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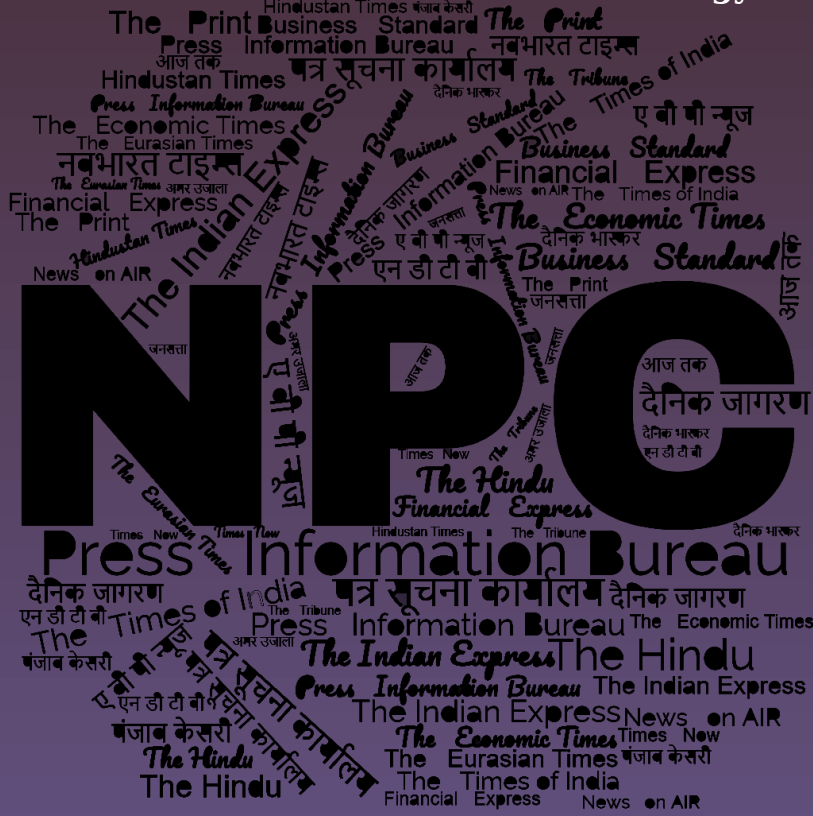
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Sun, 02 Jul 2023

DRDO Test Fires Short Range B-05LV Missile from Kalam Island

A Short-range B-05LV missile was successfully test-fired from Dr APJ Abdul Kalam Island off the coast of Odisha at 6:50 PM on Saturday, July 1.

The Defense Research and Development Organisation test fired the K-15 Submarine-launched short-range Nuclear capable Ballistic Missile from Dr Abdul Kalam Island at 6:50 PM yesterday.

Also Known as “Sagrika”, the Short-range B-05LV missile has a range of more than 700 kilometres and it is currently in service with India’s SSBN Fleet.

India has twice tested its Submarine Launched Nuclear capable missile in a span of 8 months.

On 14th October 2022, INS Arihant had carried out a successful launch of a Submarine Launched Ballistic Missile (SLBM).

On 1st June 2023 at 6:50 PM, DRDO has test fired Short-range B-05LV missile from Dr. Abdul Kalam Island. BS-05 is the code name for K-15 Submarine launched Ballistic Missile (SSBN).

The K-15 is a two-stage submarine-launched ballistic missile which uses a gas booster to eject out of its launch platform and rise up to the surface of water. A solid rocket motor is fired after the missile reaches a fixed altitude. The missile has a modest range of around 750 kilometres. The missile has a maximum speed of Mach 7.5. The missile uses Inertial navigation system with GPS/NavIC satellite guidance for mid-course and Terrain contour matching for terminal stage. The missile has demonstrated single digit impact-accuracy in the previous trials.

The Shaurya missile is a canister-launched Hypersonic surface-to-surface tactical missile is speculated to be the land version of the under-water Sagarika K-15 missile.

The K-15 missile has been integrated with India’s SSBN INS Arihant and was fully operationalised in August 2018. INS Arihant can be equipped with 12 × K-15 Sagarika SLBMs.

<https://pragativadi.com/drdo-test-fires-short-range-b-05lv-missile-from-kalam-island/>



Sun, 02 Jul 2023

Two New Directors for DRDO Labs

The Centre had announced the appointment of directors for two key defence establishments on Saturday.

The new director of Research Centre Imarat (RCI), Dr APJ Abdul Kalam Missile Complex, DRDO, here will be Anindya Biswas, an outstanding scientist. RCI is a premiere avionics lab of DRDO.

The Advanced Systems Laboratory (ASL), also located in the Dr. APJ Abdul Kalam Missile Complex, will also have a new director in B V Papa Rao, a distinguished scientist.

Mr. Biswas graduated in Electronics and Telecommunication from Bengal Engineering College (Calcutta University), Shibpur, West Bengal, and M.Tech (ECE) from IIT Kharagpur. He played a vital role in the indigenous development of terminal guidance systems for anti-tank guided missiles, and precision-guided systems strengthening indigenous defence capabilities.

As a team leader for the terminal guidance systems, he led the conceptualisation, design, and development of several low-cost miniature terminal guidance systems that find applications in numerous tactical missiles. He also led the design and development of several precision guided weapons. The new RCI director was DRDO Young Scientist Award in 2002 and the Scientist of the Year Award in 2016.

Mr. Papa Rao graduated in mechanical engineering from Andhra University, Visakhapatnam, Andhra Pradesh, and M.Tech in production engineering from JNTU, Hyderabad. He has more than three decades of experience in the design and development of state-of-the-art advanced propulsion systems, gas generators, auxiliary motors and thrust vector control systems for solid motors.

His sustained R&D contributions in advanced propulsion systems and other mission-critical sub-systems have been crucial for the development of submarine-launched ballistic missiles and long-range Agni missiles. He has been conferred with performance excellence award, special award for strategic contributions, a technology group award and National Science Day award. He is a member of the Astronautical Society of India, International Ballistic Society and others, informed an official spokesperson on Saturday.

