

फरवरी

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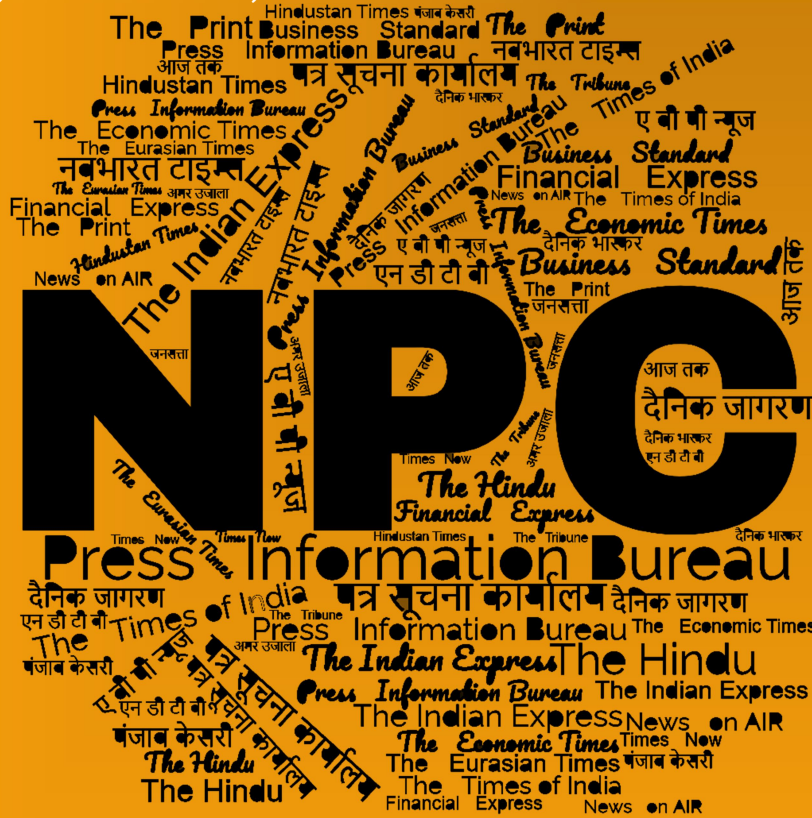
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डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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DRDO News

DRDO Technology News



Thu, 16 Feb 2023

India is now Developer of Strategic Technologies: DRDO Top Officer

Director-General, Electronics & Communication Systems (ECS), DRDO, B.K. Das on Thursday said that the country has transitioned from an importer of technologies in strategic sectors such as defence into a developer, with missiles and the Light Combat Aircraft (LCA) being prime examples. Inaugurating a two-day symposium titled 'Electronics for Self-Reliance', organised by the Centre for Advanced Studies in Electronics Science & Technology (CASEST), School of Physics, University of Hyderabad (UoH) in collaboration with National Academy of Sciences, India (NASI-Hyderabad chapter) and Academy for Science, Technology and Communication (ASTC), he gave a lucid account of the evolution of technology development in defence and encouraged students to be more creative and contribute to the nation's development.

CSIR-DG N. Kalaiselvi spoke about India's needs in electric mobility plans. She described the major achievements of different CSIR labs across India and urged young scientists to take up local challenges and also achieve global leadership. Former IIT-Delhi director V. Ramgopal Rao emphasised the importance of establishing an ecosystem of innovative technologies in academic institutions and setting up startups within the academic sector. UoH Vice Chancellor B. J. Rao presided over the inaugural function. Former CCMB director and NASI-Hyderabad chapter president Ch. Mohan Rao, CASEST's M. Ghanashyam Krishna and others also spoke. Scientific Advisor to Defence Minister G. Satheesh Reddy will deliver the valedictory address on 'self-reliance in electronics' on Friday, according to a press release.

<https://www.thehindu.com/news/national/telangana/india-is-now-developer-of-strategic-technologies-drdo-top-officer/article66517530.ece>



Thu, 16 Feb 2023

DRDO Develops Electro-Optical Infrared System for Surveillance from Airborne, Land and Naval Platforms

The Centre for Air Borne Systems (CABS), a laboratory of the Defence Research Development Organisation (DRDO), has indigenously developed electro-optical/infrared (EO/IR) system to carry out surveillance from airborne, land and naval platforms. Speaking on the sidelines of Aero

India 2023, an official from DRDO, on condition of anonymity, said, “It (EO/IR system) can be mounted on ships, aircraft and vehicles. We have evaluated it in Ladakh for the Indian Army and they are happy with it. However, they want certain modifications which I cannot reveal. It has the capability to detect objects even behind fire and smoke. The EO/IR system has a short wave infrared (SWIR) imager, laser range finder, laser pointer and cameras. The sensors can operate simultaneously depending on daylight weather conditions and display HD images to the operator. It is also integrated with a video tracker which can track moving targets.”

CABS will equip multi-mode maritime aircraft (MMMA) with the EO/IR system, which can be used to identify ships responsible for oil spilling in seas and oceans.

“EO/IR can be integrated with a multi-functional tactical console (MTC), which consists of monitors on which real time maritime and air situations are displayed. Through this integration, users (Army, Navy and Coast Guard) will get to know about the situation. Presently, we are equipping this with multi-mode maritime aircraft (MMMA) and is being developed for the Indian Coast Guard. One of the roles of MMMA is pollution surveillance. Oil spills are one of the major pollutants in the oceans. So, EO/IR would detect ships responsible for the oil spills as it has artificial intelligence-enabled object detection and tracking. The EO/IR is equipped with a laser illuminator that could help in reading the names of the ships and it also has a laser-range finder that could be used to find the range of the target,” the official said.

<https://indianexpress.com/article/cities/bangalore/drdo-electro-optical-infrared-system-for-surveillance-airborne-land-naval-platforms-8449693/>



Thu, 16 Feb 2023

DRDO Unveils CHITR-M1 Acoustic Imaging Sonar



The CHITR-M1 is the DRDO's first high-frequency sonar prototype. (Janis/Anish Markose)

The Defence Research and Development Organisation's (DRDO's) Naval Physical and Oceanographic Laboratory (NPOL) has displayed its Compact High Frequency Imaging Technology - Mark 1 (CHITR-M1) sonar system at the Aero India 2023 show in Bangalore, which runs from 13 to 17 February. According to DRDO officials, the CHITR-M1 is the DRDO's first high-frequency sonar prototype.

Development of this system took four years.

CHITR-M1 has a high-centre frequency of 700 kHz and bandwidth of 100 kHz to allow for high-quality imaging. It has a depth rating of 100–300 m.

The system has an axial resolution of 1°, which helps identify distance between objects. The system has a detection range of up to 120 m and consumes just 120 W of power, making it highly efficient. Its update rate is 1 Hz, which ensures fast and real-time imaging.

The CHITR-M1 is also lightweight, with a dry weight of 28 kg and wet weight of just 8 kg, and has a small form factor of 30×30×25 cm. It is rated for depths of 100 to 300 m.

The CHITR-M1 has Ethernet connectivity to establish data and communication links with host computers. Military applications of the CHITR-M1 sonar include autonomous underwater vehicle (AUV) navigation, marine detection, ship hull inspection, and harbour security.

<https://www.janes.com/defence-news/defence/latest/aero-india-2023-drdo-unveils-chitr-m1-acoustic-imaging-sonar>



Thu, 16 Feb 2023

Army, Paramilitary may Procure DRDO's Archer if UAV Passes Missile Evaluation Test

If the missile evaluation trials of the Short Range-Unmanned Aerial Vehicle-Weaponised (SR-UAV-W) are successful, the Indian Army and the paramilitary forces might procure these, said officials of the Aeronautical Development Establishment, a laboratory of Defence Research Development Organisation (DRDO).

SR-UAV-W, also called the Basic Archer, has undergone flight demonstration and will undergo missile evaluation soon. Speaking with The Indian Express, an official from the DRDO said, “We have made two versions of Archer-one — a basic archer also called SR-UAV-W — and Archer-Next Generation (Archer-NG). The missile evaluation trials of basic Archer are left where we will arm the UAV with anti-tank missiles and hit a dummy target. We want to see how the weapon performs. If the trials are successful, the Army and the paramilitary forces could induct these. They have expressed a lot of interest in this.”

“While working on RUSTOM 1 (a short range remotely piloted aircraft system), we came up with the idea of Archer. Basic Archer can be used to cater to the requirement of intelligence, surveillance, target acquisition, tracking and reconnaissance (ISTAR). It gathers real time and high quality imagery. It can operate up to a height of 22,000 feet with an endurance of up to 12 hours. It also carries Electro Optical and Infrared (EO/IR) payload,” the official said.

