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Tue, 11 Jan 2022

Students must invest in futuristic technological innovation: DRDO Chief



Pune, Jan 10 (UNI) Motivating graduates to explore technology and research, Defence Research and Development Organisation (DRDO) Chairman Dr G. Satheesh Reddy said they bear the responsibility of adding sheen to the global recognition which India has acquired in this area.

Speaking at the fourth graduation ceremony of MIT Art, Design and Technology

University, Pune here Sunday evening , he said India has crossed several milestones with successful projects. India is now at the fourth position in the world in possessing the most powerful defence systems.

He told MIT students, " you always keep your target high and work towards it with very sincerity, dedication, and hard work. We have developed are own light combat aircraft Tejas, battel tank Arjun, world longest rang gun, ballistic missile defence program, anti-drown system among others."

In a statement issued by MIT Art design and technology university, Dr Reddy said," we are self-reliant in the area of missiles, radar, sonar, and torpedo, electronic work for system, high rang gun, aircraft, armed vehicle, communication systems and many think which are required for defence of the country."

In this fourth Convocation ceremony, MIT ADT University awarded 2205 Students with degrees in which 189 rank holders, 44 gold medallists and eight Ph.D degree holders were facilitated, it added.

<http://www.uniindia.com/students-must-invest-in-futuristic-technological-innovation-drdo-chief/west/news/2617109.html>

जबलपुर में बनेगा देश का सबसे बड़ा बम: पाकिस्तान के किसी भी एयरपोर्ट को तबाह करने की ताकत, जगुआर-सुखोई में लगाएंगे

जबलपुर: आयुध निर्माणी खमरिया ऐसा बम तैयार करने जा रही है जो पाकिस्तान के किसी भी एयरपोर्ट को एक ही अटैक में नेस्तनाबूद करने की ताकत रखता है। इतना भर नहीं, चीन की बुलेट ट्रेन भी इसके निशाने पर आ सकेगी। 500 केजी जीपी बम देश का सबसे बड़ा बम होगा। डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन ने पिछले कई वर्षों तक इस बम पर अनुसंधान किया।



बीते साल टेस्टिंग में आए नतीजों के बाद इसके प्राेडक्शन को हरी झंडी दी गई है और इसके बाद इस बम की फिलिंग का जिम्मा आयुध निर्माणी खमरिया को सौंपा गया है। खास बात यह है कि इसी सिलसिले में डीआरडीओ की टीम खमरिया पहुंची है। सोमवार को फैक्टरी के सेक्शन एफ-6 में दो बमों की फिलिंग भी शुरू की गई।

आयुध निर्माणी खमरिया में डीआरडीओ के 500 केजी जीपी बमों का प्राेडक्शन होगा।

बंकर्स पर मुसीबत बनकर फटेगा

विशेषज्ञों का कहना है कि इस बम के सिंगल इस्तेमाल से पूरे एयरपोर्ट को उड़ाया जा सकता है। रेलवे ट्रैक, बड़े ब्रिज भी इससे ध्वस्त किए जा सकेंगे। जानकारों का कहना है कि बम तैयार करने में जिस तकनीक का इस्तेमाल किया गया है उससे यह बंकर्स पर मुसीबत बनकर फटेगा।

500 किलो ग्राम वजनी बम की लंबाई 1.9 मीटर है

हाई एनर्जी मटेरियल्स की टीम भी आयुध निर्माणी खमरिया पहुंची

आयुध निर्माणी खमरिया में हाई एक्सप्लोसिव बम के लिए पुणे से हाई एनर्जी मटेरियल्स रिसर्च लैबोर्टरी और अर्मामेंट रिसर्च एंड डेवलपमेंट एस्टेब्लिशमेंट पुणे की टीम भी यहां पहुंची है। जीएम एसके सिन्हा, एजीएम शैलेश बगरवाल ने इस प्रोजेक्ट को लेकर उम्मीदें जताई हैं। इस दौरान एफ-6 के एचओएस मानिक सिंह, जेडब्ल्यूएम रत्नाकर खिल्लर के अलावा दीपक साहू, एलेक्जेंडर टोप्पो, चंदप्रकाश, देवीदयाल आदि मौजूद रहे।

एक बम में 10,300 स्टील बुलेट, हर एक का टारगेट 50 मीटर

डीआरडीओ ने इस बम को कई हिस्सों में डेवलप किया है। एक बम में 15 मिमी. के 10,300 गोले स्टील के रहेंगे। विस्फोट के बाद हर एक गोला 50 मीटर तक टारगेट करेगा। खास बात यह है कि एक गोला 12 एमएम की स्टील प्लेट को भी भेद सकेगा। 500 किलो ग्राम वजनी बम की लंबाई 1.9 मीटर है। बम को इस तरह से डिजाइन किया गया है, जिससे इन्हें जगुआर और सुखोई-30 पर अपलोड किया जा सके।

<https://www.bhaskar.com/local/mp/jabalpur/news/will-put-the-power-to-destroy-any-airport-in-pakistan-in-jaguar-sukhoi-129290625.html>

The Light Combat Aircraft programme

What is the LCA development project? What other fighter jet aircraft programmes are being envisaged?

