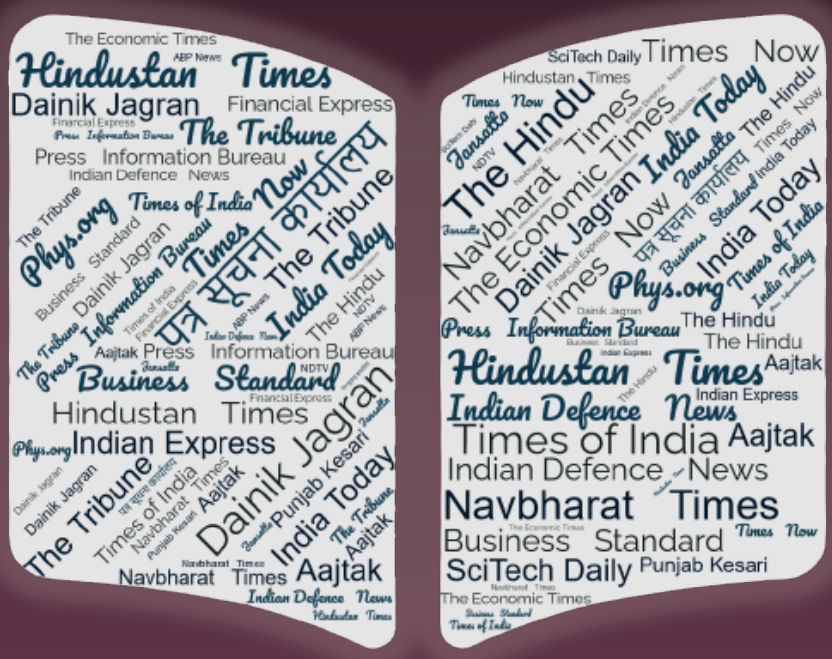
October
2022

समाचार पत्रों से चयित अंश
Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

खंड : 47 अंक : 196 15-17 अक्टूबर 2022

Vol.: 47 Issue: 196 15-17 October 2022



रक्षा विज्ञान पुस्तकालय
Defence Science Library
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र
Defence Scientific Information & Documentation Centre
मेटकॉफ हाउस, दिल्ली - 110 054
Metcalfe House, Delhi - 110 054

CONTENTS

DRDO News

DRDO Technology News

Press Information Bureau
Government of India

Ministry of Defence

Fri, 14 Oct 2022 3:18 PM

DRDO to Display 430 Strategic & Tactical Weapon Systems, Defence Equipment & Technologies in DefExpo2022

3D (DRDO, Designed and Developed) Ecosphere is Major Theme

Defence Research and Development Organization (DRDO) will display a wide range of 430 products encompassing the strategic and tactical weapon systems, defence equipment and technologies developed in DefExpo 2022 being held in Gandhinagar, Gujarat from October 18 – 22, 2022. The major theme for this year's DRDO participation is based on 3D (DRDO, Designed and Developed) ecosphere which will highlight its strong linkages with both Industry as well as Academia. Further, it will showcase the advancements in technologies made by its laboratories as well as its partnerships with the industry, in recent years while representing a high level of indigenousness in advanced and futuristic defence products & technologies that contribute towards *Aatmanirbharta in Defence*.

DefExpo2022, a premier biennial event of the Ministry of Defence, is being held in Gandhinagar, Gujarat from October 18 – 22, 2022. The 12th edition of Asia's largest defence event will be highlighting the theme 'Path to Pride' aligned with 'India at 75' and 'Aatmanirbhar Bharat', encouraging the industry as well as the citizens to join in and contribute towards nation building. It aims to further the narrative of 'Make in India, Make for the World'. The overall event will showcase a range of indigenously designed, developed, prototyped, and produced Land, Naval, Aero and Homeland Security systems and technologies

In addition, DRDO will showcase several initiatives to deepen its strategic partnerships with Industry, and Academia. These will include initiatives such as Technology Development Fund, Dare to Dream, DIA- Centres of Excellence and other similar schemes to support academia, Start-ups, MSMEs and large industries to continuously upgrade technology readiness levels of present and futuristic technologies in the country. All these DRDO led initiatives have led to operational readiness of many Indian industries, especially in the areas of systems, radars, sonars, missiles, aircrafts, etc. some of which will be displayed at the DRDO Pavilion, DefExpo22.

At DefExp2022, DRDO will provide numerous static displays, live demonstrations, seminars as well as immersive experience zones spread across three locations including the Mahatma Mandir Convention & Exhibition Centre, Helipad Exhibition Centre, and Sabarmati River Front.

The venue for DRDO Pavilion is Hall no. 10 of Helipad Exhibition Centre. It will be segmented in 17 display zones of various classes including Immersive Zones and Experience Zones to showcase 376 products. These 17 zones are namely Engines & Propulsion, Aerospace & Aeronautics (UAVs, fighter aircrafts, aircraft for surveillance etc.), Sensors, Devices & Advanced Electronics, Naval Weapons & Systems (EW systems and Sensors), Armoured Vehicles & Land Systems, Armament, Guns & Ammunition, Materials, Missiles (Cruise, MBRLs, AAM, ATGM & MRSAM), BrahMos, Industry Partners in R&D (17 Partners-3 Start-ups &14 MSMEs), Soldier Support and Dual Use Technologies (Soldier support, LS products, Fire protection, Firefighting, Fuel & Energy, Food products etc.), Experience Zone (Simulator, Virtual Reality and Audio-Visual), Software AI & Cyber, Academic Zone, Academic Outreach, Industry Outreach and Public Interface. This year, several technologies developed for land based, naval and air-based systems will be showcased through experience zones – a closed room immersive cinematic experience. In a first, Advanced Combat Aircraft (AMCA) simulator will also be made available to experience, among other augmented and virtual reality Naval, Land and Air product simulators. A holographic deck providing a 3D experience of over 30 defence products will be present at the hall to gain insights into the intricacies of weapon designs.

Over a sprawling 1200 sq. mtr.outdoor display, 18 Outdoor static exhibits (actual products) will be also put on display at the Helipad Exhibition Centre. These include Border Surveillance System (BOSS), Laser Fence System (LFS), IRDE Tableau, BrahMos Air Version Missile, Mobile Autonomous Launcher(MAL) for BrahMos, CBRN Water Purification System, Infantry Combat Vehicle with Composite Hull (CICV), Advanced Composites Modular Bridge System(ACMBS), 155mmX52 Cal Advanced Towed Artillery Gun System (ATAGS), CBRN Water Purification System, CBRN Recce Vehicles, 70 T Tank Transporter, Wheeled Armoured Platform(WhAP), Prahar Missile, Rudram III Missile, Quick reaction Surface to Air Missile(QRSAM), Medium Range Surface to Air Missile(MRSAM), Mounted Gun System(MSG), Unmanned Ground Mobile Platform(UGMP).

DRDO will present Live Demo as well as Static Display of equipment at the Sabarmati River Front. 5 Live demo of DRDO equipment will be put on display namely – Portable Diver Detection Sonar (PDDS) with Electro Optic System (EOS), Imaging Sonar 'CHITR', Autonomous Survey Vehicle – Inland, Autonomous Survey Vehicle -Coastal (ASV- Coastal) and Weapon Mounted Surface Vehicle. Whereas 6 static displays of DRDO equipment presented will be AIR Independent Propulsion System, Virtual Reality based counter measure deployment simulator, TAL Torpedo, Portable Diver Detection Sonar, Wet End Unit, Counter Drone System for IN – D4 Radar, Soft Kill System and Hard Kill System, and Passive IRSS Device.