Archer-NG

ADE is also working on finalising the air frames for Archer-NG. The airframe is the mechanical structure of the aircraft that includes wings, fuselage and undercarriage. “Archer-NG can operate up to an altitude of 30,000 feet and can be used for ISTAR. The basic airframe structure will be ready in a couple of months. Archer-NG can also be used for battlefield post-strike assessment. Bharat Electronics Limited (BEL) is our partner as far as avionics or electrical systems of Archer

NG is concerned. The DRDO has introduced a policy on selection of the Development cum Production Partner (DcPP) for the DRDO developed systems, which ensures involvement of industries from the beginning of development cycle and lead to reduction in the time-frame of the development-to-induction cycle. So, Archer-NG's realisation is also through DcPP," he added.

<https://indianexpress.com/article/cities/bangalore/army-paramilitary-may-procure-drdo-s-archer-if-uav-passes-missile-evaluation-test-8449646/>



Thu, 16 Feb 2023

Why DRDO's TAPAS is a Gamechanger

Drones have taken centre stage during this edition of Aero India in Bengaluru, with the Defence Research and Development Organisation-developed TAPAS-BH garnering attention at the Yelahanka air base.

Learning lessons from the ongoing Russia-Ukraine war, the Armenia-Azerbaijan conflict, and amidst China and Pakistan engaging in joint production of Unmanned Aerial Vehicles (UAV), India, too, has been focusing on procuring drones. In recent months, Pakistan has, on numerous occasions, attempted to sneak drones carrying arms, ammunition and drugs into Indian territory.

Asianet Newsable spoke to Director General-Electronics and Communication Systems (ECS) at the DRDO, BK Das, during the ongoing Aero India 2023 in Bengaluru to learn about the TAPAS-BH UAV in detail and how it is different from its competitors.

Das said, "TAPAS is an Unmanned Aerial Vehicle, which is developed by our lab ADE in collaboration with various laboratories especially the DEL which was given the entire data link for this. The Instruments Research & Development Establishment (IRDE) develops the electro-optics; Electronics and Radar Development Establishment (LRDE) develops the radars; and Defence Electronics Research Laboratory (DLRL) develops the EWS systems. This is basically an unmanned system, and it does not require a pilot and can fly across different places with a very high altitude and velocity."

"It has command and control over its complete electronics. So what it exactly does is it flies in the areas where we really reconnaissance and get high-definition videos. Synthetic aperture radar will be able to track all the objects around, and it can do radar imagery from grounds," he added.

"The EWS system works on the concept of jamming. Any radiation, which has the potential to cause problems to it, it would jam the radiation. It has a self-protection suite. It can protect our own aircraft as well. TAPAS sensors are very powerful. It is agile and has got manoeuvrability capability. You can get a nice data link to get uninterrupted videos for your purposes. Many countries have shown interest in it. Negotiations are underway. I would not name any country," Das further said.

<https://newsable.asianetnews.com/india-defence/aero-india-2023-why-drdo-s-tapas-is-a-gamechanger-rq63c0>



Thu, 16 Feb 2023

SAMAR Air-Defence System Ready for Induction into IAF Service

The Indian Air Force (IAF) has completed development of its Surface to Air Missile for Assured Retaliation (SAMAR) system and the weapon has entered an initial production phase, the IAF told Janes at the Aero India 2023 show in Bangalore, which runs from 13 to 17 February.

An IAF official said the first batch consisting of five SAMAR-1 production units is ready to be delivered to the IAF's Missile Unit (likely its air-defence missile squadrons). Further orders are expected from the IAF, the official said.

The SAMAR is a short-range air-defence system jointly developed by IAF's 7 Base Repair Depot (BRD) and 11 BRD in association with Indian private-sector companies Simran Flowtech Industries and Yamazuki Denki.

The SAMAR-1 system uses the IAF's existing inventory of shelf-life-expired Russian Vympel R-73E infrared-guided air-to-air missiles (AAMs) for the surface-to-air role. The shelf-life-expired units are refurbished before being integrated into a launch platform and firing circuits, which were developed by the IAF. According to the IAF official, the SAMAR-1 system completed 17 test-firings before entering production. The system is credited with a maximum range of 10–12 km and is used against low-flying aerial targets.

<https://www.janes.com/defence-news/weapons-headlines/latest/aero-india-2023-samar-air-defence-system-ready-for-induction-into-iaf-service>



Thu, 16 Feb 2023

AMCA Finishes Systems-level Critical Design Review

The critical design review (CDR) of all systems for India's Advanced Medium Combat Aircraft (AMCA) has been completed, a senior project official said.

Speaking to Janes at the Aero India 2023 show being held in Bangalore from 13 to 17 February, the project official said that the aircraft's 16 primary systems have completed the CDR. "This will allow us to complete the platform-level critical design review of the AMCA in one to two months," the project official with India's Aeronautical Development Agency (ADA) said.

Sixteen aircraft systems were assessed in the systems-level CDR, said the official, who spoke on the condition of anonymity. These include hydraulics, cockpit avionics, Integrated Vehicle Health Management (IVHM), electricals, the weapons systems, and the internal weapons bay.

When Janes last spoke to ADA in November 2022 about the project, some of the systems were still in the process of development. The agency had told Janes at the time that it was working to

refine the functionality of the internal weapons bay. The official added that these technological bottlenecks have since been resolved.

ADA, which is under the Department of Defence Research and Development Organisation (DRDO), displayed a working demonstration model of the internal weapons bay during the Aero India 2023 show. This model showed the completion of the sequence of opening of the bay, missile drop, and closing of the bay over a time span of four seconds.

However, the ADA official said that the operational bay designed by ADA will be able to open, launch the weapon, and close within a fraction of a second.

<https://www.janes.com/defence-news/news-detail/aero-india-2023-amca-finishes-systems-level-critical-design-review>



Thu, 16 Feb 2023

India's SRUAV-W Conducting Weapons Trials

India's Short-Range Unmanned Aerial Vehicle-Weaponised (SRUAV-W) is conducting weapon trials. Based on the Rustom I short-range (tactical) surveillance vehicle, the SRUAV-W is being developed as a short-range unmanned combat aerial vehicle (UCAV).

A project member with India's Aeronautical Development Establishment (ADE) told Janes that the UCAV's weapons trials are being conducted using four types of air-to-surface missiles. The ADE is a lab of the Defense Research and Development Organization (DRDO). The official spoke to Janes during the Aero India 2023 show, which is being held in Bangalore from 13 to 17 February. According to the ADE project official, the weapons include the Helina anti-tank missile and the Bharat Dynamics Limited (BDL) Man Portable Anti-Tank Guided Missile (MPATGM). The ADE official said that the third munition being integrated with the UCAV is an anti-personnel missile. The official did not give details about the anti-personnel missile or the fourth missile being used in the trials.

The UCAV has two weapon hardpoints, one under each wing. "Each wing point can mount two missiles. At the moment, the SRUAV-W can be described as a limited UCAV," the ADE project official said.

This is because of the smaller payload-carrying capability of the aircraft. It has a total weight of 750 kg. Janes assesses that the SRUAV-W has a weapon payload capacity of under 100 kg. The UAV also has an electronic payload comprising an electro-optical system (with colour charge-coupled device [CCD] and forward-looking infrared [FLIR]) and a laser designator.

<https://www.janes.com/defence-news/defence/latest/aero-india-2023-indias-sruav-w-conducting-weapons-trials>

DRDO on Twitter

DRDO Retweeted



A. Bharat Bhushan Babu

@SpokespersonMoD



Remember @DRDO_India tableaux at RDC 2023? India-made Drone Detect, Deter & Destroy system (D4S) displayed there is now one of the products exhibited at #AeroIndia2023. First desi anti-drone system to be inducted into Armed Forces, it can tackle security threats within 4km radius



Rajnath Singh and 8 others

8:30 PM · Feb 16, 2023 · **10.4K** Views

Defence News

Defence Strategic : National/International

ThePrint

Thu, 16 Feb 2023

Key Appointments made in the Indian Army, here is all you Want to Know

In a key move, the government has appointed two new Army Commanders, a Vice Chief and a new officer to head the critical 14 Corps that looks after the tense Line of Actual Control (LAC) in Ladakh.

Lt Gen B.S. Raju, currently the Army Vice Chief, has been appointed as the South Western Army Commander. He will take over from Lt Gen Amardeep Singh Bhinder on 1 March when he superannuates.

Lt Gen N.S.R. Subramani has been promoted to the rank of Army commander and appointed as the next Central Army Commander in Lucknow. He is presently the Chief of Staff in HQ Northern Command.

He will replace Lt Gen Yogendra Dimri. who also superannuates end of this month.

Lt Gen M.V. Suchindra Kumar, currently Deputy Chief of Army Staff (Strategy) in the Army Headquarters, has been promoted to the rank of Army Commander and appointed as the new Vice Chief of Army Staff.

The Leh-based 14 Corps, also known as the Fire and Fury Corps, also saw changes.

Lt Gen Anindya Sengupta, the current Corps Commander, moves to the Northern Command as the new Chief of Staff.

He will be replaced by Lt Gen Rashim Bali, an officer who has also served as India's defence attache in Afghanistan.