By Dinakar Peri

The story so far: According to the Chief Managing Director of Hindustan Aeronautics Limited (HAL), R Madhavan, HAL expects to deliver all Final Operational Clearance (FOC) variant aircraft to the Indian Air Force (IAF) in 2022 pending some systems from Israel, while the LCA-MK1A is expected to take flight in June this year. There is another 20 to 24 months of testing after which deliveries would begin with manufacturing activities going parallel to the testing.

The Light Combat Aircraft (LCA)-Tejas was conceptualised in the year 1984. Since the first flight of the LCA technology demonstrator in January 2001, the indigenous single engine 4.5 generation multi-role fighter jet christened as 'Tejas' by then Prime Minister Atal Bihari Vajpayee in May 2003, has come a long way both in terms of the maturity of the platform as well as the overall aircraft development programme despite repeated delays and cost overruns. In all, 123 LCA aircraft of various configurations are on order so far.



To the skies: Final Operational Clearance version of LCA Tejas Mk-1 which the Indian Air Force added to its armoury in 2020.

To the skies: Final Operational Clearance version of LCA Tejas Mk-1 which the Indian Air Force added to its armoury in 2020.

What is the status of the LCA programme?

Two decades since the first flight, in February 2021, the Defence Ministry signed a Rs.48,000 crore deal with HAL to supply 83 LCA-Mk1A to the IAF. This includes 73 LCA Tejas Mk-1A fighter aircraft and 10 LCA Mk-1 trainer aircraft at the cost of Rs.45,696 crore along with design and development of infrastructure sanctions worth Rs.1,202 crore.

The MK-1A will have over 40 modifications over the MK1 variant including some major ones like a new Electronic Warfare system, Advanced Electronically Scanning Array (AESA) radar, Beyond Visual Range (BVR) missiles and network warfare system including Software Defined Radio (SDR).

LCA achieved Initial Operation Clearance (IOC) in December 2013 and FOC in February 2019. The IAF had earlier signed two contracts with HAL, for 20 IOC configuration aircraft including four IOC trainers on March 31, 2006 and for 20 FOC configuration aircraft including four FOC trainers on December 23, 2010. Both the deliveries have been delayed due to delays in the certification process.

The first IOC fighter aircraft was delivered in 2016 and the first LCA squadron No. 45 "Flying Daggers" in the IAF was formed in July 2016 with two aircraft. The first squadron is now complete and the second LCA squadron No. 18 'Flying Bullets' was operationalised in May 2020.

What is the cost of the LCA development programme?

The Government had originally sanctioned Rs.2,188 crore for Full Scale Engineering Development (FSED) —Phase-I programme to design and develop two Technology Demonstrators (TDs), and Rs.5,777.56 crore for FSED —Phase-II Programme.

The objectives of Phase-II are fabrication of three Prototype Vehicles (PVs), establishment of production facility at HAL for production of eight aircraft per year and manufacturing and delivery of eight Limited Series Production (LSP) aircraft.

On the overall project cost, the Government informed Parliament in March 2020 that a total of Rs.11,096 crore has been spent till date on the indigenous LCA and the Kaveri jet engine (now shelved) development programmes. Of the total amount, Rs.9,063.96 crore was spent on LCA and Rs.2,032 crore on the Kaveri Engine.

What is the way forward?

As per the contract, HAL has to deliver the first three MK1A aircraft to IAF in 2024 followed by 16 aircraft per year for the next five years, according to the Defence Ministry. To ramp up production, HAL has already set up two additional assembly lines which are operational. Some back end activities are also being finished at the moment, according to HAL.

The indigenous content in LCA is currently about 52% and HAL said it is looking at ways to increase it to 65%.

In addition, the LCA-MK2, a larger aircraft with a more capable engine is expected to roll out by year end or early 2023 following which it would take a year for its first flight. The LCA-MK2 brings significant capability enhancement to the LCA programme featuring new technologies, ability to carry heavy stand off weapons like Scalp, Crystal Maze and Spice-2000. It can also carry significantly higher payload, 6,500kg compared to 3,500kg by the LCA.