<https://www.thehindu.com/news/national/telegana/two-new-directors-for-drdo-labs/article67030758.ece>

Telangana Today

Sat, 01 Jul 2023

BV Papa Rao Takes Charge as Director of ASL, DRDO

Distinguished scientist, BV Papa Rao was appointed as the Director of Advanced Systems Laboratory (ASL), Dr APJ Abdul Kalam Missile Complex, DRDO, Hyderabad with effect from July 1.

With over three decades of experience, BV Papa Rao specialises in designing and developing cutting-edge propulsion systems for solid motors, including gas generators, auxiliary motors, and thrust vector control systems.

His contributions have played a crucial role in the development of Submarine Launched Ballistic missiles and long-range Agni missiles.

For his contributions to missiles and strategic systems, he was bestowed with various awards such as Commendation by Scientific Adviser to Raksha Mantri, Performance Excellence award, and Special Award for Strategic contributions, among others.

He is a graduate of Mechanical Engineering from Andhra University, Visakhapatnam, and obtained his Master's from JNTU, Hyderabad.

<https://telanganatoday.com/bv-papa-rao-takes-charge-as-director-of-asl-drdo>

Abraham Varughese Takes Charge as the Director of Naval Science and Technological Laboratory in Visakhapatnam

Abraham Varughese, Scientist G, assumed charge as Director, Naval Science and Technological Laboratory (NSTL) here on Saturday.

An alumnus of the University of Kerala and IIT Delhi, Dr Varughese holds a Doctorate in Computer Science & Engineering from Andhra University and was awarded the gold medal for best PhD in the engineering stream. He has an experience over three decades in the design and development of naval systems and spearheaded the indigenous development of underwater weapons at the laboratory. He is the Chairman of IEEE Visakhapatnam Bay Section and a Fellow of several professional societies. He succeeded Y. Sreenivas Rao, who has taken over as Director General, Naval Systems & Materials, DRDO.

<https://www.thehindu.com/news/cities/Visakhapatnam/abraham-varughese-takes-charge-as-the-director-of-naval-science-and-technological-laboratory-in-visakhapatnam/article67030507.ece>

Defence News

Defence Strategic: National/International



Press Information Bureau
Government of India

Ministry of Defence

Fri, 30 Jun 2023

Need for Military Capability Development in the Emerging Warfare Landscape, Says CDS Gen Anil Chauhan

“Interoperability and integration will grow manifold with theaterisation”

**DRDO and Centre for Joint Warfare Studies organize a Seminar & Exhibition on
‘Technology Enabled sensor-Decision-Shooter superiority’**

Chief of Defence Staff General Anil Chauhan, PVSM, UYSM, AVSM, SM, VSM, has stressed on the need for military capability development in the emerging warfare landscape. He was speaking as the Guest of Honour in a seminar & exhibition on “Technology Enabled sensor-Decision-Shooter superiority” organised jointly by Defence Research & Development Organisation (DRDO) and the Centre for Joint Warfare Studies (CENJOWS) at DRDO Bhawan in New Delhi on 30 June 2023.

In his address, Gen Chauhan underscored the achievements of the armed forces in achieving synergy and transparency in numerous sensor and shooter capabilities, including integration of latest communication and artificial intelligence technologies.

The CDS said that OODA (Observe, Orient, Decide, Act) cycle needs to be of a higher tempo to be in step with the pace of warfighting made possible with the cutting edge technologies. Gen Chauhan emphasized that Capability Development is being done through a scientific process and mentioned that interoperability and integration will grow manifold with theaterisation.

The CDS stated that baseline understanding of space, cyber and EW technologies is important for all warfighters. He appreciated the efforts of DRDO and CENJOWS for bringing the services, scientists, industry and academia together for brainstorming the subject and mutual understanding of each other's requirements to meet the future battle field challenges.

Secretary, the Department of R&D and Chairman DRDO, Dr. Samir V Kamat also attended the function. Dr. Samir V Kamat in his address stated that with the proliferation of sensors, the Network Centric Warfare is a reality in the future battlefield scenario. He highlighted that the security of such networks is paramount and passage of secure information in time is a necessity. He also underscored the salience of AI-driven autonomy.

Director CENJOWS, Lt Gen Sunil Srivastava, AVSM, VSM** (Retd), Senior Military officers from the three services, DRDO Scientists and Industry representatives attended the seminar, which had discussions by various "subject matter experts" on strategic and multi-domain awareness, information sharing: Networks and communications, Analysis, intelligence and Decision Making, Prompt & Multi-Domain Targeting.

The seminar provided opportunities for military leaders, scientists, Think Tanks to brainstorm emerging development on the subject and provide various actionable points for all stakeholders.

<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1936514>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 01 Jul 2023

Conference on Classification Regulations and Advanced Naval Technologies

The second edition of Conference on Classification Regulation and Advanced Technologies for Naval Ships and Auxiliaries was organized by Directorate of Naval Architecture, IHQ MoD (Navy) on 27-28 Jun 23 at Manohar Parrikar Institute for Defence Studies and Analysis, New Delhi. The conference was inaugurated by VAdm Sandeep Naithani, Chief of Material; and its various sessions were keenly participated by more than 100 delegates, including Senior Officers of Naval Headquarters, Naval Commands, Field Units, Coast Guards Headquarters, delegates from six DPSU Shipyards, DRDO Scientists and academia.

