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Sun, 07 Aug 2022

In a First, DRDO's Howitzer to be Part of 21-Gun Salute on Independence Day

In a first, the signature 21-gun salute during the Independence Day ceremony at the Red Fort this year will include the indigenous howitzer gun, ATAGS — developed by the DRDO facility in Pune — alongside the traditional British artillery guns. Advanced Towed Artillery Gun System (ATAGS) is a home-grown 155 mm x 52 calibre howitzer gun developed by the Pune-based Armament Research and Development Establishment (ARDE) of the Defence Research and Development Organisation (DRDO). Every year, the unfurling of the Tricolour by the Prime Minister is followed by a rendition of the national anthem which synchronises with the 21-gun salute fired by a ceremonial battery from an artillery regiment. Over the years, this gun salute — which are blanks — is fired by the World War era howitzers of British make, known as 'Ordnance Quick Fire 25 Pounder' or just 25 Pounder. From the battery of eight guns that is generally deployed for the salute, seven fire three rounds each. This year, some ATAGS guns will be part of the battery that will fire along with some 25 pounders.

ARDE Director Ankhati Raju said, "It is a proud moment for me and the entire ARDE community that ATAGS will be giving salute to the nation during the 75th year of Independence. It is indeed a great achievement for ARDE and DRDO that for the first time an indigenously developed gun will be shouldering the responsibility of firing alongside the 25 pounder British Guns." Some practice firing sessions of the ATAGS have already been held in the run up to the Independence Day celebrations.

ATAGS is a fully indigenous towed artillery gun system project undertaken in mission mode by DRDO as a part of artillery modernisation programme of the Indian Army. System has a firing range of 48 km and has features like fast deployability, high mobility, auxiliary power mode, automatic command and control system, state-of-the-art communication system and night capability in direct-fire mode. The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Army with a modern 155 mm artillery gun. The ARDE has collaborated with Bharat Forge Limited and Tata Advanced Systems Ltd for the manufacturing of this specialised gun. The system has undergone various levels of trials in different conditions and is currently undergoing an evaluation by the Directorate General Quality Assurance, a nodal agency for the quality assurance of all arms, ammunitions, equipment and stores supplied to Armed Forces.

The ARDE, which is part of the Armament and Combat Engineering (ACE) cluster of the DRDO, is tasked with research, design and development of conventional armaments for Armed forces. ARDE has expertise in small arms, artillery guns, rocket systems, air-delivered munitions and warheads.

<https://indianexpress.com/article/cities/pune/this-i-day-howitzer-developed-by-drdo-to-be-a-part-of-21-gun-salute-8075628/>

Defence News

Defence Strategic : National/International



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

शनिवार, 06 अगस्त 2022 12:44 अपराह्न

वायुसेना प्रमुख ने बेंगलौर में स्वदेशी विमान उड़ाया

वायुसेना प्रमुख (सीएएस) एयर चीफ मार्शल वीआर चौधरी ने अपनी दो दिवसीय बेंगलौर यात्रा के दौरान तीन स्वदेशी लाइट कॉम्बैट एयरक्राफ्ट (एलसीए) तेजस, लाइट कॉम्बैट हेलीकॉप्टर (एलसीएच) और हिंदुस्तान टर्बो ट्रेनर-40 (एचटीटी-40) को उड़ाया। आत्मनिर्भरता की ओर अपने अभियान के अंग के रूप में इन्हें भारतीय वायुसेना में शामिल किया जा रहा है। वायु सेना प्रमुख को एलसीएच और एचटीटी-40 की क्षमताओं की नवीनतम जानकारी देने के साथ-साथ तेजस का प्रदर्शन भी दिखाया गया। उन्होंने वर्तमान स्थिति और भविष्य की योजनाओं को समझने के लिए डिजाइनरों और परीक्षण दल के साथ भी वार्तालाप किया।

06 अगस्त, 2022 को, वायु सेना प्रमुख ने एयर चीफ मार्शल एलएम कटेरे स्मृति व्याख्यान को संबोधित किया जिसमें आईएएफ, एचएएल और एयरोस्पेस उद्योग के अन्य हितधारकों के सेवारत और सेवानिवृत्त अधिकारियों ने भाग लिया। वायुसेना प्रमुख ने भविष्य के लिए एक त्वरित लड़ाकू बल बनाने की दिशा में भारतीय वायुसेना की क्षमता और बल विकास योजनाओं पर भी चर्चा की।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1849100>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 06 Aug 2022 12:44 PM

Chief of the Air Staff Flies Indigenous Aircraft at Bangalore

Air Chief Marshal VR Chaudhari, Chief of the Air Staff (CAS) was on a two day visit to Bangalore. He flew three indigenous platforms, Light Combat Aircraft (LCA) Tejas, Light Combat Helicopter (LCH) and Hindustan Turbo Trainer-40 (HTT-40), which are being inducted into IAF as part of its drive towards Atmanirbharta. CAS demonstrated the capabilities of the LCH and HTT-40 as well as updates on the Tejas. He also interacted with the designers and test crew to understand the current status and future plans. On 06 August 2022, CAS delivered the Air Chief Marshal LM Katre Memorial Lecture which was attended by serving & retired officers of IAF, HAL and other stakeholders from the aerospace industry. The CAS spoke on 'Capability and Force Development Plans of IAF' towards making it a future ready combat force.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1849057>



Sun, 07 Aug 2022

IAF Chief Flies Three Indigenous Platforms

On the eve of 75 years of India's Independence Day celebrations, three indigenous platforms for the Indian Air Force were flown by Chief of Air Staff Air Chief Marshal VR Chaudhari. The chief who is in Bengaluru on a two-day visit on Saturday morning flew Hindustan Turbo Trainer-40 (HTT-40), Light Combat Helicopter (LCH) and the Light Combat Aircraft (LCA) 'Tejas'. The HTT-40 Trainer is soon going to be inducted into the IAF, followed by the LCH later this month. The LCA too is getting ready to be added to the fighters' fleet of IAF. The Chief, according to the IAF is in Bengaluru and at the end of flying the three platforms, he interacted with the designers and test crew at state-owned Hindustan Aeronautics (HAL) to understand the current status and future plans. He also delivered the Air Chief Marshal LM Katre Memorial Lecture where serving, and retired IAF officers as well as HAL officers and stakeholders from the aerospace industry were all present. The focus of his lecture was on Capability and Force Development Plans of IAF in its journey towards being a future ready combat force.

Light Combat Aircraft

In 2021, the government has already put its stamp of approval on a Rs 48,000 cr deal to procure 83 Tejas fighter jets from HAL. This is perhaps one of the biggest defence contracts under the 'Make in India' initiative. This aircraft is a single engine and highly agile multi-role supersonic fighter aircraft. It has the capability to operate in different terrains as well as extreme air environments. As has been reported by Financial Express Online earlier, the deal inked with HAL is for 73 Tejas Mk-IA variants and 10 LCA Tejas and this will help in giving a boost to the

combat prowess of IAF. The delivery of these aircraft is expected to begin in 2024. And the HAL officials have said that the plan is to roll out 16 aircraft each year till the delivery of 83 is completed. On the completion of the IAF order, HAL is already getting ready to export its first LCA to one of the Asean member nations – Malaysia. The facility where these aircraft will be built is already getting ready on 35 acres of land and on completion will help HAL in enhancing its production capacity from 8 to 16 every year. Financial Express Online has reported that the production of the 83 aircraft will be done on two production lines and there are more than 500 production partners involved.

Indigenous Fighter aircraft

Will come equipped with an Active Electronically Scanned Array (AESA) Radar, Air to Air Refuelling (AAR) capability, Beyond Visual Range (BVR) Missiles, and Electronic Warfare (EW) Suite. These will make the indigenous fighter jet a potent platform and will meet the immediate operational requirements of IAF. Currently the aircraft has 50 percent indigenous content and by the time the deliveries are made the content will go up. Critical items including Quartz Nose Cone (Radome) and the Air-to-Air Refueling probe for the Full Operational Capability Configuration comes from the British Aerospace Manufacturing company Cobham. The fleet has the MK.16 IN16G Zero/Zero ejection seat from the world's top most manufacturer Martin Baker based in the UK. The aircraft will be powered by the GE engines.

Light Combat Helicopter

Earlier this year in March the Cabinet Committee on Security (CCS) approved procurement of 15 LCHs. The approval has been given for Limited Series Production (LSP) at the cost of Rs 3,887 crore and Infrastructure sanctions worth Rs 377 crore. Financial Express Online has reported earlier that 10 LCHs are for the IAF and the balance five are for the Indian Army. Together the two services have a requirement of around 160 LCH. A senior officer had earlier said that the IAF will get 65 LCH and the rest will be for the Indian Army. Later this month Prime Minister Narendra Modi is expected to induct the indigenous helicopter in IAF. These helicopters have the capability to operate at high altitude and difficult terrains and are suitable to meet the requirements of both IAF and the army.