Lt Gen B.S. Raju

The officer is an alumnus of the Sainik School in Bijapur and National Defence Academy. He was commissioned in the 11th Battalion, The Jat Regiment on 15 December 1984.

He commanded his Battalion during Op Parakram, which was launched after the 2001 Parliament attack, in Western theatre and in Jammu & Kashmir.

He also holds the distinction of commanding the Uri Brigade along the Line of Control, Counter Insurgency Force and Chinar Corps in Kashmir Valley. The General Officer was also

Commandant, Indian Military Training Team in Bhutan. In his career spanning 38 years, Lt Gen Raju has held important regimental, staff and instructional appointments in the Army HQ and field formations, to include Brigade Major in an Infantry Brigade, Colonel MS Legal in Army HQ, Brigadier General Staff of operationally active Corps on the Western front, and DDG Military Operations among others.

Prior to taking over as Vice Chief of Army Staff, he held the appointment of Director General of Military Operation at Army HQ.

Incidentally, he is also a qualified helicopter pilot, having done operational flying in Somalia, as part of United Nation Operation in Somlia (UNISOM) II.

He has also done a Masters programme in Counter Terrorism, at Naval Postgraduate School, Monterey, USA.

Lt Gen M.V. Suchindra Kumar

He is an alumnus of the National Defence Academy and was commissioned into 1 Assam Regiment in June 1985. He commanded 59 Rashtriya Rifles Battalion (ASSAM), an Infantry Brigade and an Infantry Division on the Line of Control.

He has also commanded the 16 Corps, also known as the White Knight Corps. He has held the appointments of Additional Director General Military Intelligence and Director General Military Intelligence at Army HQ.

Lt Gen N.S. Raja Subramani

He is a graduate of the 67th Course at National Defence Academy and 77th Course at Indian Military Academy.

The General Officer was commissioned into the 8th Battalion, The Garhwal Rifles, on 14 December 1985. He is an alumnus of Joint Services Command Staff College, Bracknell (UK) and National Defence College, New Delhi. He holds a Master of Arts degree from King's College London and an M. Phil in Defence Studies from Madras University.

He commanded the 16 Garhwal Rifles in counter insurgency in Assam as part of Operation Rhino, 168 Infantry Brigade in Samba, 17 Mountain Division in 2018, Uttar Bharat Area in 2020. He has also the distinction of having commanded 2 Corps, the premier strike Corps of the Army on the Western Front.

His staff and instructional assignments include Divisional Officer at NDA, Brigade Major of a Mountain Brigade, Defence Attache in Kazakhstan, Assistant Military Secretary in the MS Branch, Colonel General Staff (Operations) at HQ Eastern Command, Deputy Commander of a Rashtriya Rifles Sect in Jammu & Kashmir, Deputy Director General of Military Intelligence at Army HQ, Brigadier General Staff (Operations) in the Eastern Command and Chief Instructor (Army) at DSSC, Wellington.

He is presently the Chief of Staff, HQ Northern Commandant, which makes him well-versed with the operational dynamics of the Northern Front.

<https://theprint.in/defence/key-appointments-made-in-the-indian-army-here-is-all-you-want-to-know/1376499/>

Fri, 17 Feb 2023

IAF Develops Indigenous 'Vayulink' Platform for Jammer-Proof Communication

The Indian Air Force has come out with an innovative solution helping pilots to deal with bad weather and providing them jammer-proof uninterrupted communication with the base station.

Known as 'Vayulink', the data link communication uses the Indian Regional Navigation Satellite System (IRNSS) that is also known as NAVIC, to send radio communication to the base station when the signals are low, an IAF officer involved in the project said.

The important aspect of the technological solution is that it prevents fratricide or friendly fire, he added.

The IAF has put up a gallery on Vayulink to provide information about its platform at the India Pavilion in the ongoing Aero India 2023 here.

"Vayulink is an ad-hoc data link communication system, which when installed in an aircraft, gives position of other aircrafts close by, encrypted traffic data over secured channel," Wing Commander Vishal Mishra told PTI.

When the planes are flying close to any friendly forces on grounds during a combat situation, the aircraft display gives the position of such forces on the ground, including tanks and troops beneath, the IAF officer said.

"The advantage of the system is when you are going into combat, it prevents fratricide. It means, you are able to know where our ground forces are present," he claimed.

The Vayulink system also prevents aircraft collision, provides better combat teaming and helps plan real-time basis where multiple teams can get together and go towards the target coming from different areas, Wing Commander Mishra pointed out.

The system can also give the pilots data on the weather, he added. "When you are flying above the hills where there is no radio communication, the system can give you radio communication also," Wing Commander Mishra said.

According to him, Vayulink is helpful for the Air Force, Army and Navy, while it can be given to government services as well since the technology has been made by the Indian Air Force.

He claimed Vayulink has been developed by the IAF only and it is a very secure system.

<https://www.thehindubusinessline.com/news/iaf-develops-indigenous-vayulink-platform-for-jammer-proof-communication-with-base-station/article66519727.ece>

IAF's Acquisition of 114 Fighter Jets to be Part of a Major Procurement Plan

The delayed process for the procurement of 114 multi-role fighter jets (MRFA) is set to take off soon and along with three different indigenous fighter development programmes, will result in a mega 500-fighter aircraft acquisition process for the armed forces. This would arrest the dwindling fighter strength of the Indian Air Force and enable it reach the sanctioned strength of 42 squadrons.

“We are hopeful the Acceptance of Necessity (AoN) for MRFA will be issued in three to four months,” Air Marshal Narmadeshwar Tiwari, Deputy Chief of Air Force told The Hindu at Aero India. It is a “budgetary decision” and also how fast the aircraft are available, he stated. The AoN will begin the formal procurement process following which the IAF will issue the detailed Request For Proposal.

On the delay in the process, he said they were evaluating how much of Make in India can happen, localisation and capability for them to upgrade the aircraft locally rather than depend on the foreign manufacturer, he said.

The IAF is currently down to 31 fighter squadrons as against the sanctioned strength of 42 squadrons which is set to dwindle further as the remaining three MIG-21 squadrons are phased out by 2025. By end of the decade phasing out of other aircraft would also begin.

On this, Air Marshal Tiwari said reaching 42 squadrons will take time and the immediate effort is to arrest the drawdown in strength. The 83 Light Combat Aircraft (LCA)-Mk1A that will begin coming in from next year followed by the LCA-Mk2 and fifth-generation Advanced Medium Combat Aircraft (AMCA) in the near future along with the MRFA will arrest this, he added.

There is also a Twin Engine Deck Based Fighter (TEDBF) on the drawing board for the Navy's aircraft carriers. Dr. Girish S. Deodhare, Director General of Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO), said they are looking at six Squadrons of LCA-Mk2 (108 aircraft), seven Squadrons of AMCA (126 aircraft) and up to 100 TEDBF. Besides, the IAF would receive 83 LCA-Mk1A and 114 MRFA. Hindustan Aeronautics Limited (HAL) officials also said that they expect an additional order for up to 50 LCA-Mk1A. In addition, a decision between 26 multi-role aircraft for the Navy is expected shortly, between Boeing F/A-18 E/F Super Hornet and the Dassault Aviation Rafale.

Also, the final deal to procure 12 additional SU-30MKIs to replace the ones lost in accidents and 21 MIG-29s from Russia has been stuck, which both IAF and Russian officials said has only been delayed but is on track.

On the AMCA which is awaiting government sanction, Air Marshal Tiwari said based on global trends it would take 10-12 years for its development and around three to five years after that to begin production. Dr. Deodhare, chief of ADA which is designing the aircraft, has also stated that the development would take 10 years once the project is sanctioned.

HAL has said that they are on track to deliver the first LCA-Mk1A to the IAF in February 2024. As reported by The Hindu, ADA officials have said that the LCA-Mk2, which would be much more capable than the LCA-MK1A, is expected to be ready for production by 2027.

Speaking on the sidelines of Aero India, Navy Chief Adm. R. Hari Kumar said that they may get upto 45 TEDBF by 2040. Dr. Deodhare has said that the TEDBF is expected to take first flight by 2026 and expected to be ready for production by 2031.

<https://www.thehindu.com/news/national/iafs-114-fighter-tender-to-move-in-3-4-months-part-of-over-500-jet-procurement/article66516620.ece>



Thu, 16 Feb 2023

The UAVs that may Keep an Eye on India's Northern Borders Soon

The nature of warfare has been evolving amidst fast-evolving geopolitical scenarios worldwide, with technologies having a significant role to play in changing the course of the war. The forces worldwide are investing more in technology-driven products, especially when it comes to manning the borders with it in an effort to have minimum human intervention.