And finally, India Pavilion in the Helipad Exhibition Centre will be displaying a combined strength of DRDO along with public and private sectors. DRDO will put its 22 products on static display. These high-value products will be displayed in the form of actual products and will include – VIBHAV- Anti Tank Point Attack Munition, VISHAL- Anti Tank Bar Mine, PRACHAND- Anti Tank, 9 x 19 mm Machine Pistol- ASMI, Mine Field marking Equipment Mk II, Light Tank, Daksh Defuser, MBT Arjun Mk-1A, Light Machine Gun, Pralay, QRSAM, Carbine- 5.56x 45 mm, AIP System- Air Independent Propulsion, TAPAS, ASTRA Mk-I, LCA Mk2 amongst others. A seminar conducted by DRDO on the theme '*Aatmanirbhar Bharat in*

Defence R&D: Synergistic Approach' will be held at the Mahatma Mandir Convention Centre in the forenoon session on 20 October 2022. This will be chaired by Hon'ble Raksha Mantri. Winners of Dare to Dream 3 will be awarded by Hon'ble RM. DRDO will exchange MOU with six IITs and Bharathihar University for establishing new DIA-CoEs in presence of Hon'ble RM. Dare to Dream 4 contest will also be declared open by Hon'ble RM. Hon'ble RRM will release a few monographs and policies.

Over the span of the exhibition, the participants and attendees will witness a string of major events, seminars, and discussions. Among these is one such event – *Bandhan* –designed to handover licenses of DRDO developed technologies to the industries. DefExpo2022 will see 15 LAToTs and 10 technologies to 12 industries in its *Bandhan* event. The exhibition will also host the 2nd edition of the India-Africa Defence Dialogue (IADD), with invites extended to 53 African countries. A separate Indian Ocean Region plus (IOR+) conclave with participation of approximately 40 countries is also on the anvil. Intensive interactions and ideation at seminars, planned at DefExpo2022 with eminent panellists from Government, Industry, Industry associations, States, Academia, Think-tanks etc., will also provide important learnings/takeaways/action points for further growth of this sector.

https://pib.gov.in/PressReleasePage.aspx?PRID=1867747

UNI BREVITY ACCURACY SPEED United News of India India's Multi Lingual News Agency

Sat, 15 Oct 2022

DRDL Sr. Scientist Dr. Raghavendra Joshi Conferred with Dr N KondalRao Memorial Award

Dr Jaiteerth Raghavendra Joshi, Senior Scientist and Programme Director, Defence Research and Development Laboratory (DRDL), Dr APJ Abdul Kalam Missile Complex, Hyderabad has been conferred with the prestigious Dr N KondalRao Memorial Award for the year 2022 by Indian Society for Non-destructive Testing (ISNT) here on Saturday in recognition of his significant R&D contributions in the development of Missiles & Aerospace Systems and related technologies. The award was conferred at ISNT, Hyderabad in the presence of distinguished scientists, top researchers and other top dignitaries including Dr Chaitanyamoy Ganguly, Padma Shri Awardee and former Member, International Atomic Energy Agency (IAEA), Dr Dinesh Srivastava, Chairman & Chief Executive NFC, Dr Sanjay Kumar Jha, CMD MIDHANI, Dr Dashrath Ram, former Distinguished Scientist & Ex-Director, DRDL and Dr G Madhusudhan Reddy, Director, DMRL, DRDO, Hyderabad.

The earlier recipients of the prestigious Dr N KondalRao Memorial Award includes Dr R Chidambaram, former Principal Scientific Advisor to the Government of India, Dr G Satheesh Reddy, Scientific Advisor to RakshaMantri and Dr Anil Kakodkar, former Chairman, Atomic Energy Commission among many other distinguished dignitaries. On this occasion, Dr Joshi delivered an illuminating lecture on "Material Policy-A Science Diplomacy". As a senior defence scientist with over three decades of expertise, Dr Joshi made sustained R&D contributions and played a vital role in strengthening self-reliance in the indigenous design,

development and production of critical components for weapon system development. For his pioneering contributions, Dr Joshi has been bestowed with numerous awards and honours including, Technology Group Award, National Technology Day Award, DRDO Award for Performance Excellence, IIM SAIL Gold Medal, Scientist of the Year Award, Bharat Ratna Sir Mokshagundam Visvesvaraya Award.

http://www.uniindia.com/hyderabad-drdl-sr-scientist-dr-raghavendra-joshi-conferred-with-dr-n-kondal-rao-memorial-award/south/news/2842847.html

अमर उजाला

शनिवार, 15 अक्टूबर 2022

परमाणु पनडुब्बी आईएनएस अरिहंत से बैलिस्टिक मिसाइल सफलतापूर्वक लॉन्च, जानें इसकी खासियत

परमाणु पनडुब्बी आईएनएस अरिहंत से सफलतापूर्वक बैलिस्टिक मिसाइल लॉन्च की गई। रक्षा मंत्रालय के मुताबिक, मिसाइल का आज यानी शुक्रवार को एक पूर्व निर्धारित सीमा तक परीक्षण किया गया। मिसाइल ने बंगाल की खाड़ी में लक्ष्य क्षेत्र को उच्च सटीकता के साथ नष्ट किया। यह परीक्षण सभी परिचालन और तकनीकी मानकों पर खरा उतरा। रक्षा मंत्रालय बयान में कहा गया कि यह भारत की विश्वसनीय, न्यूनतम प्रतिरोधक क्षमता की नीति को ध्यान में रखते हुए एक मजबूत, टिकाऊ और सुनिश्चित जवाबी क्षमता है। यह नीति इसकी पहले उपयोग न करने की प्रतिबद्धता को रेखांकित करती है। रक्षा मंत्रालय के मुताबिक, आईएनएस अरिहंत द्वारा एसएलबीएम का सफल परीक्षण इसके संचालक दल की दक्षता को साबित करने और इस परियोजना के लिए महत्वपूर्ण है, जो भारत की परमाणु प्रतिरोधक क्षमता का एक प्रमुख तत्व है। इसके अलावा परमाणु हथियारों के पूर्ण उन्मूलन के मकसद से सार्वभौमिक परमाणु निरस्त्रीकरण के दिशा में भारत ने अग्रणी भूमिका निभाई है।

दरअसल, आईएनएस अरिहंत भारत की पहली और एकमात्र परमाणु संचालित बैलिस्टिक मिसाइल पनडुब्बी है। इसकी खासियतों की बात करें तो यह पनडुब्बी जमीन, हवा और समुद्र से परमाणु हमला करने की क्षमता रखती है। 'आईएनएस अरिहंत' देश को उन दुश्मनों से बचाता है, जो भारत पर परमाणु हमला करने की ताकत रखते हैं। माना जा रहा है कि इस प्रक्षेपण से खासतौर से चीन को भी संदेश दिया गया है। हिंद महासागर क्षेत्र में चीनी नौसेना की परमाणु पनडुब्बियों की मौजूदगी बढ़ती जा रही है। ऐसे में इस परीक्षण से चीन को सख्त संदेश जाएगा। आईएनएस अरिहंत को 26 जुलाई, 2009 में लांच किया गया था। इसके बाद अगस्त 2013 में इसमें परमाणु रिएक्टर को सक्रिय किया गया।

https://www.amarujala.com/india-news/submarine-launched-ballistic-missile-by-nuclear-submarine-ins-arihant-successful-defence-ministry-updates

Press Information Bureau
Government of India

Ministry of Defence

Fri, 14 Oct 2022 4:23 PM

INS Arihant Carries out Successful Launch of Submarine Launched Ballistic Missile