An ambitious fifth generation fighter aircraft Advanced Medium Combat Aircraft (AMCA), and a new Twin Engine Deck Based Fighter (TEDBF) to operate from the Navy's aircraft carriers are being developed by the Defence Research and Development Organisation (DRDO) and Aeronautical Development Agency (ADA).

The AMCA is envisaged as a 25 tonne aircraft with internal carriage of 1,500kg of payload and 5,500kg external payload with 6,500kg of internal fuel with the roll out planned in 2024 and first flight planned in 2025, according to ADA officials.

The TEDBF is being designed based on lessons learnt from the Naval LCA programme and the first flight is planned in 2026. In addition to supplying to the IAF, HAL is aggressively pitching its helicopters and Tejas to countries in South East Asia and West Asia and LCA is in the contest in Malaysia. Stating that the price is competitive, Mr. Madhavan had earlier stated that each LCA MK1A jet would cost Rs.309 crore.

<https://www.thehindu.com/news/national/the-light-combat-aircraft-programme/article38213612.ece>



Tue, 11 Jan 2022

Philippines Defence Deal with India

By Himanshu Sharma

India's relations with ASEAN countries has been warming over the years as they seek India's support to stand up to China. The Philippines surged ahead and signed a key government-to-government "implementing arrangement" with India on March 2 for the purchase of "defence material and equipment" to become the first country to buy the BrahMos missile system. The deal was to be signed during President Duterte's India visit in 2020, but the pandemic disrupted everything. Now things are back on track. A Philippine Navy team visited in early December the BrahMos Integration Complex in Hyderabad that integrates and checks mechanical systems, electronic systems and various sub-systems fabricated in other centres in India and Russia.

BrahMos is a "short-range, supersonic anti-ship/land-attack cruise missile" developed as a joint venture in 1998 between India's Defence Research and Development Organisation (DRDO) and the Russian NPO Mashinostroyeniya. This universal missile can be launched from submarines, ships, aircraft, land platforms or mobile launchers to a range of 300-500 km with 200-300kg payload at supersonic speed of Mach 2.0-2.8. It is equipped with stealth technology, has greater

striking power, difficult to intercept and is the “only known versatile supersonic cruise missile which is in service.”

This is India’s biggest defence export deal in recent times and the Philippines its first foreign customer. Philippine Army could also buy the BrahMos. Manila zeroed in on the BrahMos after extensive trials, negotiated hard on the cost while India offered a \$100-million line of credit.

The sale serves India’s ambitious target of USD 5 billion in defence exports by 2025. DRDO and BrahMos Aerospace have been jointly facilitating exports to friendly foreign countries. The sale marks a significant step toward India’s ambitions as a defence exporter and a major seller of arms. Thailand, Indonesia, Vietnam, UAE, Saudi Arabia, Argentina, Brazil and South Africa are potential buyers.

Stockholm International Peace Research Institute (SIPRI) showed India among the top-five global arms importers with 9.5% of global import. But India is reducing arms imports by boosting domestic production under the ‘Aatmanirbhar Bharat’ with the “message of Make in India, Make for India and Make for World”. India intends to “cut its dependence on other countries for defence systems by stepping up indigenous manufacturing to achieve a short-term target of USD 5 billion from defence exports by 2025.

The defence and strategic ties between India and the Philippines are on an upward trajectory in recent years. In August, India carried out a naval exercise with the Philippines in the South China Sea. BrahMos sale will signal a major upswing in relations. China has made South China Sea one of the biggest flashpoints, not just in Asia, but the whole world. Five other countries –Philippines, Malaysia, Indonesia, Brunei and Vietnam— make overlapping claims. Manila is increasing its naval prowess in the face of friction with China.

The South China Sea has become one of the biggest flashpoints, not just in Asia, but the entire world. China claims the whole of the South China Sea. Five other countries make overlapping claims– the Philippines, Malaysia, Indonesia, Brunei and Vietnam. The Philippines is pitted against China. India is selling arms to the Philippines. That explains the strategic significance of this deal. A country that’s responding to the Chinese threat with a call for self-reliance.

The Philippines needs BrahMos system for coastal defence given growing Chinese aggression in the South China Sea. In January China authorised its coastguard to open fire on foreign vessels. The Philippines filed a strong diplomatic protest, calling the law “a verbal threat of war”.

BrahMos sale will boost strategic ties, signal China on aggressive intent in the South China Sea, and strengthen the Philippines for disputing Beijing’s maritime claims. India will gain a footing as a major arms exporter, establish credentials as a competitive exporter in the global defence market, increase the stakes against China and allow the Philippines to assert territorial rights in the South China Sea.

China claims sovereignty over all of the South China Sea, a huge source of hydrocarbons, to the exclusion of other ASEAN member countries like Vietnam, the Philippines and Brunei all of whom have territorial disputes with China in the SCS region.