During the Aero India 2023 show in Bengaluru, Ayaan Autonomous Systems displayed two of its products, including a logistics drone -- Airavat D50 -- and a surveillance drone -- SpyD S4 -- at the India Pavilion. Talking to Asianet Newsable, Ayaan Autonomous Systems CEO and Founder Atul Chaudhary said that these drones have been designed for emergency response, are portable and rapidly deployable in border areas for carrying out payloads and counter-surveillance.

Airavat D50

Considering the requirements of the Indian Army, this drone has been designed and developed to be deployed on the northern borders. Airavat D50 has a flight ceiling of 300m AGL with an endurance of 40 minutes. As per the company, the drone is highly durable, has a rugged CF chassis, and is built to endure adverse environmental conditions at higher altitudes. It can carry a payload of 20kg in the mountains and has a range of 15km.

"It is a logistics drone, which is meant to take off with heavy cargo at northern borders. This product has been developed for the Indian Army. We have successfully tested it at a higher altitude. We also have a bigger version of it that carries a payload of 40kg."

SpyD S4

"Similarly, we have a smaller UAV, which we have displayed here. This is a surveillance UAV meant for border guarding forces to keep an eye on adversaries. This supports a day camera as well as a night camera. The drone is SpyD S4, which is also a tethered and untethered drone."

When tethered, it can fly for six hours with a 120 m cable length and untethered, it flies for 55 minutes up to a 10 km of range.

"We have demonstrated it for the Indian Army at northern borders. We are also working on a smaller system which is going to be combat, the payload would be little, but the range would be higher," Atul Chaudhari said.

75 per cent indigenous content

"The important part is that we have developed all the electronics in-house, fly control system hardware and the wireless system and camera payload along with battery monitoring system. We have done everything in-house. We also have our own remote control system," Chaudhari added.

"We have over 75 per cent indigenous content in all our drones."

How can these drones help the Indian Army along borders?

"These are the drones which are indigenously built, and we are already tested. The Army would definitely get benefitted from this when there is a challenge of nighttime surveillance," he said.

"Recently, we saw a conflict at Tawang, where there was a border intrusion from the Chinese forces. The tethered drone can be there at any moment at any time irrespective of the weather condition, and it can monitor a border upto 4-5 km at the same, the troops can sit inside and have a look at the video," he further said, adding, "We have also got the artificial intelligence inside which can point out the intrusions and action can be taken quietly."

Cost of the drone

The basic drone with a normal day camera costs between Rs 7-7.5 lakh. As the payload capacity increases, drone prices will increase further.

<https://newsable.asianetnews.com/india-defence/aero-india-2023-the-drones-that-may-keep-an-eye-on-india-s-northern-borders-soon-rq5ydj>



Thu, 16 Feb 2023

BEML to Produce Trawl Assembly for Tanks

India's state-run Bharat Earth Movers Limited (BEML) has entered into a licence agreement for the transfer of technology (ToT) with the Defence Research and Development Organisation (DRDO) for the development and supply of trawl assembly for T-72 and T-90 main battle tanks (MBTs).

BEML has signed an agreement with the Research And Development Establishment Engineers unit of DRDO at the Aero India 2023 show, which is being held in Bangalore from 13 to 17 February.

A BEML official told Janes that the trawl is a mine-breaching equipment attached to the front side of the tank. "Trawl assembly consists of two parts, which are trawl roller and track width mine plough (TWMP). Both the parts can be used together or independently, depending on the requirement," the official said. In addition, two units of the electromagnetic device (EMD) are fitted at the front to detonate magnetically influenced mines, the official added.

According to BEML, the trawl roller system consists of a set of three heavy rollers on either side of the tank. To prevent damage to the tank and crew, the roller is mounted in the front of the tank at a distance of 3.5 m.

<https://www.janes.com/defence-news/news-detail/aero-india-2023-beml-to-produce-trawl-assembly-for-tanks>



Thu, 16 Feb 2023

An Artificial Intelligence Push to Prediction of Flight Failures

Health & Usage Monitoring System (HUMS), a generic component in aircraft maintenance, is getting an indigenous AI thrust in India. The Defence Research and Development Organisation (DRDO) has worked with Hyderabad-based Smart Machines and Structures (SMS) in the development of a HUMS platform that applies Machine Learning to forecast flight failures.

SMS has developed the system for MiG-29K, the Indian Navy's carrier-based fighter. The solution uses ML and data analytics to process data from the flight data recorder and helps the Navy improve the aircraft's serviceability and combat readiness.

Srinivas Aluri, founder of SMS, said the solution works as an "early warning" system. "The Navy could run the flight data through our solution and identify components that are susceptible to failure, and a timeline for these failures. The predictions help in scheduling the maintenance," Aluri told DH. The Navy will analyse the results obtained to address issues related to the engines and airframe. The system has completed preliminary trials.

Aluri said the solution is capable of automating most of the existing checks that track various pre-flight parameters of the aircraft, effectively saving 10 to 15 minutes on a flight. He said the technology was being exclusively integrated with the MiG 29Ks but it could be transferred to other aircraft. On Tuesday, Defence Minister Rajnath Singh handed over the system to Vice Chief of the Naval Staff Admiral Satish Namdeo Ghormade, on the sidelines of Aero India 2023.

Suryanarayana Raju Pakalapati, head of engineering and AI, SMS, said while existing flight data recorders worked as diagnostic tools that help to make the corrections based on post-flight readings, predictive maintenance facilitated "minor indications" of failures in the making. The company's work, under the guidance of DRDO scientists, involved extensive processing of data from Navy aircraft.

SMS pitched for the project in response to a problem statement on predictive maintenance issued by the Navy, in 2018. The project was conceived under DRDO's Technology Development Fund (TDF) which extends financial support and expertise to upgrade existing systems in line with a larger Make in India vision. Of the Rs-1.7 crore fund allocated for the HUMS, 90% was provided under TDF.

<https://www.deccanherald.com/city/an-artificial-intelligence-push-to-prediction-of-flight-failures-1191860.html>

BEL & Israel Aerospace Industries to form Joint Venture for Product Support to India's Armed Forces

Defence PSU Bharat Electronics Limited (BEL) and Israel Aerospace Industries (IAI) have concluded a Memorandum of Agreement (MoA) to form a joint venture aiming at a single point of contact for extending long-term product support services for India's defence forces.

The announcement was made by Union Minister of State for Defence Ajay Bhat, at Aero India 2023, the ongoing biennial air show and aviation exhibition, at Yelahanka Air Force Station here, a BEL statement said.

The partnership is another significant step in cementing the relationship between the two companies that have a long history of association, it said.

BEL, a 'Navratna' company which is a leading manufacturer of defence electronic products and systems, and IAI, a top aerospace and defence company in Israel, are engaged in several joint programmes for the Indian armed forces.

The new joint venture is being established for providing life cycle support for MRSAM (Medium Range Surface to Air Missile) air defence systems in the country. It will have its headquarters in New Delhi and provide the required technical and maintenance support to the armed forces. MRSAM is an advanced air and missile defence system that provides protection against a variety of aerial platforms, the statement said. It is used by the Indian Air Force, Indian Army, Indian Navy and Israeli Defence Forces. The system includes an Advanced Phased Array Radar, command and control shelter, mobile launchers and interceptors with an advanced RF seeker. MRSAM is jointly developed by IAI and DRDO in collaboration with India and Israel for India's defence forces.

Through this joint venture, IAI reiterates its support to the Indian government's vision of an 'Atmanirbhar Bharat' (self-reliant India). It also goes a long way in demonstrating the company's commitment to the strong partnership with DRDO in developing and supporting advanced systems for the Indian armed forces, the statement read, adding the cooperation will leverage synergies of both IAI and BEL.

Bhat was quoted saying in the statement: "Israel is a very important strategic partner of India and the successful development and deployment of MRSAM system for the Indian defence forces is a shining example of the successful joint collaboration between the two countries." The joint venture between two prestigious companies from India and Israel will certainly play a very important role as a single point of contact in delivering product support services for MRSAM systems, the minister added. It will be a driving force for the 'Make in India' policy, Bhat said.

BEL CMD Bhanu Prakash Srivastava said the top defence PSU considers IAI as a very important strategic partner. "This joint venture between the two companies is expected to play a pivotal role in ensuring timely product support services for MRSAM systems and enable substantial indigenous workshare with active participation of the Indian supply chain," he said.

IAI's President and CEO, Boaz Levy, had said earlier: "Our joint venture with BEL will leverage the best technology, innovation and talent to provide services matching the needs of our customers in India".

"It follows our announcement in 2022 about the opening of Aerospace Services India (ASI), an IAI subsidiary in New Delhi, both of which illustrate our support of the Government's 'Atmanirbhar Bharat' initiative and investment in India," he said.

<https://theprint.in/india/bel-israel-aerospace-industries-to-form-joint-venture-for-product-support-to-indias-armed-forces/1377789/>



Thu, 16 Feb 2023

BEL Displays Multisensor Payload for Dhruv MK III Helicopter

India's Bharat Electronics Limited (BEL) has displayed its short wave infra-red (SWIR) REV III multisensor optical payload for the Dhruv Mk III light helicopter at the Aero India 2023 show, being held in Bangalore from 13 to 17 February.