The conference provided a technical forum to understand advancements in the role of Class Societies to promote indigenous warship building and its maintenance in line with international standards. Senior delegates/ subject experts from seven major International Classification Societies, i.e., ABS, BV, Class-NK, DNV, IRS, LR and RINA participated in the Conference, wherein 16 papers were presented by the Class Societies, ranging from Regulatory framework for Naval Ships, Class Notations for Autonomous Vessels, Rule note for Unmanned vessel, Additive manufacturing,

Naval Submarine Code, Hull Integrity Management, Wind Assisted Propulsion System, and Digital Systems. R Adm K Srinivas, Assistant Chief of Materiel (Dockyard and Refit), delivered the concluding remarks for the conference.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1936866>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 01 Jul 2023

IN – FN Maritime Partnership Exercise Off Visakhapatnam

Indian Naval ships INS Rana, a guided missile destroyer, and INS Sumedha, an indigenously built offshore patrol vessel undertook a Maritime Partnership Exercise (MPX) with French Navy ship FS Surcouf, in the Bay of Bengal on 30 June 2023. The French Navy's La Fayette class frigate Surcouf visited Visakhapatnam from 26 – 29 June 2023 and participated in a variety of activities with Indian Navy ships which included professional and social interactions, sports fixtures and cross deck visits.

On departure from Visakhapatnam, FS Surcouf undertook various exercises with IN ships Rana and Sumedha, which included tactical manoeuvres, replenishment at sea (RAS) approaches, air defence against fighter aircraft and cross deck helicopter operations. The MPX culminated with a customary farewell steampast between the ships reaffirming the close friendship between the two navies. The visit of FS Surcouf to India signifies the strong navy-to-navy links, interoperability and strong bonds between Indian Navy and French Navy.

Earlier, this year, FS La Fayette, a frigate and FS Dixmude, a Mistral-class amphibious assault class ship had participated in an MPX with INS Sahyadri, a guided missile frigate from 10 - 11 March 2023.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1936650>

THE ECONOMIC TIMES

Fri, 30 Jun 2023

Defence Ministry Inks Rs 2,725 cr Contract with MDL for Refit of Submarine

The defence ministry on Friday inked a Rs 2,725 crore contract with the Mazagon Dock Shipbuilders Limited (MDL) for refit of submarine INS Shankush. Shankush is a Sub-Surface Killer (SSK) class submarine.

"The Ministry of Defence has signed a contract on June 30 for medium refit with life certification (MRLC) of sub-surface killer class of submarine INS Shankush with M/S Mazagon Dock Shipbuilders Ltd, Mumbai at an overall cost of Rs 2,725 crore," the ministry said.

It said the submarine post MRLC will be delivered in 2026.

"After completion of MRLC, INS Shankush will be combat ready and will join the active fleet of the Indian Navy with upgraded combat capability," it added.

"This project is an important step towards development of MDL as Maintenance, Repair and Overhaul (MRO) Hub for supporting the industrial ecosystem of India," the ministry said.

<https://economictimes.indiatimes.com/news/defence/defence-ministry-inks-rs-2725-cr-contract-with-mdl-for-refit-of-submarine/articleshow/101401126.cms?from=mdr>

Business Standard

Fri, 30 Jun 2023

Tejas Fighter Completes 7 Years of Service in the Indian Air Force

India's home-grown Light Combat Aircraft (LCA) completed seven years of service in the Indian Air Force (IAF) on Friday.

Christened Tejas in 2003 by former prime minister Atal Behari Vajpayee, the fighter aircraft is a multi-role platform that is steadily making a name as one of the world's premier light fighters.

Designed by the Defence Research & Development Organisation (DRDO), the multi-role Tejas fighter can perform the roles of air defence, maritime reconnaissance and strike, switching between roles with the press of a button.

Tejas is built to be an inherently unstable fighter, with a sophisticated quadruplex flight control system. This allows the pilot carefree handling and enhanced manoeuvrability.

This multi-role capability is further enhanced by the Tejas' multi-mode airborne radar, helmet-mounted display system, a self-protection suite and a laser designation pod.

The first 20 Tejas Mark 1 fighters formed the IAF's Number 45 Squadron -- the "Flying Daggers." Over the years, 45 Squadron has flown Vampires, Gnats and then the MiG-21 BIS, before being equipped with the Tejas Mark 1.

All the aircraft flown by the Flying Daggers have been manufactured in India -- first under licensed production and then, like the Tejas, designed and developed in India as well.

In May 2020, No 18 Squadron became the second IAF unit to operate the Tejas -- still in its Mark 1 variant. [The IAF followed up those 40 fighters with another order for 83 more in a more advanced variant called the Mark 1A.

The IAF's confidence in the Tejas is underlined by the latest order for 83 Mark-1A fighters. These will have updated avionics, an active electronically steered radar, an updated electronic warfare suite and a beyond visual range missile capability.

The new LCA variant will be capable of firing a range of weapons, missiles and cannon-fire from increased stand-off ranges. The Tejas LCA Mark 1A will see a substantial increase in the overall indigenous content of the aircraft.

Contracted deliveries of the aircraft are expected to commence in February 2024. In the years to come, the LCA and its future variants will form an important mainstay of the IAF.

The IAF has showcased the DRDO's indigenous aerospace design, development and production capabilities by displaying the aircraft at various international air displays.

These include the Langkawi International Maritime and Aerospace in Malaysia, Dubai Air Show-2021, Sri Lanka Air Force anniversary celebrations in 2021, Singapore Air Show- 2022 and Aero India Shows from 2017 to 2023.

After participating in numerous exercises in the Indian skies with foreign air forces, Tejas made its debut abroad in March 2023 in Exercise Desert Flag in the United Arab Emirates (UAE).

Meanwhile, the China/Pakistani JF-17 Thunder was being developed as a cheap, lightweight fighter for the Pakistan Air Force (PAF). More than 100 JF-17 Thunder jets have been inducted into service with the PAF since 2007.

https://www.business-standard.com/india-news/tejas-fighter-completes-seven-years-of-service-in-indian-air-force-123063000874_1.html



Fri, 30 Jun 2023

Defence Ministry's Big Announcement for India-Made LCA Tejas, Future Variants

The Indian Air Force is expected to get deliveries of upgraded Light Combat Aircraft Tejas MK-1A from February next year, and the new variant of the indigenously-built jet will be capable of firing a plethora of weapons, including beyond visual range missiles, the Ministry of Defence said today.