Following the Galwan Valley clash in eastern Ladakh, in August 2020, HAL had stationed two LCH at the disposal of the IAF and these played a very critical role along the Line of Actual Control. The IAF personnel have already undergone training at the Helicopter Division which is located in Bengaluru. These helicopters are equipped for high-altitude performance, have extended range, all weather combat capability, maneuverability, and more. There is state-of-the-art technologies and equipment on board.

HTT-40 Basic Trainer

Another indigenous platform from HAL is ready for the IAF which is expected to procure initially 70 trainers. It will be powered by Honeywell engines and has almost 60 percent indigenous content. The first 70 trainers are to be built in Bengaluru and then moved to Nasik for the series production.

https://www.financialexpress.com/defence/iaf-chief-flies-three-indigenous-platforms/2620559/lite/?utm_source=defence_landing_page&utm_medium=article_listing_wid get&utm_campaign=Tags

Sun, 07 Aug 2022

HAL Developing Long-Endurance Drone for Vigil over LAC

State-run aerospace behemoth Hindustan Aeronautics Ltd (HAL) is working on an AI-driven multi-role, advanced and long-endurance drone for strategic missions in high-altitude areas including along the frontiers with China, people familiar with the development said on Sunday. The rotary-wing drone will have the capability to carry a load of 40 kgs, including missiles and sensors, and it is being developed considering the requirement of the armed forces to keep a strong vigil over the mountainous areas along the Line of Actual Control (LAC), they said. The HAL has set a target of conducting the maiden test-flying of the unmanned aerial vehicle (UAV) by the middle of next year and plans to produce 60 such platforms in the first phase of the project, the people in the know told PTI. They said the operating system of the long-endurance drone will feature applications of Artificial Intelligence and the armed forces will be able to use it for multiple purposes including transporting essential supplies.

“The drone is being developed in such a way that it can carry a wide range of vital military systems including sensors, missiles and various other weapons,” said one of the people cited above. Separately, HAL is also looking at the possibility of producing the Israeli Heron TP drones in collaboration with its manufacturer under an ambitious project. “This project is aimed at addressing the requirement of our armed forces as well as global supplies,” the person said. The medium-altitude Heron drones are capable of operating for nearly 45 hours at an altitude of up to 35,000 feet. The Heron TP drones are equipped with automatic taxi-takeoff and landing (ATOL) and satellite communication (SATCOM) systems for an extended range. The HAL is also working on two separate drone projects with the Defence Research and Development Organisation (DRDO).

The three services are planning to acquire a sizeable number of unmanned aerial platforms in the next few years to significantly ramp up their surveillance capability, particularly to monitor Chinese activities along the LAC and Indian Ocean Region. Each of the three services has drawn up plans for the acquisition of the new-age platforms. The armed forces have been focusing on procuring unmanned platforms including armed drones following the eastern Ladakh standoff with China and a drone strike on the Jammu airbase last year. Explosives-laden drones were used to carry out the attack on the Jammu Air Force station in June last year in the first such instance of suspected Pakistan-based terrorists deploying unmanned aerial vehicles to strike at vital military installations in India. India is also planning to procure around 30 multi-mission armed Predator drones from the US for the three services at an estimated cost of over USD 3 billion. In November 2020, the Navy got two non-weaponised MQ-9B Sea Guardian drones from the US on lease.

https://www.financialexpress.com/defence/hal-developing-long-endurance-drone-for-vigil-over-lac/2620705/lite/?utm_source=edu_landing_page&utm_medium=article_listing_widget&utm_campaign=Tags

For vigil over LAC, India develops AI-driven drone

The Hindustan Aeronautics Ltd (HAL) is reportedly working on developing AI-driven multi-role, advanced and long-endurance drones that will be used for invigilation in the areas along the Line of Actual Control (LAC). The reports emerge amid rising border threats from neighbouring countries along the LAC. The move comes as India prepares to step up vigilance strategically in high-altitude areas including along the frontiers with China. The Galwan valley clash between the Indian and Chinese troops in May 2020, has had no disengagement yet, wherein several rounds of talks between India and China has led to no cancellation of the border tension.

The rotary-wing drone will have the capability to carry a load of 40 kgs, including missiles and sensors, and it is being developed considering the requirement of the armed forces to keep a strong vigil over the mountainous areas along the Line of Actual Control (LAC), officials aware of the development said. The HAL has set a target of conducting the maiden test-flying of the unmanned aerial vehicle (UAV) by the middle of next year and plans to produce 60 such platforms in the first phase of the project, the people in the know told news agency. They said the operating system of the long-endurance drone will feature applications of Artificial Intelligence and the armed forces will be able to use it for multiple purposes including transporting essential supplies. "The drone is being developed in such a way that it can carry a wide range of vital military systems including sensors, missiles and various other weapons," said one of the people cited above.

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<https://www.livemint.com/news/india/for-vigil-over-lac-india-develops-ai-driven-drone-read-here-11659869620462.html>

US, Australia Show Interest in LCA Tejas; Malaysia Shortlists 'Made-in-India' Fighter Jet

The Government on Monday informed that the US and Australia are among the countries which have shown interest in India-manufactured Light Combat Aircraft Tejas. LCA Tejas has already been shortlisted by Malaysia. Ajay Bhatt, Minister of State (Defence) on Friday informed that other than Malaysia the “Other countries which have evinced interest in LCA aircraft are: Argentina, Australia, Egypt, USA, Indonesia, and the Philippines.” The Hindustan Aeronautics Limited (HAL) has already responded to a Request for Information (RFI) received from Royal Malaysian Air Force (RMAF), Malaysia in February 2019 for LCA class aircraft. “Subsequently, HAL in October, 2021 responded to Request For Proposal (RFP) issued against tender released by Royal Malaysian Air Force, Malaysia for 18 nos of Fighter Lead In Trainer – Light Combat Aircraft (FLIT – LCA) and HAL offered LCA Tejas twin-seater variant.” said MoS. Tejas, manufactured by Hindustan Aeronautics Ltd, is a single-engine multi-role fighter aircraft capable of operating in high-threat air environments. In February last year, the defence ministry sealed a Rs 48,000 crore deal with HAL for the procurement of 83 Tejas light combat aircraft for the Indian Air Force (IAF).

Replying to a question in Lok Sabha on Tejas, Bhatt said the HAL responded to a Request for Information (RFI) or initial tender received from Royal Malaysian Air Force in February 2019. Subsequently, the HAL responded in October 2021 to a Request For Proposal (RFP) issued by Malaysia for 18 aircraft, adding the twin-seater variant of the Tejas was offered. Malaysia is procuring the aircraft to replace its ageing fleet of Russian MiG-29 fighter planes. The number of aircraft that Malaysia is looking at procuring is not immediately clear. "Other countries which have evinced interest in LCA aircraft are Argentina, Australia, Egypt, USA, Indonesia, and the Philippines," he said. Last month, the then Chairman and Managing Director of HAL R Madhavan said the Tejas aircraft has emerged as the top choice for Malaysia. To a separate question on whether the government proposes to manufacture a stealth fighter jet, Bhatt said "yes" and added the "autonomous flying wing technology demonstrator" has been successfully tested by the Defence Research and Development Organisation (DRDO). "Further, the desired information is sensitive in nature and its disclosure is not in the interest of national security," he said.

<https://www.newindianexpress.com/nation/2022/aug/06/us-australiashowinterest-inlca-tejas-malaysia-shortlists-made-in-india-fighter-jet-2484658.html>

Fri, 05 Aug 2022

India Offers to Sell 18 LCA Tejas to Malaysia; Says 'US, 5 other Countries Interested'

The Defence Minister on Friday said that India has offered to sell 18 light-combat aircraft (LCA) “Tejas” to Malaysia and added that the *US* and five other countries are interested in the indigenously-developed single-engine jet. In written reply to BJP MP Queen Oja and others in *Lok Sabha*, Minister of State for Defence *Ajay Bhatt* said Hindustan Aeronautics Limited (*HAL*), a state-owned defence and aerospace company, responded to a request for information from Malaysia's *Royal Malaysian Air Force*, in February, 2019 for LCA class aircraft. Subsequently, the HAL responded in October last year to request for a proposal issued against the tender released by the Royal Malaysian Air Force for 18 numbers of Fighter Lead in Trainer – *Light Combat Aircraft* (FLIT – LCA) and HAL offered to sell twin-seater variant of LCA Tejas.

Besides the *US*, the other countries which have evinced interest in the aircraft include Argentina, Egypt, Indonesia, and the Philippines. Last year, the Centre gave a contract to the HAL to manufacture 83 Tejas jets for the Indian Air Force at an estimated cost of Rs 48,000 crore. Bhatt said that the Centre has taken several policy initiatives in the past few years and brought in reforms to encourage indigenous design, development and manufacture of defence equipment in the country, thereby expanding the production of indigenous defence equipment. He also noted that with the initiatives, the expenditure on defence procurement from foreign sources which used to be 46 per cent of the overall expenditure has reduced to 36 per cent in the last four years.