The Mk II version of the Dhruv helicopter is fitted with the Digital Compass electro-optical payload system developed by Israel's Elbit Systems. However, the IAF intends to integrate the indigenously developed SWIR REV III into the upgraded Mk III variant of the platform. The Dhruv Mk III was inducted into the Indian Army in mid-2022.

The SWIR REV III is a stabilised, lightweight, and compact turret developed by the Instruments Research & Development Establishment (IRDE) – an agency under the state-run Defence Research and Development Organisation (DRDO) – and manufactured by BEL. The payload is a day/night, multispectral electro-optical intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) system, which provides 26 inches (66 cm) payload performance in an 18 inch system, a BEL source said.

The sensor is a combination of several multispectral payloads in one turret. These include a continuous zoom dual field-of-view (HD) day imager and a cooled mid-wave infrared (MWIR) thermal (HD) imager with a resolution of 1280×1024. It also includes an eye-safe laser rangefinder and a dual field-of-view SWIR spotter channel for accurate targeting. The SWIR provides ability to see images through haze, fog, and glass. The sensor has an option for a laser illuminator. The BEL source also said the system has a multispectral "common-aperture telescope that can capture multispectral and polarisation information and combines multiple channels".

<https://www.janes.com/defence-news/naval-weapons/latest/aero-india-2023-bel-displays-multisensor-payload-for-dhruv-mk-iii-helicopter>

THE TIMES OF INDIA

Fri, 17 Feb 2023

BDL Unveils Three Missiles at Aero India Show in Bengaluru

City-based Bharat Dynamics Limited (BDL) has unveiled three new missiles at the ongoing Aero India –2023 in Bengaluru.

BDL, a central government enterprise under the ministry of defence (MoD), launched the ‘Vertical Launched – Short Range Surface to Air Missile or (VL-SRSAM), ‘Semi-Active Laser Seeker Homing Anti-Tank Guided Missile for BMP-II’ and ‘Drone Delivered Missile’ (JISHNU) at the aero show.

Union defence minister Rajnath Singh, BDL CMD commodore Siddharth Mishra (retd), BDL director (production) P Radhakrishna and other senior MoD officials were present at the event on February 15.

Commodore Mishra said BDL was constantly striving to offer new products and variants in its endeavour to make the Indian armed forces ‘atmanirbhar’ (self-reliant).

VL-SRSAM is designed and developed by DRDO with BDL as the development-cum-production partner. The system is a next-generation ship-based, all-weather, air defence weapon which can be used by the Navy against supersonic sea skimming targets.

The ‘Semi-Active Laser Seeker Homing Anti-Tank Guided Missile for BMP-II’ has been jointly designed and developed by ARDE of DRDO and the in-house R&D division of BDL to enhance the capability of infantry and mechanized infantry. It is a subsonic missile with a range of 4,000 metres, flight time of 25 seconds and can be fired from a tripod or a BMP.

The ‘Drone Delivered Missile’ has been designed and developed by R&D division of BDL.

<https://timesofindia.indiatimes.com/city/hyderabad/bdl-unveils-three-missiles-at-aero-india-show-in-bengaluru/articleshow/97997382.cms>



Fri, 17 Feb 2023

Godrej Aerospace Plans Rs 500 Crore Facility for Defence Business

Godrej Aerospace, a division of Godrej and Boyce, is investing around Rs 500 crore in a new manufacturing facility at Khalapur, located about 70km from Mumbai. This greenfield project, spread out on 100 acres of land, is anticipated to be completed within three years, and will be devoted to the defence and aerospace markets, the company said.

Godrej Aerospace AVP and business head Maneck Behramkamdin told TNIE that the investment will largely be towards establishing infrastructure and machinery, among other

things. In September 2022, Godrej Aerospace won an order to manufacture eight modules for a DRDO engine. “It’s a Kaveri derivative engine – a 48 kN dry engine without an afterburner – for which we have the order to manufacture eight modules. As we speak, we are in the advanced stages of making the modules and getting into actual manufacturing,” Behramkamdin said.

It is learnt that the engine will be used in some autonomous air vehicles. “The design is according to the GTRE (Gas Turbine Research Establishment). We will manufacture the modules with our ecosystem partners. All processing, tooling and engineering will be done by Godrej. These engines would be delivered by late 2023 or early 2024,” he added.

Godrej has been a major contributor to the country’s aerospace story. It has been manufacturing engines for space. Godrej Aerospace has been partnering with ISRO for over 30 years to manufacture complex systems such as liquid propulsion engines for PSLV and GSLV rockets, thrusters for satellites, and antenna systems. The company has also played an integral part in the Chandrayaan and Mangalyaan missions. “With our consortium partner MTAR, we have delivered around 220 (Vikas) engines to ISRO. We have also delivered a good number of cryogenic engines,” Behramkamdin said.

Elaborating on the company’s other plans, he said, “We have been in the business of manufacturing the airframe for BrahMos for more than 20 years. We continue in that direction in the realm of airframes, mechanical systems, pneumatic systems, hydraulic systems, actuators for the LCA, and our foray into engines.”

“Today, we work for companies like Rolls-Royce and Safran for commercial aircraft... With the Kaveri engines, we want to gain experience and partner into modules. We want to go up in the value-chain... We are also getting into new categories, such as crash-worthy seating for helicopters and aircraft. Our focus is on missile systems, airframes and engines, among others,” he concluded.

<https://www.newindianexpress.com/states/karnataka/2023/feb/17/godrej-aerospace-plans-rs-500-core-facility-for-defence-business-2548197.html>

THE ECONOMIC TIMES

Thu, 16 Feb 2023

Working Closely with India for Operational, Mission Readiness of Defence Forces: Boeing

Aerospace major Boeing said it is working closely with India to enable operational capabilities and mission readiness for its defence forces.

"We are working closely with our partners in India to enable exceptional operational capabilities and mission readiness for Indian Air Force and Indian Navy," Boeing India said in a tweet on Thursday.

Its C-17 fleet has over 31,000 flying hours, its P-8I fleet over 35,000 flying hours, and many more flying and training hours across platforms, the tweet said.

Air India, which will buy 250 aircraft from Airbus, just selected Boeing for the purchase of up to 290 planes as part of its growth strategy.

Air India selected 190 737 MAX, 20 787 Dreamliner and 10 777X Boeing airplanes. The agreement between Boeing and Air India includes options for 50 additional 737 MAXs and 20 787-9s aircrafts.

Boeing said when finalized, this will be its largest Boeing order in South Asia and a historic milestone in the aerospace company's nearly 90-year partnership with Air India.

US President Joe Biden said in a statement released by the White House that the purchase of over 200 American-made aircraft through an agreement between Air India and Boeing reflects the strength of the US-India economic partnership.

"The United States can and will lead the world in manufacturing. I am proud to announce today the purchase of over 200 American-made aircraft through a historic agreement between Air India and Boeing. This purchase will support over one million American jobs across 44 states, and many will not require a four-year college degree," the statement said.

Air India was looking for a remix of aircraft to boost their domestic and international network through recent orders. Soon after the divestment of the airline, CEO Campbell Wilson announced in a speech to AI employees that the airline is going for a historic order.

The day Boeing's deal with Air India was made public -- Tuesday, the US-based aviation major projected India's long-term air passenger growth rate of nearly 7 per cent annually through 2041.

It its 2022 Commercial Market Outlook for India, it said the growth will be largely driven by the strength of the domestic market, which has recovered to 98 per cent of pre-pandemic levels, Boeing said India's air traffic has transitioned from recovery to growth.

Further, it said India will require approximately 2,210 new airplanes over the next two decades of which 1,983 units will be for single-aisle jets, while 227 units or 10 per cent of new airplane deliveries will be for widebody airplanes.

For the cargo segment, it said the India cargo market will also continue to expand over the next two decades to meet demand. The cargo fleet will grow from about 15 airplanes today to about 80 airplanes by 2041. These, it said, will predominantly be the converted narrow-body sized aircraft to support the domestic market.

<https://economictimes.indiatimes.com/news/defence/working-closely-with-india-for-operational-mission-readiness-of-defence-forces-boeing/articleshow/97973429.cms>

THE TIMES OF INDIA

Thu, 16 Feb 2023

Indian Space Association and Defence Innovation Organization Partner to Drive Growth in Defence-Space Industry

The Indian Space Association, the primary industry group representing space and satellite companies in India, has announced a new collaboration with the Defence Innovation Organization (DIO). This partnership aims to encourage the manufacturing, indigenization, and

innovation of India's defense-space sector by fostering a participatory and collaborative relationship between the Services, academia, and industry. As part of this collaboration, the Indian Space Association (ISpA) and the Defence Innovation Organization (DIO), which falls under the Ministry of Defence's Department of Defence Production, will work together to promote the Indian space industry, including start-ups and MSMEs.