INS Arihant carried out a successful launch of a Submarine Launched Ballistic Missile (SLBM) on October 14, 2022. The missile was tested to a predetermined range and impacted the target area in the Bay of Bengal with very high accuracy. All operational and technological parameters of the weapon system have been validated. The successful user training launch of the SLBM by INS Arihant is significant to prove crew competency and validate the SSBN programme, a key element of India's nuclear deterrence capability. A robust, survivable and assured retaliatory capability is in keeping with India's policy to have 'Credible Minimum Deterrence' that underpins its 'No First Use' commitment.

https://pib.gov.in/PressReleasePage.aspx?PRID=1867778

THE HINDU

Fri, 14 Oct 2022

INS Arihant launches Submarine Launched Ballistic Missile

The country's first ballistic missile nuclear submarine (SSMN) INS Arihant carried out a successful launch of a Submarine Launched Ballistic Missile (SLBM) on Friday, validating India's second strike nuclear capability. "The successful user training launch of the SLBM by INS Arihant is significant to prove crew competency and validate the SSBN programme, a key element of India's nuclear deterrence capability," the Ministry said. In November 2019, India formally declared its nuclear triad, stated in its nuclear doctrine, operational after INS Arihant completed its first deterrence patrol which means Arihant has begun prowling the deep seas carrying ballistic missiles equipped with nuclear warheads. Without confirming the particular missile, a defence source said it was not the longer K-4 SLBM but the older SLBM in use. INS Arihant is presently armed with K-15 SLBM with a range of 750 km.

The missile was tested to a predetermined range and impacted the target area in the Bay of Bengal with very high accuracy, the statement said. "All operational and technological parameters of the weapon system have been validated." A robust, survivable and assured retaliatory capability is in keeping with India's policy to have 'Credible Minimum Deterrence' (CMD) that underpins its 'No First Use' commitment, the statement added. In 1998, India conducted nuclear tests under Phokran-II and in 2003, India declared its nuclear doctrine based on CMD and a NFU policy while reserving the right of massive retaliation if struck with nuclear weapons first.

The Agni series of missiles constitute the backbone of India's nuclear weapons delivery, which also includes the Prithvi short range ballistic missiles and fighter aircraft. India has also completed its nuclear triad and operationalised its second strike capability, with ballistic missile submarine INS Arihant undertaking deterrence patrols. The second indigenous SSBN Arighat, which is in advanced stages of sea trials, is scheduled to be commissioned within this year, though no official announcement has been made. In January 2020, the Defence Research and Development Organisation (DRDO) had successfully test fired a 3,500 km range SLBM K-4 from a submerged pontoon off Visakhapatnam coast. Once inducted, these missiles will be the mainstay of the Arihant class of SSBNs giving India the stand off capability to launch nuclear weapons submerged in Indian waters.

As reported by *The Hindu* earlier, Arihant was quietly commissioned into service in August 2016. It has a displacement of 6,000 tonne and is powered by an 83 MW pressurised light-water reactor with enriched uranium. The Advanced Technology Project (ATV) project began in 1980s and the first of them, Arihant, was launched into water in 2009 by then Prime Minister Dr. Manmohan Singh. Given India's publicly stated position of NFU, the SSBN is the most dependable platform for a second-strike. As they are powered by nuclear reactors, these submarines can stay underwater indefinitely without the adversary detecting it. The other two platforms — land based and air launched — are far easier to detect.

https://www.thehindu.com/news/national/ins-arihant-launches-submarine-launched-ballistic-missile/article66010395.ece

अमर उजाला

शनिवार, 15 अक्टूबर 2022

DRDO बना रहा भविष्य का हथियार, नभ-थल और जल तीनों सेनाओं की बनेगा ताकत

भारतीय सेना ने बीते कुछ वर्षों में अपना पूरा ध्यान भविष्य में होने वाले युद्धों पर केंद्रित किया है। ऐसे में सेना के लिए युद्धक साजो-सामान, हथियार भी उसी लिहाज से उपलब्ध कराए जा रहे हैं। इस बीच रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने भी भविष्य के हथियारों पर काम करना शुरू कर दिया है। खबर है कि डीआरडीओ ने इलेक्ट्रो मैग्नेटिक रेलगन बनाने की तैयारियां शुरू कर दी है। यह एक ऐसी तोप है, जिन्हें भविष्य के लिहाज से तैयार किया जा रहा है, जो 200 किलोमीटर दूरी तक मार कर सकती है।

बारूद नहीं इलेक्ट्रो मैग्नेटिक फील्ड का होगा इस्तेमाल

जानकारी के मुताबिक, इस तोप में गोला दागने के लिए बारूद नहीं बल्कि इलेक्ट्रो मैग्नेटिक फील्ड का इस्तेमाल किया जाएगा। इसको लेकर डीआरडीओ ने विस्तृत रिपोर्ट भी प्रकाशित की है। पुणे स्थित प्रयोगशाल में एआरडीई ने इस पर काम शुरू कर दिया है।

ध्वनि की रफ्तार से भी तेजी से फेंकेगी गोला

इस तोप में इलेक्ट्रिक करंट के जरिए गतीय ऊर्जा पैदा की जाती है, जो गोले को ध्वनि की रफ्तार से छह से सात गुना ज्यादा रफ्तार में फेंगेकी। डीआरडीओ के पूर्व वैज्ञानिक डॉ. रवि गुप्ता ने बताया कि अमेरिका व रूस समेत कई देश इस तकनीकी पर काम कर रहे हैं। यह समुद्र में दुश्मन के जहाज, मिसाइल हमले, दुश्मन के वायुयान को गिराने में सक्षम है।

https://www.amarujala.com/india-news/indian-army-drdo-making-electromagnetic-railgun-defence-news-in-hindi

हिन्दुस्तान

शनिवार, 15 अक्टूबर 2022

बगैर बारूद दागेगी गोला, 200 किमी तक करेगी मार; DRDO बना रहा घातक रेलगन

रक्षा अनुसंधान एवं विकास संगठन (DRDO) भविष्य के हथियारों पर भी कार्य कर रहा है। इसी सिलसिले में उसने इलेक्ट्रो मैग्नेटिक रेलगन बनाने के लिए भी शुरुआती तैयारियां आरंभ कर दी है। यह ऐसी तोप है जो 200 किलोमीटर दूरी तक मार कर सकती है। यह थल, नभ और जल सेना तीनों के लिए भविष्य का एक घातक हथियार है। इसमें गोला दागने के लिए बारूद नहीं, बल्कि इलेक्ट्रो मैग्नेटिक फील्ड का इस्तेमाल किया जाता है। डीआरडीओ ने टेक्नोलॉजी फोकस जर्नल में विस्तृत रिपोर्ट रेलगन को लेकर प्रकाशित की है। पुणे स्थित उसकी प्रयोगशाला आरमेंट रिसर्च एंड डेवलपमेंट स्टबलिसमेंट (एआरडीई) में इस पर काम शुरू किया गया है।

कैसे कार्य करती है रेलगन

इलेक्ट्रिक करंट के जरिये इलेक्ट्रो मैग्नेटिक फील्ड तैयार किया जाता है। इससे गतीय ऊर्जा पैदा होती है जो रेलगन में लगे गोले को ध्वनि की रफ्तार से छह-सात गुना ज्यादा रफ्तार से फेंकती है। यह जरूर है कि रेलगन में वही गोले इस्तेमाल किए जा सकते हैं जो इलेक्ट्रो मैग्नेटिक प्रवाह में सक्षम हों। डीआरडीओ के पूर्व वैज्ञानिक डॉ. रवि गुप्ता का कहना है कि इलेक्ट्रो मैग्नेटिक रेलगन पर अमेरिका, रूस समेत कई देश कार्य कर रहे हैं। चीन ने भी ऐसे दावे किए हैं। ऐसे में यदि भारत भी इस पर कार्य करता है तो यह भावी रक्षा चुनौतियों से निपटने के लिए महत्वपूर्ण साबित होगा।