As the jet completes seven years in service in the IAF, the ministry said the aircraft and its future variants will form the mainstay of the Indian Air Force (IAF).

In February 2021, the ministry sealed a ₹ 48,000 crore deal with state-run aerospace major Hindustan Aeronautics Ltd for procurement of 83 Tejas MK-1A jets for the IAF.

Tejas is a single-engine multi-role fighter aircraft capable of operating in high-threat air environments.

Egypt, Argentina, the US, Australia, Indonesia, Malaysia and the Philippines are among the countries showing keen interest in procuring Tejas aircraft.

On Saturday, the Light Combat Aircraft (LCA) will complete seven years of service in the IAF. "The confidence that the IAF reposes in the Tejas is borne by its order for 83 LCA MK-1A," the ministry said.

The ministry said the LCA MK-1A will have "updated avionics as well as an active electronically steered radar, updated electronic warfare suite and a beyond visual range missile capability."

"The new variant will be capable of firing a plethora of weapons from increased stand-off ranges. Many of these weapons will be of indigenous origin. The LCA MK-1A will see a substantial increase in the overall indigenous content of the aircraft," the ministry said.

It said the deliveries of the aircraft are expected to commence in February 2024.

Tejas has been designed to undertake the air defence, maritime reconnaissance and strike roles. The ministry said Tejas offers carefree handling and enhanced manoeuvrability, and that this capability is further enhanced with its multi-mode airborne radar, helmet mounted display, self-protection suite and laser designation pod.

The first IAF squadron to induct the Tejas was No 45 squadron, the 'Flying Daggers'.

Over the years, the squadron progressed from Vampires to Gnats and then onto the MiG-21 Bisos, before being equipped with its current steed.

Each of the aircraft flown by the Flying Daggers has been manufactured in India -- either under license production or having been designed and developed in India.

In May 2020, No 18 Squadron became the second IAF unit to operate the Tejas.

The IAF has showcased India's indigenous aerospace capabilities by displaying the aircraft at various international events, including at Dubai Air Show in 2021, Sri Lanka Air Force anniversary celebrations in 2021, Singapore Air Show last year and Aero India Shows from 2017 to 2023.

Whilst it had already participated in exercises with foreign air forces domestically, the exercise Desert Flag in the United Arab Emirates in March was the Tejas' maiden exercise on foreign soil.

<https://www.ndtv.com/india-news/defence-ministrys-big-announcement-for-india-made-lca-tejas-future-variants-4166088>



Sun, 02 Jul 2023

India Set to Begin Process to Acquire US Drones this Week

India will this week issue a letter of request (LoR) to the US government to initiate the purchase of 31 MQ-9B remotely piloted aircraft systems (RPAS) under the foreign military sales (FMS) programme, Washington DC's government-to-government method of selling US-built military platforms and providing services and training to other countries, officials aware of the matter said on Sunday.

The FMS programme is a multi-tiered process and managed by the Defense Security Cooperation Agency (DSCA) for the US Department of Defense (DoD). The Indian LoR will clearly mention the requirements of the three services, details of equipment sought and the proposed terms of procurement, the officials said, asking not to be named.

Price and availability data was earlier sought from the US to pursue the deal, which is estimated to be worth \$3.07 billion.

India's defence acquisitions council (DAC), the country's apex weapons procurement body, on June 15 accorded its acceptance of necessity (AoN) to buy the 31 MQ-9B General Atomics high-altitude long endurance (HALE) drones. Under India's defence procurement rules, the AoN by the council is the first step towards buying military hardware.

The US will respond to the LoR with a letter of offer and acceptance (LoA) after a formal congressional notification, setting the stage for India to begin negotiations with the US, duly factoring in the price and terms offered by Washington DC to other countries. The contract negotiation committee will finalise the deal before it is put up before the cabinet committee on security led by Prime Minister Narendra Modi for final approval. The proposed deal found mention in a joint statement issued by the US and India on June 22 during Modi's first state visit to the US. It said General Atomics will establish a comprehensive global MRO (maintenance, repair and overhaul) facility in India to support the country's long-term goals to boost indigenous defence capabilities.

The Congress party attempted to corner the government by raising questions related to pricing, the acquisition procedure, technology transfer, the numbers sought to be bought and how self-reliance in defence was being pursued.

Top government officials, however, mounted a spirited defence of the highly anticipated deal, stressing that India will negotiate a competitive deal with the US to boost the military's strength, it will be transparent, it will involve transfer of critical technologies, help the Defence Research and Development Organisation (DRDO) develop such systems indigenously, and the number of drones to be bought is based on the operational requirements of the armed forces.

Fifteen drones will be for the navy, and eight each for the army and the Indian Air Force. Ten drones are likely to be bought off the shelf, while the remaining 21 will be assembled in India, the officials said.

The US has offered the 31 drones to India for \$3.07 billion. This, however, is subject to negotiations. The estimated cost includes weapons, sensors, ground control stations, ground data terminals, ground handling equipment, spares and logistics support.

India will also negotiate a higher element of technology transfer, as previously reported by HT. It is looking at doubling the element of technology transfer that is currently on offer --- from 8-9% to 15%-20%. To be assembled in India, the versatile platform will have the capability to strike targets with its on-board weapons, it will be used for intelligence, surveillance and reconnaissance (ISR), and its other roles include electronic warfare, defensive counter air and airborne early warning.

The number of drones to be bought has been arrived at based on a scientific study factoring in the requirements of the three services and taking into consideration the vast expanse of India's land and maritime borders, HT has learnt.

<https://www.hindustantimes.com/india-news/india-to-request-purchase-of-31-mq-9b-drones-from-us-in-3-07-billion-deal-101688322459197.html>



Sat, 01 Jul 2023

Indian Navy to Extend Lease of Two Predator Drones Inducted in 2020

The Indian Navy is planning to extend the lease of the two Predator drones which have flown more than 12,000 hours for surveillance across the country including the boundary with China.