<https://www.newdelhitimes.com/philippines-defence-deal-with-india/>



Tue, 11 Jan 2022

Centre to shelve several Defence import projects to promote 'Make in India'

the procurement of Indian Developed Designed and Manufactured (IDDM) items would now take precedence, official sources told ANI.

New Delhi: In order to make a strong push towards Aatma Nirbhar Bharat in the military sector, Prime Minister Narendra Modi's government will postpone a number of defence import projects that were obtained under the Buy (Global) method.

This government move comes at a time when the Centre is preparing the new Defence Manufacturing and Export Promotion Policy, which will spell out the path forward for expanding defence production within the nation and assisting in export to friendly foreign countries.

According to official sources cited by news agency ANI, a high-level meeting of the Defence Ministry will take place virtually on Wednesday in which all import projects under the Buy (Global) category will be assessed and are likely to be cancelled or placed on hold by the government.

The Buy Global category indicates that the defence forces can completely import the goods from overseas suppliers.

According to ANI sources, the procurement of Indian Developed Designed and Manufactured (IDDM) items would now take precedence.

They said the main drive for 'Make in India' would ensure that contracts worth several thousand crores are awarded to Indian manufacturers.



File Photo: PMO

The decision would have an influence on a vast number of programmes in the Indian Navy, Air Force, and Army, including some that are in an advanced stage, such as the Indian Navy's Kamov helicopter procurement project.

The initiative follows Prime Minister Modi's review meeting with Defence Ministry officials, including then-Chief of Defence Staff General Bipin Rawat, during which it was determined that strong measures would be required to ensure that the country moves firmly toward Aatma Nirbhar Bharat in the defence sector.

"All stakeholders may take an in-principle call that no import of defence items is going forward," an Additional Secretary-rank officer of the Defence Ministry noted to the three Services said, as quoted by ANI.

"All capital and revenue procurement proposed or currently underway to be critically reviewed. This review is to be completed by January 15," the officer said.

<https://news.abplive.com/news/india/centre-to-shelve-several-defence-import-projects-to-promote-make-in-india-1505582>

आत्मनिर्भर भारत: मेक इन इंडिया को बढ़ावा दे रही मोदी सरकार, कई रक्षा आयात परियोजनाओं को करेगी स्थगित

सार

सरकार की यह पहल ऐसे समय में आई है जब केंद्र नई रक्षा उत्पादन और निर्यात संवर्धन नीति लेकर आ रहा है, जो देश के भीतर रक्षा उत्पादन को मजबूत करने और मित्र देशों को उनके निर्यात में मदद करने के लिए आगे का रास्ता तय करेगी।

विस्तार

नई दिल्ली: सैन्य व सुरक्षा क्षेत्र में आत्म निर्भर भारत (Aatma Nirbhar Bharat) को बढ़ावा देते हुए प्रधानमंत्री नरेंद्र मोदी की अगुवाई वाली सरकार अब विदेश से आयात होने वाले हथियारों और कई रक्षा आयात परियोजनाओं को स्थगित करने जा रही है।

सरकार की यह पहल ऐसे समय में आई है जब केंद्र नई रक्षा उत्पादन और निर्यात संवर्धन नीति लेकर आ रहा है, जो देश के भीतर रक्षा उत्पादन को मजबूत करने और मित्र देशों को उनके निर्यात में मदद करने के लिए आगे का रास्ता तय करेगी।



देश में निर्मित मुख्य लड़ाकू टैंक अर्जुन एमके1ए साथ पीएम मोदी। - फोटो : ANI

कल होगी रक्षा मंत्रालय की उच्चस्तरीय बैठक

बुधवार को रक्षा मंत्रालय की उच्चस्तरीय बैठक होने वाली है जो वर्चुअली आयोजित की जाएगी। इस बैठक में खरीद (वैश्विक) श्रेणी के तहत सभी आयात परियोजनाओं की समीक्षा की जाएगी। इस बात की संभावना है कि बैठक में इन परियोजनाओं को रद्द किया जा सकता है या फिर स्थगित करने संबंधित कोई बड़ा और अहम फैसला लिया जा सकता है।

आईडीडीएम उत्पादों को प्राथमिकता

बाय ग्लोबल कैटेगरी (Buy Global category) का मतलब है कि रक्षा बल विदेशी कंपनियों से पूरी तरह से वस्तु का आयात कर सकते हैं। सूत्रों के अनुसार, अब पहली प्राथमिकता भारत में विकसित डिजाइन और निर्मित (आईडीडीएम) उत्पादों के अधिग्रहण को दी जाएगी।