फायदा

- रेलगन तोप से आगे की चीज है। तोप की मारक क्षमता 50-60 किलोमीटर तक। रेलगन की क्षमता 200 किलोमीटर तक।
- यह समुद्र में दुश्मन के जहाज उड़ाने, मिसाइल हमले टालने या दुश्मन के वायुयान को गिराने के लिए प्रयुक्त हो सकेगा।
- तोप से यह संभव नहीं है। छोटी मिसाइलों से जो काम हो सकते हैं, वह कार्य इससे किए जा सकेंगे। बारूद का इस्तेमाल नहीं होने के कारण लागत में कमी आएगी।

https://www.livehindustan.com/national/story-electromagnetic-railgun-drdo-indian-army-air-force-navy-defence-news-7221645.html

DNA

Sat, 15 Oct 2022

DRDO Successfully Tests Futuristic Electromagnetic Railguns: What it is, How it Works

India has made great strides in the development of cutting-edge weapon systems, with the Defence Research and Development Organization (DRDO) successfully producing electromagnetic railguns (EMRG). The EMRG's projectiles may reach speeds of up to Mach 6, or 4,600 miles per hour. This kind of railgun does not need the use of explosives or propellants to fire the projectile. They employ lasers and kinetic energy to reach such high speeds. According to Sputnik News, DRDO officials have said that they tested a 12 mm square bore EMRG and will move on to the 30 mm variant in the future. With a capacitor bank of 10 megajoules, the railguns in development will be able to fire a one-kilogram projectile at a speed of almost 2,000 metres per second.

What is Electromagnetic Railguns?

Railguns are built to be very strong weapons, capable of launching even the largest of projectiles with ease. As the name implies, an electromagnetic railgun uses electromagnetic fields to propel bullets at speeds several times greater than the speed of sound. As an example, the prototype railgun used by the US Navy could fire projectiles at Mach 6, or six times the speed of sound. That's quicker than almost any weapon in the world, clocking in at almost 5,400 miles per hour (8,690.45 kilometres per hour).

How Electromagnetic Railguns works

ARDE in Pune has successfully built a Railgun based on a 10 MJ capacitor bank, which was created using programmable pulsed power technology. This facility has been used to create hypervelocity propulsion of more than 2,000 metres per second. Dynamic firing experiments were performed from a stationary firing platform using a 10 MJ EM Railgun for experimental assessment and system performance. These tests have contributed to the characterization of the

EM Railgun for a variety of bore diameters, from 12 mm to 45 mm, and projectile weights, including 80 gm, 120 gm, 250 gm, and 500 gm. An electric current may generate an electromagnetic field. The resulting kinetic energy propels the Railgun's ball to velocities of six or seven times the speed of sound. In order for railguns to function properly, only projectiles that can block electromagnetic radiation may be fired from them.

Electromagnetic railgun benefits

Compared to a cannon, the Railgun is a technological marvel. The cannon can shoot up to 50-60 kilometres, while the Railgun has a range of up to 200 kilometres. It may be used to destroy enemy aircraft in the air or to fire on enemy ships at sea to protect against missile assaults. The absence of gunpowder means savings.

https://www.dnaindia.com/technology/report-drdo-successfully-tests-futuristic-electromagnetic-railguns-what-it-is-how-it-works-2993034

DRDO on Twitter

Defence News

Defence Strategic : National/International

The Indian EXPRESS

Sat, 15 Oct 2022

SLBM launch by INS Arihant: Why this Successful Test is Important for India's Credible Nuclear Deterrence

By Sushant Kulkarni

The Ministry of Defence (MoD) announced on Friday (October 14) that the indigenous ballistic missile nuclear submarine INS Arihant had successfully launched a nuclear capable Submarine Launched Ballistic Missile (SLBM) in the Bay of Bengal with "very high accuracy". What are these potent assets, what is their strategic significance, and what do the postures of "credible minimum deterrence" and "no first use" highlighted by the government after the successful launch mean?

The Test

The SLBM was launched from the country's first indigenous Strategic Strike Nuclear Submarine INS Arihant. The MoD said the test is significant for the nuclear ballistic submarine, or SSBN, programme, which is a crucial element of India's nuclear deterrence capability. "The missile was tested to a predetermined range and impacted the target area in the Bay of Bengal with very high accuracy. All operational and technological parameters of the weapon system have been validated," the MoD said in a press statement on Friday. The Ministry described the test as a user training launch.

"The successful user training launch of the SLBM by INS Arihant is significant to prove crew competency and validate the SSBN programme… A robust, survivable and assured retaliatory capability is in keeping with India's policy to have 'credible minimum deterrence' that underpins its 'no first use' commitment," the Ministry said. The statement did not reveal the specifications and range of the missile that was launched on Friday. Sources suggested that it could have been the K-15 (also called Sagarika), belonging to the 'K' family of SLBMs, but no official confirmation was available.

The Submarine

Launched in 2009 and Commissioned in 2016, INS Arihant is India's first indigenous nuclear powered ballistic missile capable submarine built under the secretive Advanced Technology Vessel (ATV) project, which was initiated in the 1990s. INS Arihant and its class of submarines are

classified as 'SSBN', which is the hull classification symbol for nuclear powered ballistic missile carrying submarines. While the Navy operates the vessel, the operations of the SLBMs from the SSBN are under the purview of India's Strategic Forces Command, which is part of India's Nuclear Command Authority. In November 2019, after INS Arihant completed its first deterrence patrol, the government announced the establishment of India's "survivable nuclear triad" — the capability of launching nuclear strikes from land, air and sea platforms. Then Defence Minister NirmalaSitharaman had tweeted:

"India has achieved completion of her nuclear triad with the first successful deterrence patrol by INS Arihant. This places India in the league of the few countries that can design, construct and operate Strategic Strike Nuclear Submarines (SSBN)." The second submarine in the Arihant class, SSBN Arighat, is reported to have been launched in 2017, and said to be undergoing sea trials at present. In December last year, UK-based magazine Jane's Defence Weekly reported, citing satellite imagery sources, that India had launched its third Arihant-class submarine. In addition, India operates 15 conventional diesel electric submarines (classified as SSK), and some more are on the way.

The Missile

The Submarine Launched Ballistic Missiles (SLBMs), sometimes called the 'K' family of missiles, have been indigenously developed by Defence Research and Development Organisation (DRDO). The family is codenamed after Dr APJ Abdul Kalam, the centre figure in India's missile and space programmes who also served as the 11th President of India. Because these missiles are to be launched from submarines, they are lighter, more compact and stealthier than their land-based counterparts, the Agni series of missiles which are medium and intercontinental range nuclear capable ballistic assets. The development of the K family missiles has been done in consonance with the ATV project.

Part of the K family is the SLBM K-15, which is also called B-05 or Sagarika. It has a range of 750 km. INS Arihant can carry a dozen K-15 missiles on board. India has also developed and successfully tested K-4 missiles from the family, which have a range of 3,500 km. In January 2020, two successful tests of the K-4 missile were conducted from submerged platforms, off the coast of Andhra Pradesh within a span of six days. These tests were a key step towards ultimately deploying K-4s on the INS Arihant. It is also reported that more members of K-family — reportedly carrying the code names K-5 and K-6, with a range of 5,000 km and 6,000 km respectively — are under development.