The two drones were inducted by the Indian Navy under the emergency powers on lease in November 2020 during the initial phase of the military standoff with China and have been used extensively by the force.

"We are planning to extend the lease of these two Predator drones as the contract is set to get over by the end of this year," defence sources told ANI.

The two drones of the older version of the Predators were taken on lease along with the ground control stations and other equipment.

After extensive flying operations and use of these drones for surveillance requirements of the Indian Army and Indian Air Force, it has now been decided that the defence forces would get a total of 31 of the latest Predator MQ-9B drones which will be used for surveillance.

The drone deal was announced by India and the US during Prime Minister Narendra Modi's state visit to the US.

The deal has been approved by the Defence Acquisition Council and will now be negotiated with the US government for the final price and other contractual requirements.

Fifteen of these drones would be used for surveillance in the maritime zone while the remaining 16 would be used for aerial and ground surveillance along the northern and northeastern sectors.

The drones are located at the INS Rajaji air base of the Navy in Tamil Nadu which is also planned to be one of the three hubs of the high-altitude long endurance unmanned aerial vehicles.

<https://www.aninews.in/news/world/asia/indian-navy-to-extend-lease-of-two-predator-drones-inducted-in-202020230701182642/>

THE TIMES OF INDIA

Sat, 01 Jul 2023

Ahead of G20 Meet, US Force Trains NSG, Army to Counter CBRNe Threats

US Special Operation Force (USOF) on Friday concluded a two-week joint training session in Manesar, Haryana, for the personnel of National Security Guard (NSG) and Indian Army in detection and neutralisation of chemical, biological, radiological, nuclear and explosive (CBRNe) threats.

The training, offered as part of subject matter expertise exchange (SMEE) between NSG and US Special Forces to review and improve operational readiness in dealing with CBRNe substances, is well-timed as it adds to the NSG's capabilities to handle any CBRNe threats during the upcoming G20 meet.

NSG will be part of the multi-layered security planned for the high-profile event that will see heads of G20 member nations descending upon the national capital.

The joint training exercise by US SOF and NSG, a sequel to their annual joint counter-terrorism exercise TARKASH, began on June 19. Highly-experienced personnel from multiple disciplines like explosive ordnance disposal, chemical warfare, nuclear emergency support & bio hazard mitigation apprised NSG and Indian defence personnel at the NSG varison in Manesar on operational tactics for modern warfare in urban settings.

A senior NSG officer told TOI that the knowledge and experience shared during training sessions will contribute significantly to the enhancement of operational readiness and outlook of the participants. The SMEE is expected to enhance collective response capability to deal with CBRNe threats and ultimately strengthen regional and global security.

"NSG looks forward to further collaboration with international partners and continuing the tradition of hosting such valuable exchanges to address emerging challenges in the ever-changing security landscape. The joint exercise signifies the dedication of the participating forces in tackling terrorism in all forms, safeguarding national security and maintaining public safety," a senior NSG officer told TOI. As part of TARKASH, NSG and US Special Forces annually share best practices and tactics relating to a wide spectrum of anti-terror operations in an urban environment.

<https://timesofindia.indiatimes.com/india/ahead-of-g20-meet-us-force-trains-nsg-army-to-counter-cbrne-threats/articleshow/101407024.cms>

Ahead of PM Modi's Visit, France Offers to Co-develop Engine for Combat Jets

Ahead of Prime Minister Narendra Modi's two-day visit to Paris, one of India's closest allies France made an offer many steps ahead of the path-breaking GE-414 engine deal with the US, people familiar with the matter said on Saturday.

The Emmanuel Macron government has given the green signal to defence major Safran to jointly design, develop, test, manufacture and finally certify an engine that will power India's twin engine advanced multi-role combat aircraft (AMCA) and the twin engine deck-based fighter for Indian aircraft carriers.

While the government is tight-lipped about the deal, authoritative sources have confirmed that the 100% transfer of technology offered by the French Safran is free from US International Trade in Arms Regulation (ITAR) and the proposed 110 kilo newton engine will be fully "Made in India".

DRDO chief Dr Samir V Kamat paid a special visit to the Safran engine factory and the R&D centre near Paris on the sidelines of the recently concluded 2023 Paris Air Show. The engine proposal has been under discussion under the defence minister and NSA-led strategic dialogue with France.

PM Narendra Modi will arrive in Paris on July 13 afternoon to attend the Bastille Day celebrations the next day. He is expected to hold bilateral talks with President Macron on July 13. The Indian Air force's Rafale fighter will be participating in the Bastille Day fly-past on July 14.

The French offer includes a completely new engine, new materials, new architecture, stealth compliance with full supply chains and ancillary manufacturing based in India. While the price of the jet engine deal will be extremely competitive per engine in US dollar terms, the total process from designing to certification of the manufactured engine will take 10 years from the date of signing. The offer also includes Safran setting up a centre of excellence in gas turbine technology in India with full design and metallurgical precision software tools.

Despite the DRDO's best efforts since 1996, it could not deliver on the Kaveri jet engine due to issues with metallurgical tools, rotating parts, single crystal blade technology and high-pressure engine core. The French offer is synchronised with Safran's facility coming up in Hyderabad to maintain repair and overhaul (MRO) LEAP engines for the A320 and Boeing 737 aircraft and will also be developed as MRO for the M-88 engine, which powers the Rafale fighter.

Air India alone requires some 800 LEAP engines for its massive aircraft purchase from Airbus and Boeing. It is understood that the Safran offer covers the full hot section of the engine including the rotating parts, most crucial single crystal blade technology and high-pressure compressor.