<https://www.timesnownews.com/india/us-australia-others-evinced-interest-in-indigenously-developed-light-combat-aircraft-centre-article-93370077>

*Fri, 05 Aug 2022*

HAL Offered Light Combat Aircraft Tejas Twin Seater for Malaysia Tender

Hindustan Aeronautics Limited (HAL) has responded to the Request for Proposal (RFP) issued by Royal Malaysian Air Force (RMAF), Malaysia for 18 Fighter Lead in Trainer – Light Combat Aircraft (FLIT – LCA) offering the Light Combat Aircraft Tejas twin-seater variant, the Defence Ministry informed Parliament on Friday. Several other countries too have evinced interest in the indigenous fighter, it stated. “Other countries which have evinced interest in LCA aircraft are: Argentina, Australia, Egypt, the U.S., Indonesia, and Philippines,” Minister of State for Defence *Ajay Bhatt* said in a written reply to Shrimati Queen Oja and others in *Lok Sabha*. Stating that HAL had responded to a Request for Information (RFI) received from RMAF received in

February, 2019 for LCA class aircraft, the reply said that subsequently, it responded in October, 2021 to the RFP.

<https://www.thehindu.com/news/national/hal-offered-light-combat-aircraft-tejas-twin-seater-for-malaysia-tender/article65731560.ece>

THE ECONOMIC TIMES

Sat, 06 Aug 2022

Why Tejas Fighter Aircraft are in Demand?

The government had informed the Lok Sabha on Friday that Malaysia is procuring 18 Tejas fighter jets while the US, Argentina, Australia, Egypt, Indonesia and Philippines too have shown interest to procure the light combat aircraft (LCA). Last year, the Indian government had awarded a Rs 48,000 crore contract to state-owned Hindustan Aeronautics Limited (HAL for manufacturing 83 Tejas jets to be delivered by 2023. The indigenous Tejas fighter jet was in the news recently after becoming Malaysia's first choice. This Indian aircraft competed with the developed aircraft of China, Russia and South Korea, and due to its features, it overshadowed all the aircraft. Defence expert Qamar Agha said that if compared to Sukhoi, Tejas is much lighter. "Tejas is fully capable of carrying a load of eight to nine tonnes. It can fly with as many weapons and missiles as Sukhoi, which weighs more. Its biggest advantage is its speed. Despite being light, its speed is unmatched. These aircraft can fly as fast as the speed of sound, i.e., Mach 1.6 to 1.8, up at an altitude of 52,000 feet," he said.

Agha added: "The Tejas Mark-1A is also costlier than the Sukhoi-30MKI fighter aircraft because many latest equipment have been added to it. For example, it has radar developed in Israel. Apart from this, the aircraft also has an indigenously developed radar. It is very light and its fighter power is also better. It is a multifunctional fighter aircraft." Tejas is fitted with an active electronically-scanned radar for critical operation capability. It can refuel in the air and be ready for war again. It can target enemy aircraft from a distance. Not only this, it also has the ability to dodge the enemy's radar. "At a time when there is a shortage of fighter jets in the Indian Air Force fleet, Tejas should be welcomed," the defence expert said. Tejas made its first flight in January 2001. The aircraft was inducted into the squadron of the Indian Air Force in 2016.

<https://economictimes.indiatimes.com/news/defence/why-tejas-fighter-aircraft-are-in-demand/articleshow/93396283.cms>

THE ECONOMIC TIMES

Fri, 05 Aug 2022

Indian Army Conducts 5-day Exercise to Test Satellites

In a five-day-long satellite communication exercise, the Indian Army has tested all of its space-based assets to ensure their operational readiness, sources in the defence establishment said on Friday. The Army has also completed a study on the communication, cyber and electromagnetic

effects reported during the ongoing Russia-Ukraine war, they added. The exercise named "Skylight" was conducted from July 25 to July 29, the sources said. The Army is utilising the services of a number of satellites belonging to the Indian Space Research Organisation (ISRO), they noted. The types of satellite communication terminals tested during the exercise included static terminals, transportable vehicle-mounted terminals, man-portable and small form factor man-pack terminals, the sources informed.

The Indian Army is closely studying the war in Ukraine to derive communication technology-related lessons from it, they added. The focus of the Army's study on the war is on "military communications and electronic warfare", the sources said. The Indian Army has learned from this war that a tactical communication system, which is operable in a hostile enemy area, with a suitable backhaul is extremely important, they said. The study has also revealed the efficacy of reliable satellite communication like the one afforded by "Starlink", the sources said. Taking a cue from it, the Army is engaging with the industry and academia to develop "small form factor hand held secure satellite phones", they added.

<https://economictimes.indiatimes.com/news/defence/isis-member-involved-in-funds-collection-arrested-from-delhi/articleshow/93407039.cms>



Sat, 06 Aug 2022

Indian Army Plans to Use 5G to Boost Frontline Troops Communication

The Indian Army is planning to use 5G services to boost frontline troops communication services that will be essential in a tactical battlefield area, sources in the defence establishment said on Saturday. The Army was the lead service when a joint services study was recently conducted on implementation of 5G in armed forces, they said. The study has been completed and its recommendations are being studied by the three services — Army, Navy, Air Force, they noted. The Indian Army will exploit 5G to support operations in tactical battlefield area, they said. The high bandwidth and low latency of 5G are better suited for critical communication services for front line troops, they added. On August 1, India's biggest ever auction of telecom spectrum — 5G — received a record Rs 1.5 trillion of bids, with Mukesh Ambani's Jio cornering nearly half of all the airwaves sold with an Rs 88,078 crore bid.

https://www.financialexpress.com/defence/indian-army-plans-to-use-5g-to-boost-frontline-troops-communication/2619949/lite/?utm_source=defence_landing_page&utm_medium=article_listing_widget&utm_campaign=Tags

Army Steps Up Deployment of AI-Powered Surveillance Systems on Borders with China & Pakistan

The army is slowly but steadily cranking up the use of Artificial Intelligence (AI)-powered smart surveillance systems to keep tabs on troop movements, build-ups and infrastructure development along the borders with China and Pakistan. There are "already 145 deployments of assets based on such AI-powered systems", which get feeds from satellite imagery, drones, radars, thermal cameras, electro-optical devices, motion detectors and the like. The heterogeneous inputs are collated, interpreted and then disseminated to commanders on the frontlines to ensure "battlefield transparency" and faster decision-making, defence establishment sources said on Saturday. It is simply not possible to physically guard every inch of the long unresolved borders, especially the 3,488-km long Line of Actual Control (LAC) with China stretching from eastern Ladakh to Arunachal Pradesh, without such smart surveillance systems. "This focus on technology has considerably reduced the need for manual monitoring," a source said.

Take Tawang in Arunachal Pradesh, which China claims as "South Tibet", for instance. The Army has a very high density of troops and heavy weapon systems deployed in the region, which are now also backed by surveillance and communication hubs, where all inputs converge, to monitor the People's Liberation Army (PLA). The force is even using AI-based facial recognition software to identify PLA officers across the LAC. The Army has also deployed "AI-based suspicious vehicle recognition systems" in eight locations in the northern and southern theatres, while a real-time monitoring software is being used to generate intelligence for counter-terrorist operations in Jammu and Kashme. Though far behind China in exploitation of cutting-edge 'disruptive' technologies like AI and ML (machine learning), the Indian defence establishment is now finally stepping on the gas to boost situational awareness, combat capability and survivability of its forces through them. "AI is a critical operational necessity. It's capable of providing considerable asymmetry during military operations and will transform war-fighting paradigms," the source said.

"AI applications can be utilised for surveillance and detection, real-time social media monitoring, pattern recognition and prediction of adversary courses of action," he added. The army is closely collaborating with DRDO, academia and industry for realisation of complex AI-based projects. Towards this end, an AI Lab at the Military College of Telecommunication Engineering in Mhow conducts extensive testing of products before giving them to a production agency. The AI-enabled products range from automated roomintervention drones, rail-mounted sentry robots and swarm drones to even a wearable Mandarin-to-English translation device. "In the domain of natural language processing, the portable translation device has real time bi-

directional speech capability, without any rearward network connectivity. It weighs 80-100 grams, with a latency of 3-4 secs and a battery life of 12 hours. It will help our soldiers on the LAC," an officer said.

<https://timesofindia.indiatimes.com/india/army-steps-up-deployment-of-ai-powered-surveillance-systems-on-borders-with-china-pakistan/articleshow/93402906.cms>

Business Standard

Sat, 06 Aug 2022

Govt Okayed Purchase of Military Equipment worth Rs 1.83 TRN since 2020-21

The government has said that it accorded the Acceptance of Necessity (AoN) approval for procurement of military equipment worth Rs 1,83,778 crore since 2020-21. The AoN is the first step towards any defence procurement, which is followed by tendering and contracting. "In the period 2020-21 to 2022-23 (till June 30, 2022), 59 AoNs amounting to Rs 1,83,778.34 crore have been accorded and 91 contracts amounting to Rs 1,19,045.3 crore have been concluded," Minister of State for Defence Ajay Bhatt said while replying to a question in Lok Sabha on Friday.