The capability of being able to launch nuclear weapons submarine platforms has great strategic significance in the context of achieving a nuclear triad, especially in the light of the "No First Use" policy of India. The sea-based underwater nuclear capable assets significantly increases the second strike capability, and thus validates the nuclear deterrence. These submarines can not only survive a first strike by the adversary, but can also launch a strike in retaliation, thus achieving 'Credible Nuclear Deterrence'. The development of these capabilities is important in the light of India's relations with China and Pakistan. With China having deployed many of its submarines, including some that are nuclear powered and nuclear capable, India's capacity building on the nuclear powered submarines and of the nuclear capable missile which can be launched from them, is crucial for nuclear deterrence.

In November 2018, after INS Arihant had become fully operational, Prime Minister Narendra Modi had tweeted, "In an era such as this, a credible nuclear deterrence is the need of the hour. The success of INS Arihant gives a fitting response to those who indulge in nuclear blackmail." A 2021 US Department of Defence Report on Military and Security Development involving China states, "The PLA Navy currently operates six nuclear-powered ballistic missile

submarines (SSBNs), six nuclear-powered attack submarines (SSNs), and 46 diesel-powered attack submarines (SSs). The PLAN will likely maintain between 65 and 70 submarines through the 2020s, replacing older units with more capable units on a near one-to-one basis." Pakistan Navy, on the other hand, operates five diesel-electric submarines and three mini submarines of under 150 tonne displacement.

The Posture

MoD statement after Friday's launch from Arihant stressed on the strategic postures of 'credible minimum deterrence' and 'no first use' which are pivotal to India's nuclear doctrine, made public in January 2003, after the Cabinet Committee on Security (CCS) had reviewed the progress in operationalizing of India's nuclear doctrine. The key points in the doctrine made public at the time were: building and maintaining a credible minimum deterrent; a posture of 'no first use' denoting that the nuclear weapons will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere; and that nuclear retaliation to a first strike will be massive and designed to "inflict unacceptable damage". The doctrine says that the nuclear retaliatory attacks can only be authorised by the civilian political leadership through the Nuclear Command Authority. However at the time, the Cabinet Committee on Security had also reviewed and approved the arrangements for alternate chains of command for retaliatory nuclear strikes in all eventualities.

https://indianexpress.com/article/explained/explained-sci-tech/ins-arihant-submarine-launched-ballistic-missile-explained-8209875/

The Indian EXPRESS

Sun, 16 Oct 2022

Arihant SLBM launch is a Significant Achievement, But an Underwater Deterrent is Still a Work in Progress

By C. Uday Bhaskar

On October 14, India joined a select group of nations when it announced the successful launch of an SLBM (submarine-launched ballistic missile)**.** The other six nations that have demonstrated similar underwater capability include the five permanent members of the UN Security Council — Russia, the UK, France and China. In August 2016, North Korea claimed a successful launch of an SLBM. The Defence Ministry's press release noted: "The missile was tested to a predetermined range and impacted the target area in the Bay of Bengal with very high accuracy. All operational and technological parameters of the weapon system have been validated." This achievement is significant in the context of India's strategic profile. The navy, DRDO and other agencies who have enabled this success should be commended.

While the October 14 launch validates the credibility of the Indian underwater deterrent, it must be added that this is still a "work in progress". A credible underwater deterrent is perceived as being invulnerable to detection and hence nations with the capacity can deliver a retaliatory second strike – this enhances their deterrence capabilities. While the press release is sparse in

providing technical details or confirming the range of the SLBM, its assertion that the missile impacted the target area "with very high accuracy" is, nevertheless, instructive. This would indicate that the crew of the INS Arihant and the entire HR (human resource) comprising the pyramid from the SFC (strategic forces command) going right up to the national command authority with the Prime Minister at the apex have acquired the necessary proficiency to launch an SLBM – should the exigency arise.

India can be justifiably proud of having acquired and demonstrated this level of competence, but this achievement needs to be located objectively. An SSBN (a nuclear-propelled submarine armed with a nuclear-tipped ballistic missile) is deemed to be the ultimate deterrent and this profile of macro-lethality and zero error credibility is predicated on the robustness of the "boat" and the efficacy of the missile.

One element of this credibility was announced in November 2018 by PM Modi who tweeted: "India's pride, nuclear submarine INS Arihant successfully completed its first deterrence patrol!" In essence, the credibility of the boat to carry out such a patrol had been established. However, the "ballistic" profile of the SLBM launched on October 14 remains modest and this is evident from the characteristics associated with the 6,000-ton Arihant. It is reportedly fitted with the K - 15 SLBM, which has a range of 750 km and this would be classified as a short-range missile. In January 2020, India successfully tested the 3,500-km range K4 SLBM from a submerged pontoon off the Andhra coast and it was reported that "all technical parameters were satisfactorily met". At the time government sources confirmed the K4 success and added that the CEP (circular error probability) was "more sophisticated than Chinese missiles".

It, therefore, seems that India is working resolutely to arm the Arihant with a 3,500 km missile and this would be deemed to be an IRBM (intermediate-range ballistic missile). The next stage would be for India to successfully arm its SSBN with a missile whose range is in excess of 5,000 km – which would qualify as an ICBM (intercontinental ballistic missile). That is the stage when India would be deemed to have acquired the requisite level of strategic capability to "validate the SSBN programme, a key element of India's nuclear deterrence capability " – as indicated in the October 14 press release. Acquiring the desirable level of holistic SLBM proficiency in the entire pyramid – from the boat (SSBN) to the national command apex – is a long and arduous journey. It merits recall that China became nuclear weapon capable in 1964 and carried out its first SLBM test (the J-1 with a range of 1700 km) in 1982. Over the years, the PLA Navy had its own techno-strategic challenges with nuclear-propelled submarines and was able to test a 9,000 km missile only in 2018. It is understood that a fully armed Chinese SSBN that would be deemed to be operational to undertake a credible deterrence patrol is scheduled for mid-2025.

Acquiring the optimum degree of nuclear deterrence is imperative for India, given its distinctive spectrum of security and strategic challenges. India has made slow but steady progress in its missile programme, nuclear weapon capability, the nuclear submarine and more recently the building of an aircraft carrier. But all these capabilities remain a "work-in-progress". It wouldn't be wrong to say that India is in a "complex chrysalis phase" as far as the maritime domain is concerned. The nation has an indigenously designed and built aircraft carrier (INS Vikrant) but is handicapped by not having the appropriate fighter aircraft and an SSBN whose ICBM capability is some years away.

Currently, the global geopolitical domain is in a state of flux and the US-China contestation amongst other issues will roil the waters. The outcome of the war in Ukraine and the orientation

of the Delhi-Moscow relationship will have a bearing on India's strategic programs. Thus the reality is that while each achievement is creditable in its own respect, exaggerated claims of India having "arrived" as a major military power ought to be kept on hold. Restraint in relation to announcements and claims about strategic capability burnishes deterrence in a quiet but effective manner. Walking softly, while wielding a big stick is desirable as a national trait.

https://indianexpress.com/article/opinion/columns/c-uday-bhaskar-writes-arihant-slbm-launch-significant-underwater-deterrent-work-in-progress-8211683/

THE HINDU

Sat, 15 Oct 2022

Modi to Inaugurate Defence Expo in Gandhinagar

With over 1,300 defence companies, pavilions from 10 States and representatives from over 50 countries, the Defence Expo 22 (DefExpo-2022), to be held in Gandhinagar from October 18-22, will be the largest defence expo ever held in the country, said Defence Secretary Ajay Kumar on Friday. To be inaugurated by Prime Minister Narendra Modi, the scale of the event will be much bigger than the last time and the government expects to sign more than 400 Memorandum of Understanding (MoUs) to bring an investment of Rs. 1.25 lakh crore in the defence sector. "This 12th edition of Defence Expo will be the biggest in the country, with its theme being 'Path to Pride'. It will showcase our commitment to become atmanirbhar [self-reliant] in defence production. It will be inaugurated by PM Modi on October 19," the Defence Secretary told the media after reviewing the preparations. He said the expo was Asia's largest exhibition on land, naval and homeland security systems, with a focus on projecting the country as an emerging defence manufacturing hub, one of the top priorities for government in the defence sector. Mr. Ajay Kumar briefed about the exhibition with a live demo to be held in Ahmedabad Sabarmati riverfront and a few events to be held in Porbandar.