While the M-88 engine of the existing Rafale fighter with IAF has a thrust of 75-80 kilo newton, the French offer, which includes tying up with Indian defence PSUs and local private players, will produce higher thrust engine as required by the AMCA or TEDBF being developed by the Aeronautical Development Agency (ADA) under the DRDO. Safran is already working on a 125 KN engine for the French next generation fighter. Safran engines power the helicopters made by HAL and the two companies are reported to have agreed to jointly develop the engine for Indian multi-role helicopters.

Safran has also developed sourcing in India for engine parts for LEAP and M-88 at its own facilities in India and ancillary units, such as a Lucknow-based company that is making titanium alloy parts for the LEAP and Rafale engines.

While the investment in the entire process from design to flight involves several billion euros, the French claim that the offer is most competitive by international standards and the advantage is that it will create a 360-degree capability and ownership of full engine technology by India.

<https://www.hindustantimes.com/india-news/india-drdo-frances-safran-jointly-manufacture-certify-engine-amca-combat-aircraft-emmanuel-macron-101688259382106.html>

THE TIMES OF INDIA

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France will Share Defence Tech, Back Aatmanirbhar Bharat Like no Other Country: Ambassador Lenain

Ahead of PM Narendra Modi's summit with President Emmanuel Macron in Paris, where he will also be the guest of honour at the iconic Bastille Day parade on July 14, French Ambassador Emmanuel Lenain said Friday that Modi's visit is likely to see substantive outcomes in areas like defence, space, security, energy and people to people contacts. On the proposed multibillion-dollar deal for the procurement of Rafale-M aircraft by the Indian Navy, in an interview to TOI's Sachin Parashar, the ambassador said it's India that has to take the final decision and that France is committed to providing the best technology and offer to India.

Modi's visit will come weeks after his summit in the US that saw pathbreaking initiatives to dismantle defence and hi-tech trade barriers. Lenain said, however, France has been a pioneer in transfer of technology to India and that no other country is ready to go as far in support to Aatmanirbhar Bharat. Lenain also said Macron and Modi will discuss the Ukraine issue in the spirit of the strategic partnership to work together on solutions.

Excerpts:

This will be only the 2nd time an Indian PM will be the guest of honour at the Bastille Day parade. What significance does that hold for India-France ties?

It's a very important, deeply symbolic visit. Not every year we have a guest of honour. And this year is the 25th anniversary of the strategic partnership. Therefore we wanted to have a special moment to celebrate and to work together on opening new avenues for our partnership. It's often said France and India are the closest partners of all and it's true in many key sectors from defence to space, energy, people to people contacts and to the technologies that are key for our strategic autonomy.

Will there be some substantive outcomes and, if yes, in what areas?

We are such close strategic partners that coordination and cooperation is ongoing all year round. This visit will be an occasion for the 2 leaders to have direct and in-depth discussions on the main challenges our countries and the planet are facing. agreements are only the result of this partnership based on trust : one should not put the cart before the horse. The ties are so diverse that there will be outcomes in many sectors like security, space, defence, global issues, energy. What is key for us is that we move forward on technologies that will be key for the future, for sustainability and for autonomy. There will be a particular focus on green hydrogen, a very promising source of energy

and you may see some agreements related to that. There will be focus on people to people contacts as well. We will make it easier for Indian students to come to France.

Are you hoping for some progress on the proposal for Rafale-M fighter jets purchase by India?

I understand that there are some expectations because it's an excellent aircraft, but the decision is of course in India's hands! The delivery of Rafale aircraft for the Indian Air Force has been an outstanding industrial and operational success and it seems that the IAF is very satisfied. I believe that the Indian people also have been able to appreciate France's commitment in this respect. France and its companies are working to provide the best offer with the best technology but it goes without saying that the final decision will be made by India based on its security requirements and we respect that.

We saw India and US in the summit last month working to remove barriers to defence and hi-tech trade. What can France offer in that regard?

We have been the pioneers in transfer of technology to India and like India, we are a totally independent country and we understand the need for India to master its own defence technology and to have its own independent industry. Our companies have been working in that spirit for years now, doing a lot of Make in India with focus on transfer of advanced technology like no other country does. The way forward now is to jointly develop the next generation of equipment. For example, French company Safran signed an MoU recently to develop engine for India multi-role helicopter. India has great research facilities and engineering talent. It's a win-win situation.

What about cooperation in Indo-Pacific? Any new initiative likely? What do you make of China's activities in East or South China Sea and also India's own border?

We feel like we are India's neighbour and we are a resident power in the Indo-Pacific. Our two navies can work together from our bases in the region. We have significant information sharing on maritime security. We share the same values like respect for international law, freedom of navigation and UNCLOS. We also recognise that the challenges of the region are manifold and that we therefore need a comprehensive approach that provides solutions to the countries of the region without being confrontational or fueling tensions. The focus is also on infrastructure because while there are security challenges, we have to provide countries in the region with alternative options and help them develop in a sustainable manner. We want everybody to respect international law and the rule of law. That is what we Europeans are defending in Ukraine. It means no aggression, no encroachment on other's territory, and respect for the UN Charter. What is true in Europe is true in the Indo-Pacific and so we have the same approach. We will do everything to uphold these values.

What sort of talks do you see taking place on the Ukraine issue?

Our leaders have a close connection, and they regularly discuss international issues. Ukraine will be very much on the list but again our approach is not to preach or to try to put pressure. The discussions will be in the spirit of our partnership : aiming to find solutions and make progress together. Foreign policy is grounded in facts and reality and each country's foreign policy works within its constraints and interests. We have our own constraints. With the kind of trust-based partnership that France and India have, we understand each other's concerns and we work together to find solutions and enhance our respective strategic autonomy.

<https://timesofindia.indiatimes.com/india/france-will-share-defence-tech-back-atmanirbhar-bharat-like-no-other-country-envoy/articleshow/101401791.cms>

Amid Crisis in Manipur, Defence Secretary Visits Myanmar

Defence Secretary Giridhar Aramane paid a two-day official visit to Myanmar, during which according to the Defence Ministry the two sides discussed issues related to “maintenance of tranquillity in the border areas, illegal trans-border movements and transnational crimes such as drug trafficking and smuggling”. The visit comes amid the continuing violence in Manipur.