The aim is to develop innovative solutions that can fulfill the defense capability requirements and improve the Indian defense-space ecosystem. ISpA will serve as a platform for the DIO to engage with the Indian Defence Space Industry and academia. This will help them evaluate the innovative capabilities and specialized technologies that are being developed locally.

“We are happy to partner with ISpA for promoting innovations in the Indian’s defence-space industry. The use of space-based technology in the defence sector is of utmost importance and will help us get a strategic advantage to compete on a global platform. It is important to nurture the Startup and MSME ecosystem in this sector and handhold them to make world-class products from India, and we are at the forefront to provide this support,” said Vivek Virmani, Chief Operating Officer, iDEX- Defence Innovation Organisation (DIO) and Planning Officer, DDP, Ministry of Defence.

Prime Minister Narendra Modi launched 75 challenges via the iDEX platform during DefExpo 2022 in October to encourage local innovation in the Defense-Space industry. These challenges provide a platform for the space industry and startups to develop various components and subsystems, such as ground equipment, satellites, payloads, software, and security solutions.

Lt. Gen. AK Bhatt (Retd.), the Director General of the Indian Space Association said, “The private space industry in India is rapidly expanding, and the industry, which is still in its early stages, requires maximum support in order to grow further. Space plays a critical role in defence forces operations, and hence there is a greater need to work together on this huge opportunity. The startups and MSME ecosystem would form the backbone of the defence space industry enterprise, along with the existing companies. The market for defence-space activities is actively growing in India, and this collaboration with the DIO will help to strengthen the 'Make in India' vision for both the defence and space industries by providing adequate guidance on how to move forward and represent India on a global stage. ”

<https://timesofindia.indiatimes.com/gadgets-news/indian-space-association-and-defence-innovation-organization-partner-to-drive-growth-in-defence-space-industry/articleshow/97988726.cms>

The Tribune

Thu, 16 Feb 2023

MoD Partners Industry for Space Technology

The Indian Space Association (ISpA) today announced a partnership with the Defence Innovation Organisation (DIO) to promote manufacturing, indigenisation, technology and innovation in India’s defence-space sector through collaborative-participatory relationship between academia and industry.

The DIO functions under the Ministry of Defence (MoD). The Indian Space Association and DIO will promote the Indian space industry, including start-ups and MSMEs, to develop innovative solutions to meet military requirements and enhance the Indian defence-space ecosystem. ISpA will provide the DIO a platform to connect with the Indian defence space industry and academia.

Lt Gen AK Bhatt (retd), Director General, Indian Space Association, said, "The private space industry in India is rapidly expanding and it requires support." The Innovation for Defence Excellence under the DIO has already provided start-ups with 75 projects to work on.

<https://www.tribuneindia.com/news/nation/mod-partners-industry-for-space-technology-480495>

THE ECONOMIC TIMES

Thu, 16 Feb 2023

HAL Seals Contract with Argentinian Air Force for Supply of Helicopter Spares

State-run aerospace behemoth Hindustan Aeronautics Ltd (HAL) will supply spares and provide engine repair services to Argentinian Air Force's two-tonne class helicopters. The HAL inked an agreement with the air force of the South American country for extending the services, officials said. Argentina has already evinced interest in procuring a batch of India's Light Combat Aircraft Tejas. "The HAL signed a contract with Argentinian Air Force (AAF) for supply of spares and engine repair of legacy two tonne class helicopters," an official of HAL said on Thursday.

The contract was signed by Brigadier General Xavier Issac, Chief of AAF and Chairman and Managing Director of HAL C B Ananthakrishnan on the sidelines of Aero India 2023.

Brigadier General Issac said the contract for support service is a stepping stone for the future engagements and defence cooperation between India and Argentina. Ananthakrishnan said this contract will further pave the way for giving new impetus for defence exports in the Latin American region, according to the official cited above.

<https://economictimes.indiatimes.com/news/defence/hal-seals-contract-with-argentinian-air-force-for-supply-of-helicopter-spares/articleshow/97973505.cms?from=mdr>

Business Standard

Thu, 16 Feb 2023

F-35 Fighters have been Discussed since 2010: Boeing's Heidi Grant

By Ajai Shukla

Heidi Grant was in the Pentagon for 32 years and retired from the post of Secretary of the Air Force for International Affairs. She held that position for over eight years. Now she is with

Boeing as president, business development, defense, space & security and government services. In conversation with Ajai Shukla, she says nobody is better positioned to do business in India than Boeing. “Unlike some of our competitors, Boeing can leverage both its commercial and defence sides,” she observes. Edited excerpts:

What is the purpose of your visit to India?

It is to continue to grow America’s business partnership with India. It’s one of Boeing’s top partners.

Did you set any goals for yourself when you came here?

Now that I’ve been one year with Boeing, my biggest aim was to re-establish relationships that I’ve had in Delhi since 2010. I was part of a meeting with the Minister of Defence here. I was introduced to the Director General of Acquisitions and he goes, ‘I know Heidi. She’s known here as the Tigress’. I said I’ll take that as a compliment.

For strengthening our partnership with India, I believe it’s important for India to have the capability to protect itself in a sovereign way. My passion is how do I ensure that India has what it needs for its defence.

How did your meeting with Rajnath Singh go?

His message was very clear: India’s focus is on developing self-reliance. I was able to explain to him that Boeing already has over 300 Indian suppliers.

Boeing does talk up its billion-dollar worth of exports in aerospace and defence, and the 5,000 Boeing employees in India.

Boeing exports 40 per cent of India’s aerospace and defence exports, which is quite significant. Is there room for growth? Absolutely. Boeing’s best positioned for growth in that area.

Compared to others, Boeing is still ahead.

The other thing I said to Rajnath Singh at the meeting on Thursday is that good things take time. You’re not going to turn on this huge amount right away. We need to make sure we do it right.

Let me come down to the multi-role fighter aircraft tender for 114 fighters. Would Boeing be fielding, as it did in the last contest, the F/A-18 Super Hornet, or would it go with different aircraft this time, the F-15EX or another aircraft in that range?

It depends on how India frames its fighter aircraft requirements. We would have to look at what the requirements are. We’re waiting to learn what the government decides.

So Boeing will not say that it put both Super Hornet and the F-15EX and it’s up to India to choose. We would wait to see the requirements and assess which of the aircraft is suitable to meet those requirements.

The F-35 made quite a splash landing here on Wednesday. Do you think Lockheed Martin might just offer India the F-35? We’ve got our permissions from the US government. Do you see that as a former Pentagon senior official?

Now that I’m with Boeing, I’m not going to address that question.

It’s a very real possibility.

It was in 2010 also. I mean the F-35s have been in discussions since 2010.

US officials were saying that if India requests the top leadership level there's a very good chance that the US will say yes to F-35. As someone who was in the Pentagon, would you think that's a possibility?

Now that I'm with Boeing, I'm not going to address that. And I think you should talk to Lockheed about that.

No, it's a very real possibility.

It was in 2010 also. I mean, F-35s have been in discussions since 2010.

https://www.business-standard.com/article/companies/heidi-grant-f-35-fighters-have-been-discussed-since-2010-123021601216_1.html



Press Information Bureau
Government of India

Ministry of Defence

Thu, 16 Feb 2023

भारत और जापान का संयुक्त सैन्य प्रशिक्षण अभ्यास "धर्म गार्जियन" जापान में शिगा प्रांत के कैम्प इमाजू में आयोजित होगा

भारत और जापान के बीच संयुक्त सैन्य अभ्यास "एक्सरसाइज धर्म गार्जियन" का चौथा संस्करण 17 फरवरी से 02 मार्च 2023 तक जापान में शिगा प्रांत के कैम्प इमाजू में आयोजित किया जा रहा है। विशेष रूप से, भिन्न-भिन्न देशों के साथ भारत द्वारा किए जाने वाले सैन्य प्रशिक्षण अभ्यासों की श्रृंखला में "एक्सरसाइज धर्म गार्जियन" जापान के साथ एक वार्षिक प्रशिक्षण कार्यक्रम है। "अभ्यास धर्म गार्जियन" वर्तमान वैश्विक स्थिति की पृष्ठभूमि में दोनों देशों द्वारा सामना की जाने वाली सुरक्षा चुनौतियों के संदर्भ में अत्यंत महत्वपूर्ण और सार्थक है। इस अभ्यास के संस्करण में जंगल और अर्ध शहरी/शहरी इलाकों में सैन्य गतिविधियों के लिए प्लाटून स्तर का संयुक्त प्रशिक्षण भी शामिल है।