सूत्रों ने कहा कि, मेक इन इंडिया को बढ़ावा देने के लिए यह सुनिश्चित किया जा रहा है कि भारतीय रक्षा कंपनियों को कई हजार करोड़ की परियोजनाएं दी जाएंगी। इस निर्णय का मतलब यह होगा कि भारतीय नौसेना, वायु सेना और सेना की बड़ी संख्या में परियोजनाएं प्रभावित होंगी, जिनमें भारतीय नौसेना की कामोव हेलीकॉप्टर अधिग्रहण जैसी परियोजना काफी उन्नत अवस्था में हैं।

इस फैसले से कई परियोजनाएं होंगी प्रभावित

सरकार के इस नए फैसले से फाइटर प्लेटफॉर्म, बंदूकें और जहाजों सहित विमान से संबंधित कई परियोजनाएं प्रभावित होने जा रही हैं। प्रधानमंत्री मोदी द्वारा तत्कालीन चीफ ऑफ डिफेंस स्टाफ जनरल बिपिन रावत सहित रक्षा मंत्रालय के अधिकारियों के साथ समीक्षा बैठक करने के बाद यह पहल हो रही है।

यह महसूस किया गया कि देश को रक्षा क्षेत्र में 'आत्मनिर्भर भारत' की ओर मजबूती से आगे बढ़ाने के लिए कड़े कदम उठाने होंगे।

बैठक के बाद, रक्षा मंत्रालय के एक अतिरिक्त सचिव-रैंक के अधिकारी ने तीनों सेनाओं को एक नोट लिखा जिसमें कहा गया था कि "सभी हितधारक सैद्धांतिक रूप से कॉल कर सकते हैं कि रक्षा वस्तुओं का कोई आयात आगे नहीं बढ़ रहा है।" इसमें कहा गया है, "प्रस्तावित या वर्तमान में चल रही सभी पूंजी और राजस्व खरीद की समीक्षा की जा रही है। यह समीक्षा 15 जनवरी तक पूरी की जानी है।"

प्रधानमंत्री व्यक्तिगत रूप से रक्षा क्षेत्र में मेक इन इंडिया की प्रगति की समीक्षा कर रहे हैं और समय-समय पर दोनों सेवाओं और रक्षा मंत्रालय के अधिकारियों से यह सुनिश्चित करने के लिए कहा है कि रक्षा क्षेत्र में 'मेक इन इंडिया' को बढ़ावा देने के लिए और कदम उठाए जाएं।

हाल में ही भारतीय सेना प्रमुख जनरल मनोज मुकुंद नरवणे ने अगली पीढ़ी के बख्तरबंद इंजीनियर टोही वाहन और अन्य उपकरणों के पहले सेट को कोर ऑफ इंजीनियर्स को सौंपा जो पूरी तरह भारत में निर्मित हैं। सैन्य अधिकारी के अनुसार भारतीय सेना पूरी तरह स्वदेशी सात लाख 'निपुण' एंटी-पर्सनल माइन को शामिल करने जा रही है, जिनमें आरडीएक्स का शक्तिशाली मिश्रण है। इसके अलावा विभव और विशाल नेक्स्ट जेनरेशन मेड इन इंडिया एंटी टैंक माइंस को डीआरडीओ द्वारा भारतीय सेना के लिए विकसित किया गया है, जिसकी टेस्टिंग हो रही है।

<https://www.amarujala.com/india-news/modi-government-to-shelve-multiple-defence-import-projects-to-promote-make-in-india>



Tue, 11 Jan 2022

3 Rafale fighters with Indian enhancements to arrive on Feb 1-2

The last contracted Rafale fighter is expected to arrive in India in April concluding the 36 aircraft contract with France. This fighter, fitted with all India specific enhancements, actually was the first fighter used for training Indian fighter pilots.

By Shishir Gupta

New Delhi: The stage is set for Indian Air Force (IAF) to receive last four Rafale fighters from France from February with all of them fully equipped with India specific enhancements, which will give extra teeth to fight any regional adversary.

It is understood that three Rafale fighters are expected to leave Istres-Le Tube air base, north-west of Marseille in south France, around February 1-2 depending on the weather conditions and arrive in India after due mid-air refueling by close ally, the United Arab Emirates Air Force, using Airbus multi-role transport tankers.

While the last fighter is nearly ready with fresh paint and enhancements, the fighter for reasons best known to IAF will arrive only in April, 2022. The last of the 36 contracted fighters from France is actually the first fighter used for training IAF personnel after the deliveries started from France. This fighter was inspected by Defence Secretary Ajay Kumar at the Istres air base during his visit to France for a high level defence dialogue in December 2021.



AF's Rafale jet fighter doing the vertical Charlie maneuver on 2021 Republic Day.