“The visit provided an opportunity to raise matters relating to India’s security with senior leadership of Myanmar,” a Ministry statement said. “Both sides reaffirmed their commitment to ensure that their respective territories would not be allowed to be used for any activities inimical to the other.”

Mr. Aramane visited Myanmar on Friday and Saturday (June 30 and July 01), during which he called on Chairman, State Administrative Council Senior General Min Aung Hlaing, in Nay Pyi Taw. He also called on Defence Minister of Myanmar Gen Mya Tun Oo (Retd.) and held meetings with Commander-in-Chief, Myanmar Navy Admiral Moe Aung and Chief of Defence Industries Lt Gen Khan Myint Than. Noting that India shares an approximately 1,700-km-long border with Myanmar, the Ministry said any development in that country has a direct impact on India’s border regions. “Peace and stability in Myanmar and well-being of its people, therefore, remain of utmost importance to India,” it added.

The Indo-Myanmar Border (IMB) is porous and people on both sides have cultural and ethnic ties, even as several insurgent groups operating in the northeast take shelter across the border in Myanmar. Following the military coup in the South East Asian nation, there has been an influx of refugees into India.

As per a March report on global arms transfers by Swedish Think Tank Stockholm International Peace Research Institute (SIPRI), India was the third largest arms supplier to Myanmar after Russia and China, accounting for 14% of its imports for the five year period from 2018-22.

<https://www.thehindu.com/news/national/amid-crisis-in-manipur-defence-secretary-visits-myanmar/article67031774.ece>

India, Tanzania Finalise Five-Year Roadmap to Expand Defence Collaboration Including Equipment & Tech

Ahead of Foreign Minister S Jaishankar’s proposed trip to Tanzania next week India and Tanzania have finalised a five-year roadmap to expand bilateral defence cooperation including in areas of infrastructure building and collaboration in military equipment and technology.

Both sides agreed on the roadmap at the second edition of India-Tanzania Joint Defence Cooperation Committee (JDCC) meeting that was held in Arusha (Tanzania) on June 28 and 29.

"During the meeting, the two sides discussed a wide range of opportunities for collaboration with a view to enhancing security in the Indian Ocean Region," the Tanzanian Defence Ministry said in a

statement. It said the Indian delegation highlighted the growing prowess of the Indian defence manufacturing to export to friendly countries.

"A five-year roadmap for defence cooperation was also agreed to between the two sides, which covers initiatives ranging from customised training and capacity building to maritime cooperation, infrastructure building and collaboration in defence equipment and technology," the Tanzanian Defence Ministry statement noted.

Representatives from Indian defence public sector undertakings also accompanied the Indian delegation at the talks.

Besides Egypt Tanzania is emerging as a key defence industrial partner for India in the continent. Last year India has sought to expand its defence partnership with Tanzania through a defence expo held in capital Dar-es-Salaam. 16 Indian companies (7 from government sector and 9 from private sector) had participated in that event.

The Indian companies who participated in the event were HAL, BEL, BDL, AVNL, MDL, GRSE, L&T, Ashok Leylands, Bharat Forge, Ideaforge Technology, Tata Advanced Systems, Adani Defence, Zen Technologies, MKU Ltd, Tunga Aerospace, AWEIL

It may be noted that India and Tanzania have long standing defence cooperation in areas of trading, capacity building and equipment supply. India and Tanzania signed a Memorandum of Understanding (MoU) on Defence Co-operation in 2003. The MoU provides an over-arching frame-work for progressing various defence co-operation initiatives between the two countries. In recent years, India and Tanzania have been cooperating in the field of defence training in Indian institutions. About 400 Tanzanian defence personnel have been trained in India. On request of the late President John Magufuli, an Indian Military Training Team (IMTT) has been deployed at Command and Staff College, Arusha since December 2017.

In May 2022 Deputy NSA Vikram Misri had visited Tanzania to push defence partnership. Last October India held its first-ever trilateral Navy exercise with Africa as part of initiatives to expand defence partnership with the continent. The Trilateral exercise comprising Navies of India, Tanzania and Mozambique. Various professional disciplines like handling Asymmetric Threats, Boat and Helicopter Operations, Casualty Evacuation drills, Fire Fighting, and Visit Board Search and Seize (VBSS) drills were part of the exercise.

<https://economictimes.indiatimes.com/news/defence/india-tanzania-finalise-five-year-roadmap-to-expand-defence-collaboration-including-equipment-tech/articleshow/101426245.cms>

ThePrint

Sat, 01 Jul 2023

Chinese Military Delegation Visited UK, France – Ministry

A Chinese military delegation visited the Britain and France from June 24 to Saturday to discuss the development of bilateral defence relations, China's Ministry of Defence said on Saturday.

The delegation of the People's Liberation Army's defence strategy consultation exchanged in-depth views on international and regional security issues of common concern, and enhanced mutual understanding and trust, the ministry said in a statement.

<https://theprint.in/world/chinese-military-delegation-visited-uk-france-ministry/1650215/>

US Approves around USD 330 Million Arms Package Sale to Taiwan

The US Department of Defence's Defence Security Cooperation Agency, on Thursday, approved the Foreign Military Sale (FMS) for an estimated cost of USD 332.2 million.

The arms package is to include 30mm ammunition, spare parts for wheeled vehicles and other items, a statement from the agency said. This is the 10th arms-sales package to Taiwan under US President Joe Biden.

"The State Department has made a determination approving a possible Foreign Military Sale to the Taipei Economic and Cultural Representative Office in the United States of 30 mm Ammunition and related equipment for an estimated cost of USD 332.2 million. The Defense Security Cooperation Agency delivered the required certification notifying Congress of this possible sale today," the Department of Defence's Defence Security Cooperation Agency said in a statement.