भारतीय सेना की गढ़वाल राइफल्स रेजिमेंट के सैनिक और जापान ग्राउंड सेल्फ डिफेंस फोर्स (जेजीएसडीएफ) में मिडिल आर्मी की एक इन्फैंट्री रेजिमेंट इस वर्ष अभ्यास में भाग ले रहे हैं। इस दौरान, योजना बनाने तथा क्रियान्वयन में पारस्परिकता बढ़ाने के उद्देश्य से जंगी कार्रवाई के दौरान प्राप्त अनुभवों को साझा किया जाएगा। प्रशिक्षण अभ्यास में शामिल होने के लिए भारतीय सेना की टुकड़ी 12 फरवरी 2023 को अभ्यास स्थल पर पहुंची, जहां उनका गर्मजोशी से स्वागत किया गया।

संयुक्त अभ्यास दोनों सेनाओं के बीच अंतर-संचालनीयता, मिलनसारिता, सौहार्द और मित्रता का भाव विकसित करने के अलावा संयुक्त राष्ट्र शासनादेश के तहत सामरिक संचालन करने की रणनीति, तकनीक एवं प्रक्रियाओं में सर्वोत्तम कार्य प्रणालियों को साझा करने में दोनों सेनाओं को सक्षम करेगा। यह प्रशिक्षण मुख्य रूप से उच्च स्तर की शारीरिक फिटनेस और सामरिक स्तर पर अभ्यास की गतिविधियों को आदान-प्रदान करने पर केंद्रित है। अभ्यास के दौरान, दोनों देशों के सैन्य कर्मी संयुक्त योजना बनाने, संयुक्त सामरिक अभ्यास, एकीकृत निगरानी ग्रिड स्थापित करने की मूल बातों को साझा करने तथा हवाई संपत्तियों की नियुक्ति सहित विभिन्न मिशनों में शामिल होंगे। संयुक्त अभ्यास से दोनों सेनाओं को एक-दूसरे को बेहतर तरीके से जानने, अपने व्यापक अनुभव साझा करने और स्थितिजन्य जागरूकता बढ़ाने में मदद मिलेगी।

"एक्सरसाइज धर्म गार्जियन" भारतीय सेना तथा जापानी ग्राउंड सेल्फ डिफेंस फोर्स के बीच रक्षा सहयोग के स्तर को और बढ़ाएगा। इससे दोनों देशों के बीच द्विपक्षीय संबंधों को आगे और बढ़ावा मिलेगा।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1899897>



Fri, 17 Feb 2023

India-Japan Joint Military Exercise ‘Dharma Guardian’ Begins Today

The fourth edition of the India-Japan joint military exercise ‘Dharma Guardian’ will commence on Friday at Camp Imazu in the Shiga province of Japan.

This annual exercise will bolster bilateral relations between India and Japan and enhance the level of defence cooperation between the two forces

Troops of the Garhwal Rifles Regiment of the Indian Army and an Infantry Regiment from the Middle Army of the Japan Ground Self Defence Force (JGSDF) will be participating in the exercise this year, the defence ministry informed.

Both the Indian and Japanese forces will be enhancing interoperability in planning and execution through the exercise which covers platoon-level joint training on operations in jungle and semi-urban/urban terrain.

“The joint exercise will enable the two armies to share best practices in tactics, techniques, and procedures of conducting tactical operations under a UN Mandate, in addition to developing inter-operability, bonhomie, camaraderie, and friendship between the two armies. The training will focus primarily on a high degree of physical fitness and sharing of drills at the tactical level,” the defense ministry said.

The ministry further noted, “The participants are scheduled to engage in a variety of missions ranging from joint planning, joint tactical drills, basics of establishing integrated surveillance grids, including employment of aerial assets. The joint exercise will facilitate both armies to know each other better, share their wide experiences and enhance their situational awareness.”

The fourth edition of Dharma Guardian will culminate on March 2.

The last edition of Exercise Dharma Guardian was held in Belgaum, Karnataka in February, 2022

<https://www.hindustantimes.com/india-news/indiajapan-joint-military-exercise-dharma-guardian-begins-today-101676606827295-amp.html>

THE TIMES OF INDIA

Fri, 17 Feb 2023

First Global Summit on AI in Military Makes Strong Case for a Human in the Loop

The perfect storm is coming. And there is no forecast model for it. Artificial-Intelligence (AI)-driven and directed weapon systems are revolutionising warfare and battlegrounds. It’s the next arms race. The search is now for the “safety lever” before one puts the finger on the trigger. There are far too many questions about AI in the military domain. Thanks to the Netherlands government, the world is now one step closer to getting answers.

The first global summit on Responsible Artificial Intelligence in the Military Domain (REAIM), organised by the Netherlands government, was held at The Hague on February 15-16. It’s a platform for all stakeholders to discuss key opportunities, challenges and risks associated with military applications of AI. It’s the first global attempt to prevent the proliferation of lethal autonomous weapons (LAWS) and insert ethics, responsibility, accountability and the moral factor into a rapidly developing weaponisation technology that has potential for cataclysmic damage.

The aim is for nations to sign up for a Nuclear Non-Proliferation Treaty-kind of agreement. REAIM 2023 concluded in a call to action to the world. Delegations from 80 countries participated in the summit. India hasn’t signed the Call to Action — at least not yet — though China and US have.

“AI has the potential to revolutionise the way wars are fought and won. But it also poses significant risks. To prevent abuses we need to establish international guidelines. It has been established that AI is as ground-breaking as nuclear technology. It is crucial we take action now,” Netherlands minister for foreign affairs Wopke Hoekstra said in his opening address. “Together, we must seek common ground, starting with two basic questions: what is AI and who is responsible for its actions,” he pointed out. “In Ukraine we are unfortunately already seeing the influence of new technology, including drone and cyber attacks. We are also witnessing how Russia is violating international human laws in the most gruesome way,” he said. AI is a double-edged sword, especially in weapon systems. As one expert told TOI on the sidelines of the summit: “It often takes a little bit of noise to confuse the system. It takes stupid decisions.” Can such a system be left to take its own decisions on pulling the trigger?

The Netherlands' chief of defence, General Onno Eichelsheim, made a strong case for human control. "A human must be in the loop in the use of force, specifically in the offensive part. We must also know when the algorithm can take a decision when we are on the defensive side and the enemy is moving fast and using AI," he said in the opening panel discussion. Agnes Callamard, secretary-general of Amnesty International, said the risk of focusing too much on the "reliability" of a system and made a strong case for conformation with humanitarian laws. "We need to ensure meaningful human control in the use of force. Fully automated weapon systems should be prohibited. There should be a strict regulation of all autonomous weapon systems that have the potential of mass destruction. We need to keep human control over AI," she said.

<https://timesofindia.indiatimes.com/world/rest-of-world/first-global-summit-on-ai-in-military-makes-strong-case-for-a-human-in-the-loop/articleshow/97996376.cms>

ThePrint

Fri, 17 Feb 2023

South Korea, US Plan Nuclear Drills to Counter Threats from NORTH, says Seoul Defence Ministry

South Korea and the United States will stage tabletop exercises in Washington next week to improve operations of American nuclear assets as part of efforts to better counter North Korea's threats, Seoul's defence ministry said on Friday.

Nuclear-armed North Korea fired an unprecedented number of missiles last year, including intercontinental ballistic missiles (ICBMs) that could strike anywhere in the United States, while resuming preparations for its first nuclear test since 2017.

The drills, called the Deterrence Strategy Committee Tabletop Exercise, are scheduled for 22 February at the Pentagon and will involve senior defence policymakers from both sides, the ministry said. It would be their first such exercises since the two countries agreed last year to hold them annually, as Seoul seeks to bolster confidence in American extended deterrence – its military capability, especially nuclear forces, to deter attacks on its allies.

The South Korean delegation will be led by Deputy Defence Minister Heo Tae-keun; the U.S. team will be led by Siddharth Mohandas, deputy assistant defence secretary for East Asia, and Richard Johnson, deputy assistant defence secretary for nuclear and countering weapons of mass destruction policy. "With a focus on North Korea's nuclear threats, both sides will have in-depth discussions on various measures to strengthen U.S. extended deterrence, including information sharing and consultation procedures," the ministry said in a statement.

On 23 February, the officials will visit the Kings Bay naval base in Georgia that houses key nuclear submarines. The allies have said they were working to boost joint nuclear planning and implementation as well as information sharing.

In May, both sides' militaries will stage their own tabletop exercises for the first time, which will be "far more concrete and substantive" than the upcoming programmes.

<https://theprint.in/world/south-korea-u-s-to-hold-nuclear-drills-amid-growing-threats-from-north/1377782/>

Pakistan, Polish Entities Ink MoU for Supply of Defence Equipment to Ukraine

Poland is going beyond just being a transit state for transfer of Pakistani arms to Ukraine, with a Polish entity signing a memorandum of understanding (MoU) with a Pakistani company for supply of defence equipment to Kyiv. Some other Pakistani and Polish companies are also involved in transfer of the equipment, while a Canadian firm is acting as an intermediary.