Although IAF remains tight-lipped over what India specific enhancements are on Rafale, it is learnt that these relate to long range Meteor air-to-air missile, low band frequency jammers, advanced communication systems, more capable radio altimeter, radar warning receiver, high altitude engine start up, synthetic aperture radar, ground moving target indicator and tracking, missile approach warning systems and very high frequency range decoys.

On the arrival of the fighter jets, the IAF will test the specific enhancements to their satisfaction under Indian conditions apart from verifying the original equipment manufacturers claims as per agreement. After this, work will begin in retrofitting the remaining 32 aircraft at Ambala in western sector and Hashimara air base in eastern sector with the India specific enhancements with all the related equipment already with the IAF. The upgradation exercise will be carried out at Ambala air base which has the maintenance cum repair set up for Rafale fighters in India.

In light of the Indian acquisition of Rafale, the Pakistani air force has decided to go for 25 Chinese made J-10 multi-role fighters as a counter and PLA Air Force has deployed the J-20, so called fifth generation fighter, at Hotan, Lhasa, Kashgar and Nyingchi air bases in Tibet and Sinkiang.

<https://www.hindustantimes.com/india-news/3-rafale-fighters-with-indian-enhancements-to-arrive-on-feb-12-101641871751252.html>



Tue, 11 Jan 2022

Trials of Rafale fighter jet's naval version kick off in Goa

The Rafale-M is a variant of Rafale fighters that operate from land bases. The Indian Air Force has also ordered 36 Rafale-B and Rafale-C fighter jets.

By Rahul Singh

New Delhi: The French-origin Rafale-M fighter jet on Monday kicked off a demonstration to showcase its capability to take off from an angled ski-jump and prove its compatibility with Indian Navy's aircraft carriers at a shore-based test facility (SBTF) at INS Hansa, the naval air station in Goa, officials familiar with the matter said.

These fighters are embarked on the French Navy's nuclear-powered aircraft carrier Charles de Gaulle. The Rafale-M is a variant of Rafale fighters that operate from land bases. The Indian Air Force has also ordered 36 Rafale-B and Rafale-C fighter jets.

SBTF is essentially an aircraft carrier setting on the ground where fighters use the ski-jump to takeoff and are recovered by arrestor wires or STOBAR (short takeoff but arrested recovery) in navy parlance.

The navy is looking at buying more deck-based fighter jets to operate from its sole aircraft carrier INS Vikramaditya and the Indigenous Aircraft Carrier (IAC) Vikrant, which is currently undergoing sea trials.

The Rafale-M demonstration of capability is expected to be carried out over the next two weeks and will be followed by a similar demonstration by the US-origin F-18 fighters in the next three to four months, the officials said.

The F-18s operate from American supercarriers



The Rafale-M demonstration of capability is expected to be carried out over the next two weeks and will be followed by a similar demonstration by the US-origin F-18 fighters in the next three to four months, the officials said. (HT Photo)

such as USS Nimitz and USS Ronald Reagan, with the US Navy accounting for a fleet of more than 600 such fighters.

India has a requirement for 57 deck-based fighters for its carrier operations. But the figure is being revised, the officials said. A prototype of the naval version of the light combat aircraft landed and took off from INS Vikramaditya in January 2020 in a significant step towards India developing its own deck-based fighters. But the fate of that project is unclear.

The Indian Navy currently operates Russian-origin MiG-29K fighters from INS Vikramaditya, a second-hand carrier bought from Russia.

Aircraft carrier Vikrant, the largest warship to be built in the country, on Sunday set sail for crucial sea trials ahead of its scheduled induction into the navy later this year.

Vikrant has put India in a select league -- only the US, the UK, Russia, France and China have the capability to build aircraft carriers.

China operates two aircraft carriers — CV-16 Liaoning and CV-17 Shandong. It is building a third carrier as it expands its footprint in the Indian Ocean Region.

Vikrant has an indigenous content of 76%. It will be the fourth aircraft carrier to be operated by the Indian Navy -- first Vikrant (British origin) from 1961 to 1997, INS Viraat (British origin) from 1987 to 2016 and INS Vikramaditya (Russian origin) 2013 onwards.

<https://www.hindustantimes.com/india-news/trials-of-rafale-fighter-jet-s-naval-version-kick-off-in-go-101641836972714.html>

Visakhapatnam is getting ready for next President's Fleet Ready Review in next month

Visakhapatnam, Jan 10 (UNI) The city of Visakhapatnam is getting ready to host the next President's Fleet Review (PFR) on Feb 21, 2022.

Over 50 ships from the Indian Navy, Coast Guard and Indian Merchant marine would be lined up for review by the President of India.

The review would be followed by a flypast by nearly 50 aircraft off Visakhapatnam.