"The Taipei Economic and Cultural Representative Office in the United States (TECRO) has requested to buy various unclassified 30 mm ammunition, including 30 mm High Explosive Incendiary-Tracer rounds, 30 mm multi-purpose rounds, and 30 mm training rounds; engineering technical services, including configuration control, production support, ammunition testing, and Load, Assemble, and Pack services; other technical services, including sourcing and acquisition assistance, Navy civilian personnel costs, contract support services, support on technical data requests, responses to Requests for Information, up to two (2) Program Management Reviews per year, and testing and documentation associated with contract procurements; and other related elements of logistic and program support. The estimated total cost is USD 332.2 million," it added.

According to the statement, the proposed sale serves the US national, economic, and security interests by supporting the recipient's continuing efforts to modernize its armed forces and to maintain a credible defensive capability. It will also help to improve the security of the recipient and assist in maintaining political stability, military balance, and economic progress in the region.

The proposed sale will contribute to the sustainment of the recipient's CM34 Armored Vehicles, enhancing its ability to meet current and future threats. This ammunition will contribute to the recipient's goal of maintaining its military capability while further enhancing interoperability with the United States. The recipient will have no difficulty absorbing this ammunition into its armed forces.

The proposed sale of this equipment and support will not alter the basic military balance in the region.

After the US approved the arms sale, Taiwan thanked the State Department and tweeted, "We appreciate @StateDept approving the #FMS of 30mm ammunition and related equipment, as well as Cooperative Logistics Supply Support Arrangement. Both FMS are under the procedure of notifying @congressdotgov."

"These #FMS are based on #TaiwanRelationsAct and #SixAssurances, providing the need for enhancing our defence capacity as well as maintaining regional stability," it added.

<https://economictimes.indiatimes.com/news/defence/us-approves-around-usd-330-million-arms-package-sale-to-taiwan/articleshow/101389025.cms>

Israel's Air Force Attacks Syria and Syrian Air Defence Missile Explodes over Northern Israel

Israel carried out airstrikes on areas near the central Syrian city of Homs early Sunday causing material damage but no casualties, the Syrian military said in a statement. Syrian state media quoted an unnamed military official as saying the air defences shot down some of the missiles fired by Israeli warplanes flying over neighbouring Lebanon.

Israeli authorities did not comment on the airstrike on Homs but said one of the Syrian air defence missiles exploded over northern Israel without causing any damage.

Israeli army spokesman Avichay Adraee later said that Israel's military retaliated for the firing of the air defence missile that exploded over the country's north by attacking Syrian air defence batteries from where the missile was fired.

"The warplanes also attacked other targets in the area," Adraee tweeted without elaborating.

Israel, which has vowed to stop Iranian entrenchment next door, has carried out hundreds of strikes on targets in government-controlled parts of neighboring Syria in recent years, but it rarely acknowledges them.

The last suspected Israeli airstrike on Syria was on June 14, near the capital Damascus that left one soldier wounded.

Israel has also targeted the international airports in Damascus and the northern Syrian city of Aleppo several times over the past few years, often putting it out of commission.

<https://economictimes.indiatimes.com/news/defence/israels-air-force-attacks-syria-and-syrian-air-defence-missile-explodes-over-northern-israel/articleshow/101429001.cms>

Science & Technology News



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Ministry of Defence

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Mission Gaganyaan - First Batch of Crew Module Recovery Divers Complete Training

The first batch of crew recovery team of Mission Gaganyaan completed Phase-1 of training at Indian Navy's Water Survival Training Facility (WSTF) at Kochi. Utilising the state of the art facility, the team comprising of Indian Naval Divers and Marine Commandos underwent recovery training of crew module in varied sea conditions. The two weeks training capsule covered a brief on the conduct of the mission, actions to be taken during medical exigencies and familiarisation

with different aircraft and their rescue equipment. The training also validated the SOPs formulated jointly by the Indian Navy and ISRO. On the concluding day, Dr. Mohan M, Director of Human Space Flight Centre, ISRO witnessed the recovery demonstration and interacted with the team. The team trained at WSTF will now be involved in recovery of test launches planned by ISRO in the forthcoming months.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1936874>

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Sat, 01 Jul 2023

Nasa's Mars Helicopter 'Phones Home' after no Contact for 63 Days

Long time, no speak: Nasa has re-established contact with the intrepid Ingenuity Mars Helicopter after more than two months of radio silence, the space agency said Friday.

The mini rotorcraft, which hitched a ride to the Red Planet with the Perseverance rover in early 2021, has already survived well beyond its initial 30-day mission to prove the feasibility of its technology in five test flights.

Since then, it has been deployed dozens of times, acting as an aerial scout to assist its wheeled companion in searching for signs of ancient microbial life from billions of years ago, when Mars was much wetter and warmer than today.

Ingenuity's 52nd flight launched on April 26, but mission controllers at NASA's Jet Propulsion Laboratory (JPL) in California lost contact as it descended to the surface following its two minute, 1,191-foot (363-meter) hop.

The loss of communications was expected, because a hill stood between Ingenuity and Perseverance, which acts as a relay between the drone and Earth.

Nonetheless, "this has been the longest we've gone without hearing from Ingenuity so far in the mission," Joshua Anderson, Ingenuity team lead at JPL, told AFP.

"Ingenuity is designed to take care of itself when communication gaps like this occur, but we all still had a sense of relief finally hearing back."

Data so far indicates that the heli is in good shape. If further health checks also come back normal, Ingenuity will be all set for its next flight, westward toward a rocky outcrop the Perseverance team is interested in exploring.

It's not the first time Ingenuity has experienced downed communications. The heli was scouring an ancient river delta when it went missing for around six days in April, "an agonizingly long time," chief engineer Travis Brown wrote in a blog post.

<https://timesofindia.indiatimes.com/world/us/nasas-mars-helicopter-phones-home-after-no-contact-for-63-days/articleshow/101409207.cms>