Five-day event

During the five-day event, there will be two major components: Defence Ministers' Conclaves viz India-Africa Defence Dialogue and IOR+ (Indian Ocean Region) Conclave wherein 75+ countries are meeting, including bilateral meetings slated to be held in Gandhinagar. According to him, as many as 10 States are participating in the event as interest in the defence industry is growing among the States and the industry. As per the details shared by Defence Ministry officials, some 1,028 firms had participated in the last defence expo, while the current edition will have Defence Ministers of 25 countries and delegates from 75 nations. Among the highlights of the event will be showcasing of indigenously designed and developed trainer aircraft by Hindustan Aeronautics Ltd (HAL) for the first time in the expo; virtual inauguration of the newly developed airbase at Deesa in Gujarat and 75 challenges for defence productions will be opened up for start-ups and industries.

Additional Secretary (Defence Production) Sanjay Jaju told media persons that the India-Africa Defence Dialogue, which would see participation from more than 50 African countries, would be held in the presence of Defence Minister Rajnath Singh, while a separate Indian Ocean Region

plus (IOR+) conclave, where representatives from approximately 40 countries would be present, was being held for the first time.

Surge in exports

The officials said that thanks to the government's push for manufacturing, defence exports had seen a huge jump and last year, the country exported defence goods worth ₹13,000 crore with the U.S. being the largest importer from India. For the first time, the exhibition is being held in a four-venue format — exhibition at the Helipad Exhibition Centre (HEC), inaugural/ official functions and seminars at Mahatma Mandir Convention and Exhibition Centre (MMCEC) in Gandhinagar while live demonstrations showcasing the equipment and skill set of the armed forces, defence PSUs and industry on all five days at the Sabarmati Riverfront in Ahmedabad and ships visit of Indian Navy and Indian Coast Guard at Porbandar.

In addition, there will be a drone show in Ahmedabad and Gandhinagar, which will be the largest the country has seen this far.

https://www.thehindu.com/news/national/modi-to-inaugurate-defence-expo-in-gandhinagar/article66011789.ece

Press Information Bureau
Government of India

Ministry of Defence

Sun, 16 Oct 2022 10:09 AM

India-Africa Defence Dialogue to be held on October 18 on the Sidelines of DefExpo 2022 in Gandhinagar, Gujarat

Raksha Mantri Shri Rajnath Singh will host the Defence Ministers of African Nations during the India-Africa Defence Dialogue (IADD) on October 18, 2022 on the sidelines of the 12th DefExpo in Gandhinagar, Gujarat. The broad theme of the dialogue is 'India-Africa: Adopting Strategy for Synergising and Strengthening Defence and Security Cooperation'. India and Africa share close and historical ties. India's approach towards Africa is guided by the Kampala Principles enunciated by Prime Minister Shri Narendra Modi in 2018. India's engagement rests on African priorities as outlined by Africans themselves.

The first-ever India-Africa Defence Ministers Conclave was held in Lucknow, Uttar Pradesh in conjunction with DefExpo on February 06, 2020. A Joint Declaration - 'Lucknow Declaration' - was adopted at the end of the conclave as an outcome document. In continuance of the 'Lucknow Declaration' and in consultation with stakeholders, IAAD has been institutionalised to be held once every two years on the sidelines of DefExpo. The IADD will explore new areas of convergence for mutual engagement, including in areas like capacity building, training, cyber security, maritime security and counter terrorism. Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) is the knowledge partner for the India-Africa Defence Dialogue.

https://pib.gov.in/PressReleasePage.aspx?PRID=1868186

THE ECONOMIC TIMES

Sun, 16 Oct 2022

Defence Minister Rajnath Singh to Host his Counterparts from Africa During DefExpo

Defence Minister Rajnath Singh will host his counterparts from Africa in Gujarat's Gandhinagar on Tuesday to explore cooperation in areas of maritime security, cyberspace and countering terrorism. The India-Africa Defence Dialogue (IADD) will be held on the sidelines of the 12th DefExpo. "Singh will host the defence ministers of African nations during the India-Africa Defence Dialogue (IADD) on October 18," the defence ministry on Sunday. It said the broad theme of the dialogue will be 'India-Africa: Adopting Strategy for Synergising and Strengthening Defence and Security Cooperation'. India has been ramping up defence and security cooperation with the African continent in the last few years amid relentless attempts by China to expand its footprint in the region.

The first-ever India-Africa defence ministers conclave was held in Lucknow on the margins of the DefExpo in February 2020. A 'Lucknow Declaration' was adopted at the end of the conclave that outlined possible areas of cooperation. "India's engagement rests on African priorities as outlined by Africans themselves," the defence ministry said in a release. In continuance of the 'Lucknow Declaration' and in consultation with stakeholders, IAAD has been institutionalised to be held once every two years on the sidelines of DefExpo. "The IADD will explore new areas of convergence for mutual engagement, including in areas like capacity building, training, cyber security, maritime security and counter-terrorism," the ministry said.

The Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) is the knowledge partner for the India-Africa Defence Dialogue. India's ties with the African continent have been on an upswing. According to official data, India extended concessional loans of over USD 12.3 billion to Africa and completed 197 projects so far. India's bilateral trade with Africa has reached USD 89.5 billion in 2021-22 compared to USD 56 billion the previous year.

https://economictimes.indiatimes.com/news/defence/defence-minister-rajnath-singh-to-host-his-counterparts-from-africa-during-defexpo/articleshow/94897461.cms?from=mdr

NewsOnAIR

Sun, 16 Oct 2022

Defence Minister Rajnath Singh to Host India-Africa Defence Dialogue (IADD) for Cementing Military Ties

India’s marquee and Asia’s largest defence exhibition, DefExpo 2022 will witness the mega gathering of Defence Ministers of African nations during the ‘India-Africa Defence Dialogue’ (IADD) on October 18, 2022, in Gandhinagar, Gujarat. Defence Minister Rajnath Singh will host the African counterparts to bolster the military and historical ties between India and Africa,

with invites extended to 53 African countries. The broad theme of the dialogue will be based on 'India-Africa: Adopting Strategy for Synergising and Strengthening Defence and Security Cooperation'.
"India's approach towards Africa is guided by the Kampala Principles enunciated by Prime Minister Narendra Modi in 2018. India's engagement rests on African priorities as outlined by Africans themselves," the Ministry of Defence mentioned in an official statement. Notably, the first-ever India-Africa Defence Ministers Conclave was held in Lucknow, Uttar Pradesh in conjunction with DefExpo on February 06, 2020. Further, a Joint Declaration – 'Lucknow Declaration' – was adopted at the end of the conclave as an outcome document.

Besides the declaration, India-Africa Defence Dialogue has been institutionalised to be held once every two years on the sidelines of DefExpo. It aims to explore new avenues of convergence for mutual engagement, including in areas like capacity building, training, cyber security, maritime security and counter-terrorism. India's flagship think-tank for advanced research in international relations, Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) is the knowledge partner for the India-Africa Defence Dialogue.