A Naval Fleet Review is a long-standing tradition of navies' world-over. The Review was conceived as a show of naval might and readiness for battle.

In India, thus far, eleven Reviews have been held, with the first in 1953 and the latest in 2016. The Review aims at assuring the country of the Indian Navy's preparedness, high morale and discipline.

Assembling warships without any belligerent intentions is now the norm in modern times. Leading nations of the world occasionally invite their maritime neighbours to participate with their ships in the review.

Normally called 'International Fleet Review', the event then allows the host nation an occasion to display its maritime capabilities and mutual trust amongst maritime nations.

The International Fleet Reviews (IFR) in India were conducted in Feb 2001, off Mumbai and in Feb 2016 off Visakhapatnam. This earned the country widespread appreciation and goodwill.

<http://www.uniindia.com/~visakhapatnam-is-getting-ready-for-next-president-s-fleet-ready-review-in-next-month/States/news/2617675.html>

समंदर में अपनी ताकत दिखाएगी नौसेना, अगले महीने विशाखापट्टनम में 'प्रेसिडेंट फ्लीट रिव्यू' का होगा आयोजन

भारतीय नौसेना अगले महीने विशाखापट्टनम में समंदर में अपनी ताकत दिखाने के लिए 'प्रेसिडेंट फ्लीट रिव्यू' का आयोजन करने वाली है।

By नीरज राजपूत

समंदर में अपनी ताकत और तैयारियों को दिखाने के लिए भारतीय नौसेना अगले महीने विशाखापट्टनम में 'प्रेसिडेंट फ्लीट रिव्यू' का आयोजन करने जा रही है। देश के राष्ट्रपति और सशस्त्र-सेनाओं के सुप्रीम कमांडर, रामनाथ कोविंद खुद 21 फरवरी को विशाखापट्टनम में नौसेना और कोस्टगार्ड के युद्धपोत और लड़ाकू विमानों की क्षमताओं की समीक्षा करेंगे। इस रिव्यू में 50 युद्धपोत और 50 ही लड़ाकू विमान हिस्सा लेंगे।



भारतीय नौसेना के मुताबिक, लंबे समय से नेवल फ्लीट रिव्यू दुनियाभर की नौसेनाओं की परंपरा का हिस्सा रही है। ये समीक्षा नौसेना की ताकत और युद्ध की तैयारियों के लिए शुरू की गई थी। लेकिन मौजूदा समय में ये बिना किसी उकसावे या फिर युद्धक मानसिकता के बगैर अपने जंगी बेड़े को एक जगह इकट्ठा करना है।

नौसेना के मुताबिक, प्रेसिडेंट फ्लीट रिव्यू का मकसद भारतीय नौसेना की तैयारियों, उच्च अनुशासन और मनोबल को दर्शाना है। आजादी के बाद से अबतक भारतीय नौसेना 11 फ्लीट रिव्यू आयोजित कर चुकी है। पहला रिव्यू 1953 में हुआ था और आखिरी 2016 में। 2016 में विशाखापट्टनम में ही भारतीय नौसेना ने इंटरनेशनल फ्लीट रिव्यू (आईएफआर) का आयोजन किया था जिसमें करीब 50 देशों के 100 युद्धपोतों ने हिस्सा लिया था। आईएफआर के बाद एक बार फिर विशाखापट्टनम में प्रेसिडेंट फ्लीट रिव्यू का आयोजन होने जा रहा है।

प्रेसिडेंट फ्लीट रिव्यू के दौरान नौसेना और कोस्टगार्ड के साथ साथ भारतीय मालवाहक जहाज भी हिस्सा लेंगे। फ्लीट रिव्यू के तुरंत बाद ही नौसेना और तटरक्षक बल के 50 हेलीकॉप्टर, फाइटर जेट और टोही विमान विशाखापट्टनम से सटी बंगाल की खाड़ी में फलाई पास्ट में हिस्सा लेंगे।

<https://www.abplive.com/news/india/indian-navy-to-organize-president-fleet-review-in-visakhapatnam-president-ram-nath-kovind-will-review-ann-2035946>

Indian inventor develops ‘smart army camp’ to keep soldiers warm, it can also help track the movement of enemies

Developed by Shyam Chaurasia, an engineering student, this Chargeable Smart Army Camp has small heater plates installed in it.

Meerut: An inventor at the Atal Community Innovation Centre (ACIC) of the MIET Engineering College in Meerut has prepared a smart camp for the soldiers, which will not only protect those posted on the icy heights from the cold, but will also help them to check the movement of the enemy sitting at a distance of up to 50 km away from them.

Developed by Shyam Chaurasia, an engineering student, this Chargeable Smart Army Camp has small heater plates installed in it.