"Capital acquisition of defence equipment is carried out as per provisions of Defence Acquisition Procedure (DAP)," he said, adding that the DAP-2020 lays down the timelines for completion of acquisition activities. Further, the activities are "regularly monitored so as to ensure finalisation of proposals and conclusion of contracts expeditiously", he added.

https://www.business-standard.com/article/economy-policy/govt-okayed-purchase-of-military-equipment-worth-rs-1-83-trn-since-2020-21-122080600080_1.html

ThePrint

Fri, 05 Aug 2022

Eastern Army Commander Emphasises 24/7 Operational Preparedness

Indian Army's Eastern Command chief Lieutenant General R P Kalita on Friday emphasised the need to be operationally prepared round the clock for any contingency developing along the northern borders. Addressing the concluding session of the two-day seminar-cum-panel discussion on the theme 'Demystifying the Dragon', he also pointed out the importance of the Atmanirbhar Bharat campaign. The seminar also highlighted several critical issues at the

operational and tactical levels including security concerns, capability development measures and military modernisation in order to derive actionable strategies towards further augmenting security along the northern borders, according to a defence release.

The seminar, a closed-door event, was organised by the Gajraj Corps under the aegis of Eastern Command and attended by over 200 officers of the Indian Armed Forces at the venue and many more on virtual platforms. On the first day of the seminar on Thursday, discussions were held by eminent experts that included senior diplomats, academicians and army officers in three different sessions focusing on India-China geo-strategic complexities, border dispute and management and Chinese military reforms as a driver for China's global aspirations.

The discussions were steered by eminent panelists such as former ambassador to China Ashok Kantha along with security and China experts Lt Gen (Retd) Ranbir Singh and Lt Gen S L Narasimhan. The panelists provided a kaleidoscopic view of the contours of India's engagement with China, ongoing military modernisation and Chinese global aspirations. The final session on the second day included reflections from the panelists on the implications and way ahead for the Indian Armed Forces. The discussion was steered by Lt Gen (Retd) Raj Shukla with senior military officials and domain experts who formed part of the panel, the release added. PTI COR DG ACD ACD

<https://theprint.in/india/eastern-army-commander-emphasises-24-7-operational-preparedness/1070924/>

The Tribune

Fri, 05 Aug 2022

Only 4 IAF Bases have New-Age Security System

Work on setting up an integrated perimeter security system (IPSS) around Indian Air Force bases has been hit due to Covid-19. So far, it has been completed in only four of the 22 bases selected under the project, the Ministry of Defence (MoD) informed the Lok Sabha on Friday. The Bharat Electronics Limited (BEL) is doing the IPSS which includes electrical smart power fence component. It is completed at four stations. "Work at remaining 18 IAF stations has been delayed primarily due to the pandemic, worldwide shortage of semiconductor, lock down at Germany and its impact on sourcing of data centre shell," the MoD said. All material has been received from the suppliers and parallel teams have now been deployed at the remaining 18 stations to expedite the completion of the project, the Minister of State for Defence Ajay Bhatt said in the reply.

<https://www.tribuneindia.com/news/nation/only-4-iaf-bases-have-new-age-security-system-419237>

Def Min Allows Changes in Navy's \$7 Billion Submarine Tender, No Change in Capability Requirements

Clearing roadblocks for taking forward the \$7 billion deal for building six new submarines for the Indian Navy, the Defence Ministry has given its approval for amendments in the ongoing tender that would allow the project to move forward. Along with the approvals taken in terms and conditions for the programme, the Indian Navy has given a commitment to the Prime Minister's Office (PMO) and the National Security Council Secretariat (NSCS) that the next line of submarines would be designed in India and would be cleared for exports too. "The approvals for amendments to the ongoing tender were given in a high-level defence ministry meeting held recently. These would allow the tender to move forward for indigenous submarine construction," government sources told ANI. The qualitative requirements of the programme have not been changed and would continue to remain so in future, the sources clarified. As per sources, the Defence Ministry had received a proposal for the removal of the clause for "joint and severe liability" from the tender. The Defence Ministry had also taken "proper and detailed" legal advice before finalising the changes to the tender.

As per the defence acquisition procedure in India, for any changes to be made in the ongoing tenders, approval has to be taken from the Defence Ministry only. The tender for six new submarines named Project 75 India is being processed under the Strategic Partnership policy as per which the boats would be constructed jointly by a foreign vendor in tie up with an Indian firm. The foreign partner would be known as the collaborator or supporter while the Indian partner would be known as the strategic partner. As per the proposal considered by the Defence Ministry, the Strategic Partner would be held responsible for its work share whereas earlier this responsibility was also to be taken by the foreign partner. The foreign partner would now be responsible and liable only for its share of work in the project. There is also a plan for signing a government-to-government contract with the country of the foreign partner selected as the lowest bidder in the programme, the sources said. The Navy under Project-75 India had planned to involve vendors from France, Russia, Germany, Spain and South Korea to be involved along with Indian shipyards Larsen and Toubro and government-owned Mazagon Dockyards Limited.

However, the stringent requirements mainly related to the need for having a proven Air Independent Propulsion system which allows the submarines to stay underwater for over two weeks at a stretch resulted in the ouster of three of the foreign vendors. The vendors had argued that at the time of construction of the boats, they would be able to provide required solutions but the Navy insisted that they want a proven and an 'in service' solution and not an under development one, sources said. The Navy, sources said, has made it clear that it would not approve of any changes in the tender which would compromise its qualitative requirements. At

the moment, the Navy is talking to German and South Korean firms while a Spanish shipyard is also expected shortly to give presentations on its capabilities. The tender would give a major push to make in India in defence as more than 60 per cent of the worth of the project is going to be invested in the Indian industry only.

<https://theprint.in/india/def-min-allows-changes-in-navys-7-billion-submarine-tender-no-change-in-capability-requirements/1072082/>

THE HINDU BusinessLine

Fri, 05 Aug 2022

Tata Arm ‘Working on Core Tech that will Make India Truly Self-Reliant in Defence’

Tata Advanced Systems Limited (TASL) is working on core technologies traditionally denied to armed forces by foreign vendors that will make “India truly self-reliant and not nam ke vaste (for namesake)” in the defence sector, its CEO and MD Sukaran Singh told BusinessLine in an exclusive interview. Though, under Aatmanirbar Bharat scheme, the government has increased budgetary support and created ecosystem to encourage indigenous private companies participation, Singh advocated that India should have control over defence technology that will augment the capacity to build next generation platforms. India realised the frustration on global dependence for military hardware during Galwan face off with China in May 2020. “TASL is not only driven by commerciality, we are also driven very much by doing, solving complex problems which also have to be commercially viable in the medium and long term. If we had gone from the other side, say commercial driven then we would have had a different set of portfolios... We do projects which will make India truly self-reliant and not nam ke vaste (for namesake),” TASL CEO insisted.

Production of C-295

Singh also exhibited confidence of starting production of 40 of the 56 C-295 transport aircraft for Indian armed forces from 2025 even though the TASL, which has a turnover of Rs. 4,000 crore, is still to announce the location where it would set up its manufacturing unit. The Board has to take a call but the company is sticking to timelines of production, said the CEO. Last September, the government had signed a Rs. 22,000-crore deal with Airbus, the European multinational aerospace corporation, for flying in 16 platforms and manufacturing in India remaining C-295 aircraft in collaboration with Tata Son’s defence arm – TASL. Singh also stated the TASL, which has undertaken projects among others of land systems, optronics, unmanned systems, artificial intelligence and cyber warfare, will be in a position to manufacture helicopters and next generation aircraft with the kind of investments it has done in R&D and related infrastructure issues.

<https://www.thehindubusinessline.com/news/tasl-working-on-core-technologies-that-will-make-india-self-reliant-in-defence-sector-says-ceo-md-sukaran-singh/article65726839.ece>



**Press Information Bureau
Government of India**

Ministry of Defence

Sun, 07 Aug 2022 6:11 PM

First Ever Repair of a US Navy Ship in India; ‘Charles Drew’ arrives at L&T Kattupalli Shipyard, in Huge Boost to ‘Make in India’ & ‘Aatmanirbharta in Defence’

**Defence Secretary terms it as a red-letter day for Indian shipbuilding industry
“It marks the beginning of a new chapter for deeper engagements between India & US”**

Providing a huge boost to ‘Make in India’ & ‘Aatmanirbharta in Defence’ and adding a new dimension to the burgeoning Indo-US strategic partnership, US Navy Ship (USNS) Charles Drew arrived at L&T’s Shipyard at Kattupalli, Chennai on August 07, 2022 for undertaking repairs and allied services. This is the first ever repair of a US Navy ship in India. The US Navy had awarded a contract to L&T’s Shipyard at Kattupalli for undertaking maintenance of the ship. The event signifies the capabilities of Indian shipyards in the global ship repairing market. Indian shipyards offer wide ranging and cost-effective ship repair and maintenance services, using advanced maritime technology platforms.