First-ever marquee event for Made-in-India products

The grandeur of India's flagship exhibition on Land, Naval and Homeland Security Systems, DefExpo 2022 will be bigger this year as it has been for the first time exclusively dedicated to showcase Made-in-India marquee products. Interestingly, for the first time 'Invest for Defence', an event by the Ministry of Defence will also be organised to promote investment in the defence sector in the country both by the Indian industry as well Foreign Original Equipment Manufacturers. The event will showcase the requirements of the Armed Forces and policy reforms undertaken by the Government for ease of doing business in the defence sector.

Notably, the mega military expo will see the participation from household names in the defence ecosystem, both Indian as well as foreign OEMs, such as L&T, Adani Defence, Bharat Forge, Saab, Airbus, and Lockheed Martin among others.

DRDO's 430 strategic weapons on display

India's defence research arm, Defence Research and Development Organization (DRDO) will display a wide range of 430 products encompassing the strategic and tactical weapon systems during the DefExpo 2022. DRDO participation will revolve around 3D (DRDO, Designed and Developed) ecosphere, which will highlight its strong linkages with both Industry as well as Academia.

To deepen the strategic partnerships with Industry and Academia, DRDO's initiatives such as Technology Development Fund, Dare to Dream, DIA- Centres of Excellence and other similar schemes will support academia, Start-ups, MSMEs and large industries. All these DRDO led initiatives have led to operational readiness of many Indian industries, especially in the areas of systems, radars, sonars, missiles, aircrafts among others.

The Grandeur of DefExpo 2022

To better the forthcoming edition, DefExpo is being planned in the largest ever total area of 1+ Lakh sqm (the previous edition being 76,000 sqm). Further, a large-scale drone show by the IIT Delhi start-up M/s Botlabs (an iDEX winner) will be organised to entertain and educate visitors. The sale of space commenced on August 15, 2022, and, to date, over 1,000 exhibitors have

registered and the numbers are anticipated to be the highest ever recorded during the previous editions of DefExpo.

India has successfully established itself as an emerging defence manufacturing hub with numerous international orders being bagged by Indian companies in recent years. Aiming in the same direction, DefExpo 2022 is in line with the vision of PM Modi to achieve self-reliance in defence and achieve an export of $5 billion by 2025.

https://newsonair.com/2022/10/16/defexpo-2022-defence-minister-rajnath-singh-to-host-india-africa-defence-dialogue-iadd-for-cementing-military-ties/

NewsOnAIR

Sat, 15 Oct 2022

Self-Reliance in Defence Sector, Secured Borders are Critical Aspects for Making India Powerful Nation, Says Rajnath Singh

Defence Minister Rajnath Singh has asserted that self-reliance in the defence sector and secured borders are the critical aspects for making India a powerful nation. During an event in New Delhi today, Mr Singh echoed the government's resolve to transform the country into one of the most powerful nations by 2047. He underlined the government's focus to equip the armed forces with state-of-the-art weapons systems and equipment, manufactured by a self-reliant defence industry.

Citing the example of recently-commissioned INS Vikrant, he said, the country has the ability and capability to manufacture modern weapons and platforms. He exuded confidence that the country will start manufacturing modern and effective water, land, sky and space defence platforms in the next ten years. The Defence Minister said, defence exports have seen a massive jump in recent years. He said, defence export has gone up to 13 thousand crore rupees which was earlier one thousand 900 crore rupees. He said, the country has set a target of one lakh 75 thousand crore rupees worth of defence production by 2025, including 35 thousand crore rupees worth of defence exports.

Terming border areas development as a priority area of this government, Mr. Singh said, efforts are being made to increase connectivity with far-flung areas to further strengthen the preparedness of the Armed Forces. He said, the restoration of peace and prosperity in the North East region in the last eight years is one of the biggest achievements of this government. He said, the region witnessed 80 to 90 percent reduction in violent incidents since 2014.

https://newsonair.com/2022/10/15/self-reliance-in-defence-sector-secured-borders-are-critical-aspects-for-making-india-powerful-nation-says-rajnath-singh/

\

THE ECONOMIC TIMES

Fri, 14 Oct 2022

DefExpo 2022 - HAL to Showcase Indigenous Products

Hindustan Aeronautics Limited said on Friday it is geared up to display its indigenous products at the 12th edition of DefExpo to be held at Gandhinagar from October 18 to 22. "HAL's participation will focus on technological excellence and indigenisation initiatives, under its business verticals such as fighters, trainers, transport aircraft, helicopters, engines, systems and avionics besides projecting the company's futuristic programs", the Bengaluru-headquartered company. said. HAL will have a dedicated 'Indigenisation Exhibition Stall' for active participation and interaction of Indian industry partners, it said in a statement. More than 200 imported items planned to be indigenised with private industries will be displayed in this stall to attract Indian industry. As many as 26 already indigenised items will be displayed.

Launching of a document on indigenisation success stories of HAL, handing over of "Project Sanction Orders" of Positive Indigenisation List items to the Indian Private Partners, handing over of approvals/ clearance certificates to the industry partners for items indigenised and launch of Indigenisation - Supplier Relationship Management portal are planned, the company said. HAL's Light Combat Helicopter 'Prachand' is planned to be showcased in the Outdoor Display area during the show.

HAL will also exhibit the scaled models of LCA, LCH, LUH, ALH, Do-228 and HTT-40 during the show. Some of the avionics/ accessories/ components/ products such as Indigenous Engine & Flight Display Unit, Mission Computer & Interface Computer, Digital Map Generator, Fly by Wire Data Acquisition Unit, Enhanced Flight Data Recorder, Gunner Pilot Control Unit, and Automatic Identification System will be on display at the HAL stall. Further, at the India Pavilion, HAL will display 29 products of which 17 are scaled models and 12 will be through display posters and product videos, it was stated.

https://economictimes.indiatimes.com/news/defence/defexpo-2022-hal-to-showcase-indigenous-products/articleshow/94854791.cms?from=mdr

FINANCIAL EXPRESS
Read to Lead

Sat, 15 Oct 2022

GSL to Display Indigenous Shipbuilding Capabilities at DefExpo 2022

At the forthcoming DefExpo 2022 starting October 18, Goa Shipyard (GSL) is set to showcase capabilities which are mainly aimed at building futuristic and potent platforms, indigenisation and import substitution, and 'Making in India' for the World. At the expo, a number of MoUs are expected to be signed during the Bandhan event which will be conducted on the sidelines of the

expo. The products will be on display at 2R.19, Hall No.2 and Static Display Area OD.12 and there will be a dedicated exhibition stall which will enable active participation and interaction with Indian and overseas industry partners and also potential partners.

To highlight the indigenous shipbuilding capabilities of the shipyard, there will be a display of scaled models of its flagship products including Advanced Missile Frigate, Offshore Patrol Vessels, and Fast Patrol Vessels. The shipyard in the last few years has established new benchmarks in the Shipbuilding Industry of the country by delivering Vessels ahead of contractual delivery schedules. According to an official statement, the shipyard which is backed by strong design house and superior 'Quality' ships has emerged as one of the fastest growing yards in the country. It builds sophisticated high technology ships. It has an unmatchable track record of execution and delivery on time at 'fixed cost' of over more than 160 Fast Interceptor Boats, and 200 Ships. It has constantly been building and consolidating its experience which it has gained over half a century and consistent track record of timely deliveries, and reputation for excellence. All these have enabled GSL to meet the challenges of the future requirement of the Indian armed forces indigenously.

Where will be GSL present at the DefExpo?