Interestingly, there is no need for solar power or electricity to heat them, rather the soldiers can charge these heater plates with their own hands using a physical rotated charger.

According to Chaurasia, the camp also has a battery for backup purpose -- thus the electricity can be stored and used when needed.

Similarly, the hi-tech sensors fitted in it will detect the movement of enemies from 50 km away and will also alert the soldiers living in the camp -- thus will help them to act swiftly.

The smart camp has four human radio sensors that will help in conveying the information about the approaching enemy to the soldiers. These sensors are installed around the camp like land mines and are connected to the camp through radio frequency.

Chaurasia says that many times enemies have attacked the CRPF camps at night. There is always this possibility of more damage to life and property in such attacks. "I read about such incidents in newspapers... Then, I got the idea."

A prototype project of the camp was prepared with the help of the college and the ACIC, Meerut. Chaurasia says that funding was received from ACIC-MIET Meerut to prepare the camp. This made the project even better. Approximately Rs 24,000 was spent on the project.

He says that "if I get more assistance, I can make this camp bulletproof also". MIET Vice-Chairman Puneet Agarwal said that there is an Idea Innovation Research Lab in the Atal Community Innovation Centre of the college.

"Chaurasia's project would ensure safety of our soldiers. A letter has been written to the Prime Minister and the Defence Minister for the cooperation and guidance over the project made by him".

Mahadev Pandey, Scientific Officer of Gorakhpur said that this innovation is a good option meant for the security of the soldiers engaged in the defence of the country. If given a chance, it may prove to be even more effective, he said.

<https://www.freepressjournal.in/india/indian-inventor-develops-smart-army-camp-to-keep-soldiers-warm-it-can-also-help-track-the-movement-of-enemies>





Tue, 11 Jan 2022

A new look at quantum radar suggests it might boost accuracy more than thought

By Bob Yirka

A combined team of researchers from the University of Arizona and MIT reports that quantum radar might be able to boost the accuracy of radar systems more than has been thought. In their paper published in the journal *Physical Review Letters*, the group describes a new approach to developing quantum radar and the obstacles that stand in the way of its development.

Radar works by firing microwave radiation at an object and then measuring the signals that bounce back from it. And while quite effective for many applications, it still falls short for long-distance applications. Over the past few decades, as scientists came to learn more about quantum entanglement, some suggested it might be used to improve radar systems. And indeed, sending just one of two paired photons to a target improves the certainty of the signals received. Unfortunately, the gain (approximately 2 to 4x) was not worth the extra cost of adding quantum abilities to a radar system. In this new effort, the researchers found that using entanglement in another way could boost its accuracy by up to 500 times that of current systems.

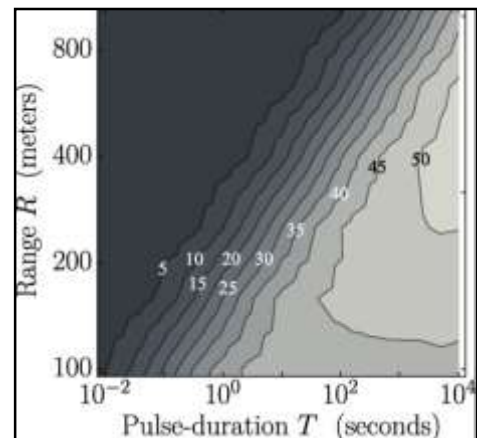
Researchers determined that accuracy could be improved by stretching the pulses (bunches of photons) that are sent to a target. This involved sweeping the radar frequency from high to low as the pulse was being generated and sent, which stretched the photon in time, allowing its frequency to be better defined. This also led to its partner being better defined, resulting in greater certainty of the signal. The researchers note that the reason this approach could work is because statistical variation is used in detection, narrowing variations in detection.

Unfortunately, despite their work, the researchers acknowledge that there is still one hurdle to overcome before quantum radar can become a reality—a means to emit more photons from a source—current systems emit photons at approximately 1 million per second. A quantum radar system would require a device capable of emitting photons at a rate several orders of magnitude higher.

More information: Quntao Zhuang et al, Ultimate Accuracy Limit of Quantum Pulse-Compression Ranging, *Physical Review Letters* (2022). DOI: [10.1103/PhysRevLett.128.010501](https://doi.org/10.1103/PhysRevLett.128.010501)

Journal information: *Physical Review Letters*

<https://phys.org/news/2022-01-quantum-radar-boost-accuracy-thought.html>



Contour plot of mean-squared range-delay accuracy advantage (in dB) at SNRQthresh assuming range uncertainty $\Delta R=R/100$ at range R. Credit: DOI: [10.1103/PhysRevLett.128.010501](https://doi.org/10.1103/PhysRevLett.128.010501)