Defence Secretary Dr Ajay Kumar, Vice Chief of Naval Staff Vice Admiral SN Ghormade, Flag Officer Commanding Tamil Nadu & Puducherry Naval Area Rear Admiral S Venkat Raman and other senior officials of Ministry of Defence visited the shipyard to welcome the vessel. Consul General in Chennai Ms Judith Ravin and Defence Attaché at the US Embassy at New Delhi Rear Admiral Michael Baker were also present. Terming the event as a red-letterday for the Indian shipbuilding industry and the Indo-US defence relationship, Defence Secretary Dr Ajay Kumar said, “We are indeed pleased to welcome US Naval Ship USNS Charles Drew to India, for making her voyage ready. India’s initiative also assumes special significance in furthering the strategic partnership between India and the US. It marks the beginning of a new chapter for deeper engagements”.

Dr Ajay Kumar described the arrival of USNS Charles Drew for repairs as a sign of a maturing Indian shipbuilding industry. “Today, India has six major shipyards with turnover of nearly \$2 billion. We are making ships not only for our own requirements. We have our own design house capable of making all kinds of state-of-the-art ships. The country’s first Indigenous Aircraft Carrier Vikrant is a shining example of the growth of the Indian shipbuilding industry. Under the new innovation ecosystem, vessels capable of undertaking autonomous missions have been built by Goa Shipyard Limited and some of our start-ups. The shipbuilding industry today is not just carrying out conventional things, but is also amalgamating the latest technologies with it,” he said. The Defence Secretary also asserted that the ties between India & US have been expanding in scale & scope and are based on common values&beliefs of an open, inclusive and rule-based order in Indo-Pacific and rest of the global common systems. He added that there has been a

tremendous amount of traction in the defence industry cooperation over the last couple of years between the two countries.

“Indian defence exports have seen a massive increase in the last four-five years. Exports, which were worth about Rs 1,500 crore in 2015-16, have now grown by 800% to around Rs 13,000 crore. A major destination for Indian exports is the US,” Dr Ajay Kumar said, thanking the US partners for their cooperation and support to the Indian defence industry. He hoped that the defence exports will increase further in the times to come. US Consul General in Chennai Ms Judith Ravinsaid: “In April, at the US-India 2+2 Ministerial Dialogue, US Secretary of State Antony Blinken and Secretary of Defense Lloyd Austin affirmed their intention to explore utilising Indian shipyards for repairs on US Navy vessels. This inaugural repair of USNS Charles Drew is a landmark development to be celebrated as a symbol of our strengthened US-India partnership.”

Defence Attaché at the US Embassy at New Delhi Rear Admiral Michael Baker said: “Our shipping industries positively contribute to a free and open Indo-Pacific by partnering to deliver effective, efficient, and economical repair of military vessels.” Member of the Executive Council and Advisor to the CEO of L&T for Defence and Smart Technologies Shri JD Patil said, the Marine Sealift Command of the US Navy had undertaken rigorous evaluation of select shipyards in India and cleared L&T for undertaking repairs on their vessels. It is a recognition for the modern infrastructure at the shipyard built to global standards. The USNS Charles Drew will be at Kattupalli shipyard for a period of 11 days and undergo repairs in various areas.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1849430>



Mon, 08 Aug 2022

Defence Atmanirbharta is a Real Game Changer

By Nishtha Kaushiki

The contemporary battlefield is a complex mix of traditional and hybrid warfare. Prime Minister Narendra Modi has immensely contributed to the national security policymaking by reformulating the security objectives and displaying a political resolve to bring profound changes in security governance. Modi's approach is purely India centric. One of his landmark achievements is the initiative of Atmanirbharat Bharat. Launched in May 2020, it seeks India's self-reliance in different sectors. As the Revolution in Military Affairs (RMA) has transformed the nature of wars from mechanical to electronic, the import of different systems makes the security systems prone to various vulnerabilities like hacking. The issue of spare parts and path dependency creates new complications tactically and geopolitically. The problem gets complicated with the new developments in hybrid warfare involving drones for drug and small arms trafficking, apart from the malicious use of Artificial Intelligence (AI). Thus, the policy was well-founded and was the need of the hour.

In 2020, while we were grappling with the Corona pandemic and its impact on the supply chains in different sectors, PM Modi used the problem to find new opportunities and launched Atmanirbhar Bharat. Before officially formulating the policy, in 2018, the PM set up the Innovation for Defence Excellence (IDEX) to create a defence and aerospace ecosystem that engaged the R&D institutes, academia, industries, and promoted start-ups. These sectors could now directly deal with the armed forces via open challenges. The Army Design Bureau is a facilitator and provides financial support to start-ups and MSMEs. The 100th contract of IDEX was recently signed. Apart from allowing the local firms, it was a stepping stone to India's civil-military fusion.

India's defence exports have increased considerably from a mere ₹2,059 crore in 2015-16 to a whopping ₹13,000 crore in 2021-22, with a rise of 54.1 per cent over the previous year. As the numbers of successful case studies are impressive, it becomes pertinent to highlight some achievements of PM Modi's initiative in the defence sector. From the development of small equipment like the P7 heavy drop system that helps deliver combat stores in inaccessible areas to aircraft carrier Vikrant for the Navy, Atmanirbhar Bharat is achieving significant milestones. It is important to highlight the contribution of the PM in stopping the payment of royalties to Russia for the technologies that were transferred by the former Soviet Union and were domestically manufactured in India. For example, in the case of the T-72 tank, PM Modi himself brought the issue to the notice of President Vladimir Putin and the needful was successfully done. This led the PM to bring out a list of banned items for defence imports in August 2020 and May 2021, with the third list announced in April 2022.

The positive list currently has banned 310 items from being imported. The Indian army is now equipped with the Ashlesha radar, predominantly a 'Low Level Lightweight Radar' (LLLWR). The radar successfully detects multiple objects of the adversary like helicopters, fighters and UAVs at low and medium altitudes and can be used in diverse terrains like plains, deserts, mountain tops, etc. It is currently helping the country against the Chinese PLA on the Northern and Eastern borders.

Developing the Active Electronically Scanned Array (AESA) radar is an important development for the Air Force. The radar enhanced India's technical capability in electronic warfare, making the country fifth in the world to possess such technology. The radar is 95 per cent indigenous, with only one subsystem imported. Other necessary inductions such as LCA (Tejas), Astra Air to Air missile, Akash Surface to Air missile system, and Light Combat Helicopter systems pile up the success stories of Atmanirbhar Bharat. Given the threat of PLAN, attempts are being made to upgrade the naval facilities through Swavlamban (self-reliance), focusing on developing 75 indigenous technologies. The past electronic warfare platforms such as 'Ajanta', 'Kite', etc., have been upgraded and can now successfully detect enemy combatants' presence without disclosing our position. The list is impressive, from developing underwater sensors to electro-optical Fire Control System (FCS), a world-class Combat Management System (CMS) and 'Battle Damage

Control Systems'. Moreover, 'Project 75-India' aims to build a series of future aircraft carriers and submarines that will qualitatively increase the stealth of the Indian Navy.

The tactical importance of the submarine project can be ascertained from the fact that even our closest partners like Russia and France have refused the technology transfer of Air Independent Propulsion (AIP) technology that allows the submarines to stay underwater for a longer duration. So, one can ascertain the financial and strategic interests of the countries with a war-based economy. Some critical but lesser known indigenous productions in Artificial Intelligence (AI) are Face Recognition System under Disguise, AI-Based Intercept Management System (IMS) for the western theatre, iSentinel threat detection and tracking system and finally, the swarm drones.

These indigenous productions will redefine how we respond to the threats of hybrid warfare. Using such technologies for counter-terrorism will help bring peace to the country. Space has been added as a new battlefield domain, and in 2019, DRDO successfully conducted the Anti-Satellite (ASAT) test by accurately hitting a target. Further, under the Defence India Start-up Challenge 5.0, 35 areas such as cyber security, quantum technologies, artificial intelligence (AI), and augmented reality (AR) have been identified as focus areas.

In 2021, two Defence Industrial Corridors (DICs) were established in Uttar Pradesh and Tamil Nadu to boost Defence manufacturing to attract investment of Rs 10,000 Crore in each DIC. Creation of Defence Space Agency and Armed Forces Special Operations Division apart from the post of Chief of Defence Staff (CDS) with Department of Military Affairs (DMA) to conduct joint operations will ensure that the next 25 years would be an 'Amrit Kaal' for the Ministry of Defence. New challenges have been accepted. For instance, Bhoomi, a hackathon initiative of the BSF, contributed to finding solutions in tunnel detection and an anti-drone system.

The objective of the PM is to ensure that we are battle ready for the next war, be it conventional, electronic or even on two fronts. Soon, Atmanirbhar Bharat II in the Defence sector will be unveiled, which will include reforms regarding the production of core technologies via a public-private partnership (PPP) mode. It will also liberalise the testing and certification of products, a shift from the past practices. The aforementioned case studies are just a few contributions of the policy that the upcoming generation needs to be told. Such achievements of the country should be incorporated into the school textbooks at different levels to inculcate a feeling of nationalism and pride apart from encouraging the scientific temper amongst the budding scientists.