Islamabad-based DMI Associates, which is an agent for Pakistan Ordnance Factories, has signed an MoU with the Government Strategic Reserves Agency of Poland, ET has reliably learnt. It has also learnt that Polish firm PHU Lechmar LLC would operate as an intermediary purchaser and that Canada-based Tradent Global Solutions would operate as the intermediary consultant.

Pakistan is in the process of exporting a consignment of Anza Mark-II Man Portable Air Defence Systems to Poland for transporting to Ukraine, ET has learnt.

Close Military Ties

The transportation deal is being negotiated between Karachi-based firm Millennium Technologies and Poland's Omida Sea & Air. Last week, ET reported that Pakistan was said to be using a German port to transfer rockets to Kiev for use in multi-barrel rocket launchers. More than 10,000 units of rockets have been shipped, according to people familiar with Ukraine-Pakistan ties. ET was the first to report about Islamabad stepping up ammunition and other defence supplies via third countries that border Ukraine in recent months.

Karachi-based shipping firm Project Shipping last month allegedly facilitated supplies of 146 containers from Pakistan Ordnance Factories. Also last month, yet another shipment of 50,000 defence store was reportedly sent by Pakistan Ordnance Factories via Karachi. The shipments from Pakistan are reportedly being transferred to Ukraine through Poland's Gdansk Port. In return, Ukraine promised Pakistan assistance to upgrade its Mi-17 helicopters. A Ukrainian firm involved with manufacturing of aircraft engines as well as industrial marine gas turbines is allegedly assisting Pakistan in upgrading the helicopters.

Pakistan had last year played a critical role in transfer of arms on behalf of the UK to Ukraine.

Ukraine and Pakistan share close military and industrial ties.

Pakistan had purchased more than 320 Ukrainian T-80UD tanks in service with a fully formed ecosystem for their upkeep, use, ammunition and spare parts. Between 1991 and 2020, Ukraine concluded arms contracts worth nearly \$1.6 billion with Pakistan. Islamabad has reportedly clinched a deal with Kyiv for the repair of its T-80UD fleet at a cost of \$85.6 million.

In 2021, Pakistan and Ukraine agreed to optimise military ties, particularly in the defence production, training, counter-terrorism activities and intelligence domains.

<https://economictimes.indiatimes.com/news/defence/pakistan-polish-entities-ink-mou-for-supply-of-defence-equipment-to-ukraine/articleshow/97996207.cms>

China Sanctions Lockheed Martin, Raytheon over Taiwan Arms Sales

China's Commerce Ministry on Thursday put Lockheed Martin Corp and Raytheon Technologies Corp onto an "unreliable entities list" over arms sales to Taiwan, its latest sanctions against the two U.S. defence contractors. The measures come amid heightened tensions after the U.S. military shot down what it says was a Chinese spy balloon, and a day after Beijing warned of "countermeasures against relevant U.S. entities that undermine China's sovereignty and security". Lockheed Martin and Raytheon Missile and Defense Corporation, a subsidiary of Raytheon Technologies, are prohibited from "engaging in import and export activities related to China", the Commerce Ministry said in a statement.

Beijing also banned the firms from further investment in China, barred senior management from entering the country, canceled residence permits for any staff in China and imposed fines that are double the contracted amounts of their arms sales to Taiwan.

It is not clear how China would enforce such fines, which it said must be paid within 15 days.

Last February, China sanctioned the two firms over a \$100 million arms sale to Taiwan, a self-ruled island which Beijing views as a breakaway province. On at least two previous occasions China has announced sanctions against Lockheed and Raytheon, in 2019 and 2020, though Beijing has not explained what those sanctions entailed or how they were enforced. The U.S. does not sell weapons to China. However, the U.S. is bound by the 1979 Taiwan Relations Act to provide Taiwan with the means to defend itself, and U.S. weapons sales always attract China's anger.

<https://www.thehindu.com/news/international/china-sanctions-lockheed-martin-raytheon-over-taiwan-arms-sales/article66517535.ece>

Science & Technology News

Drone Delivers Anti-TB Drug to Rishikesh Hospital 40km Away in 30 mins

The All India Institute of Medical Sciences-Rishikesh on Thursday conducted a trial to test the feasibility of drones supplying medicines to primary health centres or smaller hospitals in cases of emergency. A Vertiplane X3 drone was used to deliver 2kg package of anti-tubercular drugs

to a district hospital in Tehri Garhwal during the trial. The aerial distance of nearly 40 kilometres between the helipad at AIIMS and the hospital was covered in 30 minutes. The project will calculate the cost of effectiveness of delivering not only medicines but sputum samples to laboratories to support the country's programme to eliminate TB by 2025.

Union health minister Mansukh Mandaviya said, "A successful trial of drones delivering medicine was carried out today. Delivery with drones will be especially helpful in hilly areas where a distance of 40 kilometers would have taken 2 hours."

In future, the technology might also be used to transport organs between hospitals with time being of essence in such cases, he said.

Mandaviya added that a similar trial will also be carried out to transport supplies between AIIMS-Delhi and the National Cancer Centre associated with it located almost 50 km away in Jhajjar. "Several obstacles such as poor transportation networks, hilly terrain, traffic natural disasters affected regions, and harsh weather conditions severely affect the timely delivery of anti-tubercular medications. In addition to this, unforeseen delays in transporting sputum samples to the laboratory cause delays in treatment. Considering these challenges, it is essential to explore an effective delivery system to assist the current supply chain mechanism," said a report from the institute.

The drone used in Rishikesh on Thursday, equipped to carry 4kgs in a radius of 50 kilometers and manufactured by TechEagle Innovations, has also been used by the government of Meghalaya to transport medicines, with a drone station being set up in Jengjal. This is not the first time a drone has been used to transport medical supplies. In fact, in a pilot project led by the Indian Council of Medical Research, Covid-19 vaccines were delivered using a drone in Manipur.

Another pilot was carried out by a Bangalore based startup in Arunachal Pradesh to deliver medicines. Other than that, there are e-pharmacies that have also introduced drone delivery.

<https://indianexpress.com/article/india/drone-delivers-anti-tb-drug-to-rishikesh-hospital-40km-away-in-30-mins-8450067/>



Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 16 Feb 2023

Unique Non-cytotoxic Nanocomposite Coatings Developed to Prevent Post-surgical Infections

A newly developed nanocomposite coating can inhibit biofilm formation and also kill attached bacteria, thereby helping tackle growing post-operative infections, a common occurrence these days due to antibiotic resistance in bacteria,

These post-operative surgical site infections (SSIs), which according to WHO, affect 11 percent of patients in low and middle-income countries, are caused by the development of biofilms (groups of bacteria growing in formation that are highly resistant to antibiotics) on the incision

site or in the soft tissue inside the site. The biofilm matrix, which may come from existing infections in the patient's body or can be transferred from the hospital environment through potential carriers like surgical equipment, wound dressing, or bandage/surgical sutures, acts as a physical shield against antibiotics given during the operation, slowing down their penetration.

Hence, it is important to have an antibacterial coating on the surface of these materials that can act as potential sources of SSI. Conventionally antibacterial coatings containing biocides like nanosilver, nanocopper, triclosan, and chlorhexidine have been used to prevent bacterial infections. Although, Triclosan and chlorhexidine exhibit antibacterial effects towards a broad-spectrum of bacteria, they and other biocides are found to produce cytotoxicity. As a result, there is an increasing focus on developing alternative non-cytotoxic materials with antibacterial properties.

Researchers from ARCI, an autonomous institute of the Department of Science and Technology (DST), have developed a nanocomposite coating ((named at ARCI as ATL)) by combining water repellence and biocidal property (combinatorial approach), which exhibits both hydrophobic and biocidal behaviour. The developed coating not only inhibits biofilm formation by restricting bacterial and water adhesion but also kills attached bacteria.

ATL was deposited on different surgical sutures made of silk, nylon, and polyglactin 910 (vicryl) in addition to surgical instrument grade stainless steel 420 coupons and tested for biofilm inhibition against American Type Culture Collection (ATCC) and clinical isolate strains of proven biofilm-forming bacteria such as *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Staphylococcus aureus* and *Escherichia coli* at Translational Health Science Technology Institute (THSTI) and LV Prasad Eye Institute (LVPEI) respectively.

The ATL-coated vicryl sutures exhibited higher percentage biofilm inhibition when compared to commercially available triclosan-coated antibacterial sutures. Cytotoxicity of the formulation was evaluated on coated surface, and it was found that ATL coatings are non-cytotoxic. The coatings developed in the present study can be used as a non-cytotoxic alternative to the commercially available antibacterial coatings, especially for healthcare applications on surgical sutures/surgical instruments to prevent the rise of multidrug-resistant bacteria. The above work was carried out as a Department of Biotechnology (DBT) funded multi-institutional project under Mission AMR (grant no. BT/PR31908/MED/29/1401/2019) where ARCI, Hyderabad was the Principal Investigator and Project coordinator; THSTI (Faridabad) and LVPEI (Hyderabad) were the collaborating institutes.

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<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1899880>

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