designed to measure the thermal properties of the lunar regolith near the polar region. RAMBHA, a Langmuir Probe, will measure near-surface plasma density and how it changes with time.

Together weighing about 12 kg, they are similar in configuration to the ones designed for Chandrayaan-2, says SPL Director K. Rajeev. "People have been working day in, day out to ensure everything goes off all right," he says.

On the other hand, Chandrayaan-2 was not entirely a tale of disappointment for the SPL. Although the Vikram lander crash dashed its hopes with regard to the payloads on it, the SPL enjoyed success with another payload that was on the mission's orbiter.

The Chandra's Atmospheric Composition Explorer-2 (CHACE-2), a quadrupole mass spectrometer, recorded the first observations of the distribution of Argon-40 in the lunar exosphere.

The Chandrayaan-3 mission, which will take to the skies on the hefty LVM3 launch vehicle, consists of a lunar lander and a rover. A propulsion module will carry them into a 100-km polar orbit around the moon. The rover will be deployed on the moon's surface from the lander. The propulsion module will have one scientific payload, the lander four, and the rover two.

<https://www.thehindu.com/sci-tech/science/chandrayaan-3-isros-space-physics-laboratory-gears-up-for-big-moment/article66980129.ece>