<https://www.dailypioneer.com/2022/columnists/defence-atmanirbharta-is-a-real-game-changer.html>

Fri, 05 Aug 2022

Need for Restructuring the Indian Armed Forces with an Indigenous Doctrine

By Group Captain Johnson Chacko (Retd)

If it is hurtful to be told that one is ignorant, then the solution is to acquire more knowledge about a domain that one is not familiar with before suggesting how organisations in that domain should be structured. The prime focus of any organisational design is on the task that organisation is required to perform. Unless the views of those who perform that task are taken into consideration tinkering with the organisational design should never be attempted, even by an organisational design expert. Any problem that is projected to the College of Defence Management (the institutional experts to suggest solutions for problems, especially in the Armed Forces) for a solution starts with analysing the “Presented Problem”, then the “Problem as Understood” by the research team after due interactions at desired user levels culminating in the “Problem to be Solved”. Then serious work starts on solving the problem and the team members would include officers from all the Armed Forces. Interaction with the stake holders continues throughout the process. Recommendations are shared with all the stakeholders and are generally accepted. If this process was diligently followed then we would not be in the current state with the Future Force.

As stated in the article I have tried to project in as simple a manner as possible, how the IAF functioned in the past to achieve its tasks based on facts. How it will function in the future will be based on technological advances and its impact on the doctrine. Any management of change is based on the objective of the organisation, how it has been functioning so far, analysis of the strengths, weaknesses & areas of ineffectiveness, ideation and formation of a plan to address these, analysis of the effect of these changes on other branches of the organisation and external linkages and addressing them to ensure minimum disruption while maximising effectiveness. The root cause that necessitated the change is addressed so that it does not recur. If this does not provide the required results then we must re-design the organisation de-novo focussing our attention on the stated objectives and maximising its effectiveness. If an organisational design is needed to fulfil the need of “integration”, we must design a de-novo organisation to achieve the aim of the Armed Forces to apply military force in an integrated manner. Then we need to plan the change over from the current organisation to the new one, addressing issues that may emerge. If neither of the approaches enhance effectiveness in its domain and integration with other services, then we need to maintain status-quo. Change for the sake of change destroys an organisation. Unless we approach this in a wholistic manner we cannot come to a conclusion that Air Defence Command with Theatre Commands is the only solution.

I appreciate Lt Gen Rakesh Sharma’s article published by the VIF after painstaking research. However, this is known to all those who track organisational structures of militaries the world over. The examples of Russia and China reorganising its armed forces were driven by the needs of those countries with large geographies and large economies. USA being the predominant super power with the largest economy, has its own compulsions and dominates the world. These

are large countries compared to India and they have the necessary resources for this kind of re-organisation of their military regions. They talk about an Air Force/Army/Navy being assigned to a region so that the region is self-sufficient for military purposes. Even in these regions the air war is fought by the air component commander of that region.

The current resources of the IAF can barely sustain one Air Force. To have an Air Force each based on the cardinal directions of North, East, West and South would be the dream of the IAF. The GOsC-in-C are colloquially called Army Commanders. I doubt if they are self-sufficient to fight a war on their own without allocations from the reserves held by AHQ. IAF does not have the resources to allocate to one such region for their self-sufficiency at present and we should not attempt to fritter away these resources as it would prove counterproductive. The book “Unrestricted Warfare” by three Chinese Colonels is revealing as to how future wars will be fought. Even now there are non-military wars being fought be it trade wars, economic wars, (through Sanctions), cyber-attacks etc. Future wars will be multi domain. What needs to be integrated for military application of force needs to be integrated with the Armed Forces.

The philosophy of the Police Forces and Armed Forces are poles apart. While one is focused on providing internal security to law abiding citizen thereby maintaining harmony, the other specialises in application of brute force to neutralise those who intend to breach our territorial integrity. I wonder how the CAPFs can be amalgamated with the Armed Forces as they are wide apart doctrinally. The prime Minister has never used the words “Theatre Command” or “Jointness” in his address to the Combine Commander’s conference on 06 March 22 at Kevadia, Gujarat. To quote the PIB release, “Prime Minister stressed the importance of enhancing indigenisation in the national security system, not just in sourcing equipment and weapons but also in the doctrines, procedures and customs practiced in the armed forces. He emphasized the need to optimise manpower planning in both military and civilian parts of the National security architecture. He also called for a holistic approach, focused on breaking down civil-military silos and on expediting the speed of decision making. He advised the Services to rid themselves of legacy systems and practices that have outlived their utility and relevance.

<http://www.indiandefensenews.in/2022/08/need-for-restructuring-indian-armed.html>



Sat, 06 Aug 2022

Decision Time: Should India Build Air-Independent Propulsion Submarines?

By Girish Linganna

The Indian Navy says it needs stealthy conventional submarines that can stay underwater for weeks. This is possible with the help of the air-independent propulsion (AIP) system technology that can generate oxygen from onboard fuel. India needs six of these submarines, classified as Project 75I. The idea behind the Project 75I class was to master the best technology from the West before using them for a later design. But since the AIP clause was inserted later, the P-75I

project has simply sunk. The Indian Navy knows best what it needs, but it is vital to understand how AIP systems could potentially help its submarines.



Who Uses The AIP System?

A cursory look at navies around the world fielding conventional submarines reveals that most do not require long-range force projection or operations capabilities far from their coasts, such as Europe, Japan, South Korea, China, and Pakistan. The submarines sit submerged near the coast and wait for enemy ships. Although the AIP system would nearly double the submerged time for a conventional submarine, it also has its downsides. The submarine becomes longer and heavier when the AIP module is inserted and cuts its speed in half. Also, the AIP system has to be refuelled in a special facility at the home port. While it helps submarines stay submerged longer, AIP systems have tremendous disadvantages too.

Is AIP Suitable For The Indian Navy?

As mentioned above before, the AIP system is mostly used by countries that have to protect interests closer to home. But the Indian Navy's conventional submarines have operational interests as far as the Strait of Malacca, which is nearly 1,000 kilometers away from the nation's shores. Another feature is that, barring the INS Sishumar-class, which is better for shallow water operations (it is also suitable for longer ranges too), all Indian submarines have cruise missiles capable of being launched fifty to 220 kilometers while submerged.

It appears that the Indian Navy believes longer submergence capabilities are more important than exiting at high speed if the submarine is detected after firing. Is a submarine that surfaces for the air intake at periscope depth more likely to be detected, or a submarine that fires a missile at periscope depth? One could argue that air intake consumes more time than firing and submerging. At the same time, after the discharge, AIP systems cannot be charged at sea. So, since the Indian Navy has decided to use the AIP system, it logically requires technology that will remain relevant for the next ten to twenty years. However, the P-75I tender states the Indian Navy wants futuristic technology, which is already proven. Now, most contenders have withdrawn from the tender since they do not qualify for it.

But since the tender is already a problem, does the Indian Navy want the latest AIP technology or the latest propulsion technology? The latest Japanese Taigei-class submarines have proven that lithium-ion batteries are much better than the AIP system since they can stay in the water longer, charge faster (some sources say as short as half an hour), and enable submarines to travel faster. The Taigei-class represents everything the Indian Navy wants the P-75I project to be. Lithium-ion batteries provide submarines with a submergence capability comparable to boats using Sterling V4-275R Mk AIP, which Japan licensed from Sweden and installed in the

previous generation of submarines. In the future, the technical characteristics of lithium-ion-powered submarines will only grow. The battery's high capacity allows submarines to move underwater for a long time at high speeds which will be critical when attacking a surface target and evading enemy attacks. Should the Indian Navy continue with the tender, in which there are now just two suppliers left, or does it need to reformulate an entirely new tender incorporating lithium-ion batteries? That is for the Indian Navy to decide.

<http://www.indiandefensenews.in/2022/08/decision-time-should-india-build-air.html>

THE ECONOMIC TIMES

Sun, 07 Aug 2022

Indian Coast Guard Dornier Aircraft Forced Pakistan Navy Warship to Return to its Waters

At the beginning of July, a Pakistan Navy warship had crossed into the maritime boundary line off the coast of Gujarat and entered Indian waters but was detected. It was forced to retreat by an Indian Coast Guard Dornier maritime surveillance aircraft. According to government sources, this took place on the high seas at the peak of the Monsoon season in the first half of July. The Pakistan Navy Ship Alamgir had moved from its side to Indian waters, crossing over the maritime boundary line between the two nations. Shortly after entering Indian waters, it was first detected first by an Indian Coast guard Dornier aircraft. The aircraft was in the air after it had taken off from an air base in the vicinity for maritime surveillance. Indian agencies are very strict about the maritime boundary laws and don't even allow their own fishermen to undertake fishing expeditions within five nautical miles of the boundary on their own side. The Dornier had informed its command centre about the presence of the Pakistan warships in Indian waters and continued to keep an eye on it.

The Dornier had issues warnings to the Pakistani warship regarding its location and was asked to return to its area but it did not respond, according to sources. It was further stated that the Dornier kept hovering over the PNS Alamgir. It had even tried to establish communication with it over its radio, in order to know its intent but the ships captain chose to maintain complete silence and did not respond. The Dornier flew right in front of the Pakistani warship multiple times, prompting it to retreat towards its own side after it had been established that its presence had been detected. Sources believe that the purpose of the Pakistani warship was to figure out how far they get inside Indian waters without being detected, but it seems they did not get very far as they were detected soon after they came in. The warship also retreated knowing full well that more assets would be sent to tackle it if it ventured any further.

The Indian Coast Guard officials refused to give any comment on the incident when asked. The Indian Coast Guard also recently carried out an Operation Island Watch to clear all the uninhabited islands near Dwarka and other coastal locations for any possible anti-national elements. The Indian Coast Guard and the Indian Air Force have been keep an eye along the Gujarat coast to prevent any misadventures. Pakistani activities, especially in the form of narco-terrorism has gone up in recent years. The Indian Coast Guard Director General VS Pathania also recently visited the Porbandar area to review the preparedness of the fleet. He also inducted the

new ALH Dhruv choppers for coastal surveillance. The hovercrafts of the force are also deployed in significant numbers in the area and carry out surveillance in both high seas and shallow waters.

<https://economictimes.indiatimes.com/news/defence/indian-coast-guard-dornier-aircraft-forced-pakistan-navy-warship-to-return-to-its-waters/articleshow/93412278.cms?from=mdr>



Press Information Bureau
Government of India

Ministry of Defence

Fri, 05 Aug 2022 07:50 PM

MoU between Indian Navy and Space Applications Centre (ISRO) for Cooperation on Satellite Based Naval Applications in Oceanology and Meteorology

Indian Navy on 05 Aug 22 signed a MoU with the Space Applications Centre (ISRO), Ahmedabad on data sharing and cooperation on Satellite based Naval Applications in Oceanology and Meteorology. With this initiative, both the organisations will have a common platform of mutual cooperation, wherein the scientific advancements by SAC would be synergised into the Indian Naval efforts to keep the nation's defence in step with rapid development in the field of Satellite Data retrieval and applications. This MoU is an extension of previous MoU signed in 2017 and will further the collaboration between two organisations.

The broad area of cooperation includes sharing of non-confidential observational data, operation exploitation of SAC generated weather products and provisioning of Subject Matter Experts (SME) towards processing of satellite data towards development of new tools, calibration and validation of ocean models. The Memorandum of Understanding was signed by SAC and Indian Navy to further meaningful interactions and professional exchanges in future.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1848892>

**INDIA
TODAY**

Sat, 06 Aug 2022

IIM Shillong Inaugurates Business Management programme for Defence officers

The Indian Institute of Management (IIM), Shillong, successfully inaugurated its ongoing Business Management Certificate programme for Defence Officers on Friday, August 5, 2022 at the IIM Shillong campus. In order to reduce the knowledge-action gap and manage the altering dynamics of the military and commercial sectors, the 6-month Certificate programme intends to give the executives a thorough business management exposure to analytical, strategic, and

entrepreneurial thinking. Professor D P Goyal, Director, IIM Shillong, Professor Sitanshu Sekhar Das, Programme Coordinator, Professor Vibhas Amawate, Chair, MDP & Consultancy, Brig Vinod S, SM, VSM, ADG DRZ East attended the inaugural event. The Chief Guest for the event was Air Marshal D K. Patnaik, AVSM, VM, Air Officer Commanding-in-Chief (AOC-in-C), Eastern Air Command.

Inaugural Ceremony

The inaugural ceremony started with an address note by Professor Vibhas Amawate, Chair, MDP and Consultancy, on an auspicious note with the invocation and lighting of the lamp. Following this, the ceremony was addressed by the Chief Guest, Air Marshal Dilip Kumar Patnaik, AVSM, VM, Air Officer Commanding in Chief (AOC-in C), Eastern Air Command with his auspicious Keynote. Air Marshal Dilip Kumar Patnaik, AVSM, VM, Air Officer Commanding in Chief (AOC in C), Eastern Air Command, while sharing his own experience of imparting executive learning, told the participants that this is a great opportunity to further their education from IIM Shillong while working in the defence. In order to become leaders, he advised participants to learn by giving their best shot and to adopt different worldviews.

He continued, that a happy worker is a performing worker and the "FAUJ" is a very different area in itself from the corporate world. In order to learn, it is important that they unlearn what they already know in order to absorb the information the faculty exposes them to. Studying at IIM Shillong in very pleasant weather has special advantages. He went on to describe how the program appeals to defence authorities, exposes learners to challenging real-world business scenarios from a variety of industries, organisations, and management specialisations, and is beneficial for the country by relying on information from IIM Shillong.”

Through interactive lectures, case studies, sessions with industry experts, management games, simulations, and student participation, the course seeks to emphasise experiential learning to the Indian Defence Forces, which are among the best in the world and are recognised for their competence, prowess, morality, size, and technology. Professor D.P. Goyal, Director, IIM Shillong explained, “how the programme is appealing to defence officers. This programme will build on the skills defence officials already possess as a result of their years of excellent service to the nation, allowing them to utilise classroom activities and interact with peers to further enhance their skills.

The programme offers an opportunity to update and refresh one's skills using the newest, quickly developing technologies. It is a specialised curriculum designed to equip defence commanders with the skills, knowledge, and understanding needed for a seamless transfer into the business world. Dr Goyal stressed to everyone in attendance that they should approach the six-month course like students, without taking into account their respective positions or titles and try to understand and learn from one another. He continued, "IIM Shillong provides a variety of methods by deliberately blending lectures, case studies, discussions, group projects, field trips, reading, and discussions." Professor Sitanshu Sekhar Das, Programme Coordinator, BMPDO delivered the closing address with a vote of thanks and the ceremony was concluded.

<https://www.indiatoday.in/education-today/news/story/iim-shillong-inaugurates-business-management-programme-for-defence-officers-1984471-2022-08-06>

The Tribune

Sat, 06 Aug 2022

Warships to Dock at Ports in all Continents to Mark I-Day

To celebrate 75 years of India's Independence, commemorative visits are being undertaken by Navy ships to foreign ports in every continent. Various activities and events are planned at each of these ports by Indian Missions on August 15. Tricolour will be hoisted onboard these ships in the presence of Indian diaspora and local dignitaries. The events are spread across six continents, three oceans and in six different time zones. Navy crew will conduct band performances in public places and auditoriums and will have ships open for schoolchildren, diaspora and local population. INS Chennai and INS Betwa will be at Muscat (Oman), INS Trikand at Mombasa (Kenya), INS Sumedha at Perth (Australia), INS Satpura at San Diego (North America), INS Tarkash at Rio de Janeiro (Brazil) and INS Tarangini at London.

<https://www.tribuneindia.com/news/nation/warships-to-dock-at-ports-in-all-continents-to-mark-i-day-419589>

THE ECONOMIC TIMES

Sat, 06 Aug 2022

India Cautions China over PLAAF's violations in Ladakh

India has cautioned China against air space violations and breach of confidence building measures in eastern Ladakh after a series of provocative actions that included sorties by fighter jets close to contested areas on the Line of Actual Control. A special round of talks was held between representatives of the Indian Air Force and the Peoples Liberation Army Air Force (PLAAF) at the Chushul-Moldo border meeting point in eastern Ladakh on Tuesday to address the issue, which started off with an air defence exercise conducted by China in late June. The talks were also attended by a two-star officer from the Indian Army and his Chinese counterpart. Sources said that India raised strong objections to repeated attempts by PLAAF to probe defences by flying close to the border in violation of an agreement that fighters should not operate within a ten kilometer distance of LAC. It is learnt that the Chinese side raised the topic of increased surveillance and tracking assets established by the Indian Air Force along the border. China was cautioned that dangerous tactics like flying close to contested areas need to be curbed to maintain peace and tranquility, as was decided by the senior political leadership during border discussions.

This is the first time that dedicated talks on air violations were held between the two sides on the border since tensions escalated in May 2020, when China moved thousands of troops to contested areas in eastern Ladakh. The issue was also raised by India during the 16th round of corps commander level talks held on the border last month. Chinese fighter jets continued to breach norms set to maintain harmony on border even after the corps commander level border

talks described as 'forward looking.' The violations of confidence building measures picked up pace in late June when PLAAF started conducting a large-scale air defence exercise. The violations are being closely monitored by the IAF and appropriate measures are being taken. It has moved several of its advanced fighters to forward bases and has stepped up combat sorties around Ladakh since the violations started. They include enhanced night patrols by frontline fighters.

<https://economictimes.indiatimes.com/news/defence/india-china-hold-military-talks-to-discuss-air-space-violations-provocations-by-chinese-air-force/articleshow/93372166.cms?from=mdr>

THE ECONOMIC TIMES

Mon, 08 Aug 2022

China Says Continuing Military Drills Around Taiwan

China carried out fresh military drills around Taiwan Monday, Beijing said, defying calls for it to end its largest-ever exercises encircling the democratic island. Live fire drills kicked off Thursday, a day after a controversial visit to the island by US House Speaker Nancy Pelosi. Those exercises were expected to draw to a close on Sunday, but neither Beijing nor Taipei confirmed their conclusion. "The Chinese People's Liberation Army continued to carry out practical joint exercises and training in the sea and airspace around Taiwan island, focusing on organising joint anti-submarine and sea assault operations," the Chinese military's eastern command said in a statement.

Beijing has deployed fighter jets, warships and ballistic missiles in what analysts have described as practice for a blockade and ultimate invasion of the self-ruled island -- which China claims as its territory. Taiwan's transport ministry Sunday said six of the seven "temporary danger zones" China had warned airlines to avoid ceased to be in effect as of noon on Sunday, signalling a partial drawdown of the drills.

<https://economictimes.indiatimes.com/news/defence/china-says-continuing-military-drills-around-taiwan/articleshow/93422274.cms>

Mon, 08 Aug 2022

CSIR Gets First Woman Director General in Kalaiselvi

Senior electrochemical scientist Nallathamby Kalaiselvi has become the first woman director general of the Council of Scientific and Industrial Research, a consortium of 38 state-run research institutes across the country. Her appointment is for a period of two years with effect from the date of assumption of charge of the post or until further orders, whichever is earlier, an order of the personnel ministry said on Saturday. Kalaiselvi succeeds Shekhar Mande, who superannuated in April. Rajesh Gokhale, secretary, Department of Biotechnology was given the additional charge of the Council of Scientific and Industrial Research (CSIR) upon Mande's retirement.



Senior electrochemical scientist Nallathamby Kalaiselvi.

Known for her work in the field of lithium ion batteries, Kalaiselvi is at present director of the CSIR-Central Electrochemical Research Institute at Karaikudi in Tamil Nadu. She will also hold the charge as secretary, Department of Scientific and Industrial Research. Kalaiselvi has risen through the ranks in CSIR and had broken the proverbial glass ceiling by becoming the first woman scientist to head the Central Electrochemical Research Institute (CSIR-CECRI) in February 2019. Congratulations poured in from across the scientific community and science administrators on her appointment to the key post. "Heartiest congratulations and best wishes to Dr N Kalaiselvi," Ajay Sood, principal scientific adviser to the government said. Sood's predecessor K VijayRaghavan, former Department of Biotechnology secretary Renu Swarup, former Earth Sciences secretary Madhavan Rajeevan and fellow scientists also greeted Kalaiselvi. Former Union health minister Anbumani Ramadoss said he was proud that Kalaiselvi hailed from Tamil Nadu. Ramadoss said he was confident that as the first woman director general of CSIR, Kalaiselvi will take India to great heights in scientific innovations. Kalaiselvi started her career in research as an entry-level scientist at CSIR-CECRI.

Hailing from Ambasamudhram, a small town in Tirunelveli district of Tamil Nadu, Kalaiselvi did her schooling in Tamil medium, which, she said, helped her grasp the concepts of sciences in college. Kalaiselvi's research work of more than 25 years is primarily focused on electrochemical power systems and in particular, development of electrode materials, and electrochemical evaluation of in-house prepared electrode materials for their suitability in energy storage device assembly. Her research interests include lithium and beyond lithium batteries, supercapacitors and waste-to-wealth driven electrodes and electrolytes for energy storage and electrocatalytic applications. She is currently involved in the development of practically viable Sodium-ion/Lithium-sulfur batteries and supercapacitors. Kalaiselvi also made key contributions to the National Mission for Electric Mobility. She has more than 125 research papers and six patents to her credit.

<https://www.hindustantimes.com/india-news/csir-gets-first-woman-director-general-in-kalaiselvi-101659899970716.html>

Business Standard

Mon, 08 Aug 2022

Satellites No Longer Usable after Deviation: ISRO on Maiden SSLV Mission

The Indian Space Research Organisation (Isro) on Sunday said the satellites on board its maiden Small Satellite Launch Vehicle "are no longer usable" after the SSLV-D1 placed them on an elliptical orbit instead of a circular one. The space agency said a committee would analyse and make recommendations into today's episode and with the implementation of those recommendations "Isro will come back soon with SSLV-D2". "SSLV-D1 placed the satellites into 356 km x 76 km elliptical orbit instead of 356 km circular orbit. Satellites are no longer usable. Issue is reasonably identified. Failure of a logic to identify a sensor failure and go for a salvage action caused the deviation," ISRO said in an update on its official Twitter handle.

It added a detailed statement by ISRO Chairman S Somanath will be "uploaded soon". In its maiden SSLV mission, the launch vehicle carried The Earth Observation Satellite EOS-02 and the co-passenger student satellites AzaadiSAT. SSLV had suffered 'data loss' in its terminal stage, after performing "as expected" in all stages. It had earlier after lifted off from the spaceport on Sunday morning. Unlike Isro's trusted workhorse — Polar Satellite Launch Vehicles (PSLV) — the SSLV can carry payloads weighing up to 500 kg and deploy satellites into a 500 km low earth orbit. It uses solid fuel — hydroxyl terminated polubutadiene — to fire the first three stages which takes the payloads to the desired altitude.

The fourth stage comprises liquid propulsion-based Velocity Trimming Module (VTM) to place the satellites into orbit. The objective of the EOS-02 was to provide inputs on thermal anomalies towards supporting applications in the domains of geo-environmental studies, forestry, hydrology, agriculture, soil, and coastal studies. The AzaadiSAT carries 75 different payloads each weighing around 50 grams. Girl students from rural regions across the country were provided guidance to build these payloads which are integrated by the student team of 'Space

Kidz India', ISRO said. Sunday's mission of ISRO is the third this year after the successful PSLV-C53 mission on June 30, which is the dedicated commercial mission of NewSpace India.

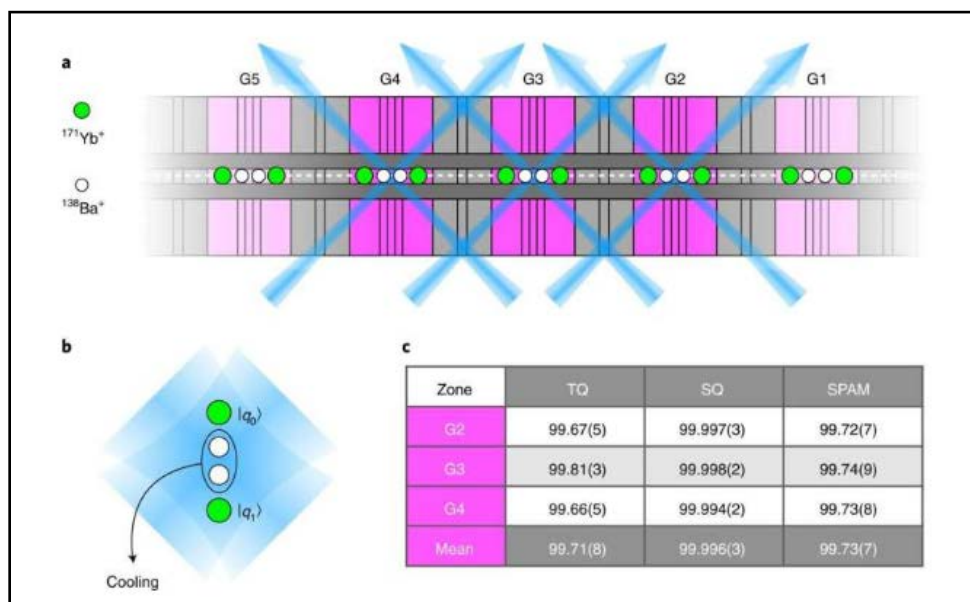
https://www.business-standard.com/article/current-affairs/sslv-d1-isro-says-satellites-placed-in-wrong-orbit-no-longer-usable-122080700405_1.html#scso=GnrwYpbNOMqr3LUPvNCtgAw23:0



Fri, 05 Aug 2022

Simulating Infinitely Many Chaotic Particles Using a Quantum Computer

A team of researchers at Quantinuum, working with a colleague at the University of Texas, Austin, has developed a way to simulate infinitely many chaotic particles using a quantum computer running with a limited number of qubits. In their paper published in the journal *Nature Physics*, the group describes their technique. To learn more about how molecules behave in materials, researchers have come up with strategies to simulate their behavior on a computer. Such attempts have worked well with simple operations but have run into trouble when simulating complexity, such as an infinitely long line of interacting particles over a given period of time. Attempts on traditional supercomputers have bogged down, and researchers have theorized that a quantum computer could do the job quite nicely. In this new effort, the researchers have found that is indeed the case.



Quantum computer used in this work.

The researchers claim the key to running an algorithm capable of tackling such a problem came down to a design that not only carried out the operations needed to run the simulation but also to

add code that would allow such a simulation to run with very few qubits. Once they had an algorithm that they thought would work, the team turned to the hardware. They chose a machine using qubits represented by ytterbium atoms—and they altered the number of qubits that were run from three to 11.

The researchers found that they were able to run their algorithm with such a small number of qubits because they built in a system that recycled the qubits—as one qubit was being used, those that had been used already were reset to their original state and then used again—a technique called holographic dynamics. This process was repeated as the simulation ran. To test the system, the researchers ran a simulation of a process that had already been verified using other techniques. The team plans to test the system with a simulation that cannot be demonstrated using a conventional supercomputer.

<https://phys.org/news/2022-08-simulating-infinitely-chaotic-particles-quantum.html>