It will part of the Ministry of Defence Pavillion and will be open for visitors on all the days of the expo.

https://www.financialexpress.com/defence/gsl-to-display-indigenous-shipbuilding-capabilities-at-defexpo-2022/2712982/lite/

Business Standard

Sun, 16 Oct 2022

Tata A&D looks to Make Mark in DefExpo, Eyes Mega Tender for Combat Planes

One of the big splashes at the forthcoming Defence Exposition 2022 (DefExpo 22 for short) could be registered by one of India's fastest-growing aerospace and defence (A&D) manufacturers — Tata Advanced Systems Limited (TASL), also known as Tata A&D. Earlier this year, The Boeing Company chose TASL as its "Supplier of the Year, 2022", in the teeth of fierce competition from 11,000 supplier companies. Meanwhile, the defence ministry entrusted TASL to be India's first private firm to build and deliver an aircraft in flyaway condition to the military — the C-295 tactical airlifter, which TASL is to build in partnership with Airbus Defence and Space.

Meanwhile, TASL is looking for a share in the world's biggest fighter acquisition, New Delhi's multi-billion-dollar tender for 114 multi-role combat aircraft (MRCA). Lockheed Martin, the original equipment manufacturer (OEM) of the iconic F-16 fighter aircraft, hopes to win the Indian Air Force (IAF) tender. That would trigger a shift in the F-16 production line to India, where a joint venture (JV) between TASL and Lockheed Martin would build the F-21 — an advanced version of the F-16 fighter. That would enormously boost TASL's aggregate revenue, at present approximately Rs 4,500 crore in the current financial year 2022-23, including from

three JVs. Only one global defence major — The Boeing Company — betters this output in India, with revenues in the region of $1 billion.

TASL's ambition to be India's biggest A&D manufacturer, as well as its ambition to build the F-21 in India, are both reflected in its display booth at the DefExpo 22 site in Gandhinagar, Gujarat, where an entire, life-sized F-16 fighter aircraft wing symbolically connects it with its neighbouring booth — that of its production partner, Lockheed Martin. The Tata Group has identified A&D as an area of strategic growth and has structured TASL as the lead entity to pursue growth in this sector. TASL is composed of six entities, which were earlier the defence verticals of six Tata Group companies. In addition, TASL has three JVs formed by partnering three global defence OEMs — Lockheed Martin, Sikorsky and Boeing.

TASL's infrastructure is spread across three locations in India — Hyderabad, Nagpur and Bengaluru — with complementary capabilities and certifications. This helps in mitigation of risk, say company executives. In barely a decade, TASL has industrialised more than a million square feet, setting up facilities for in-house engineering, product re-engineering, process engineering, tooling, machining, fabrication, special processes, and major assemblies. This includes Rs 200,000 square feet of detailed part fabrication capability; Rs 450,000 square feet of composites manufacturing capability; Rs 450,000 square feet of major assembly capability; and Rs 106,000 square feet of aero engines capability.

These production lines supply to many of the world's top A&D companies, including Boeing, Lockheed Martin, Airbus, Sikorsky, General Electric and Rolls-Royce. According to company executives, TASL is a single-source supplier on 20 A&D manufacturing programmes around the world. TASL's executives explain that the company's expertise lies in setting up production facilities in quick time, with mature processes for transferring work packages from global customers. Company executives claim it moves from greenfield to production in an average of just 12 months. TASL Hyderabad took just nine months — from July 2009 to March 2010 — to commence production. Tata Sikorsky Aerospace Ltd, Hyderabad, took 14 months from February 2011 to open its production lines. And Tata Lockheed Martin Aerostructures, Hyderabad, took just 14 months, from February 2011 to March 2012.

TASL Chief Executive Officer Sukaran Singh stresses that the bulk of the company's production has little or no connection with offset contracts. In some, like the manufacturing line for the Pilatus PC-12 single-engine turboprop, the order was initially a part of offsets related to the IAF's purchase of Pilatus PC-7 Mark II basic trainers. But then the competitiveness of TASL's production induced Pilatus to shut down other sources and to obtain fuselages from India instead.

https://wap.business-standard.com/article-amp/companies/tata-a-d-looks-to-make-mark-in-defexpo-eyes-mega-tender-for-combat-planes-122101600633_1.html

BusinessLine

Sun,16 Oct 2022

Armoury Solutions, Pistols, Assault Rifles, Combat UAVs to be Displayed

A complete armoury solution, 9mm pistols and 5.56 mm assault rifles, and next-generation haemostatic bandages are among the inventories of medium and small-scale enterprises and start-ups that will jostle for space among the products of biggies of defence manufacturing to catch the attention of participants at the DefExpo at Gandhinagar starting from Tuesday. Almerio Defence and Aerospace LLP, offering a product range including portable earth cover magazines and pre-engineered portable modular and baffling firing range and containment box; and Raspian Enterprises' 9mm pistols and 5.56 mm assault rifles; Axio Biosolutions Pvt Limited that has come up with 100 per cent Chitosan shell dressing for soldiers are part of 25 domestic defence manufacturing companies whose names Society of Indian Defence Manufacturers (SIDM) has shared with the Defence Ministry for featuring at the five-day DefExpo.

These displays would be part of "Bandhan" which is being organised to forge partnerships between companies and for showcasing start-ups and MSME's cutting-edge tech solutions for the future battlefield. A complete armoury solution, 9mm pistols and 5.56 mm assault rifles, and next-generation haemostatic bandages are among the inventories of medium and small-scale enterprises and start-ups that will jostle for space among the products of biggies of defence manufacturing to catch the attention of participants at the DefExpo at Gandhinagar starting from Tuesday. Almerio Defence and Aerospace LLP, offering a product range including portable earth cover magazines and pre-engineered portable modular and baffling firing range and containment box; and Raspian Enterprises' 9mm pistols and 5.56 mm assault rifles; Axio Biosolutions Pvt Limited that has come up with 100 per cent Chitosan shell dressing for soldiers are part of 25 domestic defence manufacturing companies whose names Society of Indian Defence Manufacturers (SIDM) has shared with the Defence Ministry for featuring at the five-day DefExpo.

These displays would be part of "Bandhan" which is being organised to forge partnerships between companies and for showcasing start-ups and MSME's cutting-edge tech solutions for the future battlefield. Other products in the weapon management category is portable Earth Covered Magazines (ECMs), which Tayal claims is different from the existing RCC magazines and is much needed for a longer shelf life of ammunition. The portable ECMs are low on maintenance and custom manufactured to fit specific military munitions storage applications, she stated while listing out its features. Almerio Defence and Aerospace LLP, she said is managed by women entrepreneurs which are rare in the defence industry.

In the unmanned systems which many of the leading global as well as domestic companies are vying given that they are being dubbed as futuristic warfare tools, Kadet Defence Systems Pvt Ltd is offering multi-role high-speed jet-powered combat UAV having stealth characteristics with range greater than 300 km and ability fly at speeds of 500 km/hr with a payload of up to 25kg, product information reveals. Significant usages include loitering munitions, swarming, aerial decoys and air defence swarm-based training, said SIDM sources.

AVNL MoU

One of the relatively big players, Ashok Leyland, will be signing MOUs with defence PSU Armoured Vehicles Nigam Ltd (AVNL) for supply of mobility kits for Mine Protected Vehicle (MPV) 6x6. The Company has been doing for MPV 4x4. "While the Vehicle Factory Jabalpur which comes under AVNL manufactures the structure, the mobility solution which includes engines of the MPV 6x6 will be supplied by us," stated Col Rajneesh Kacker (Retired), Head Defence Marketing, Sales &After Marketing of Ashok Leyland. In another MOU, Ashok Leyland Defence Systems Ltd will supply transmission systems for T-72 and T-90 tanks of the Russian origin, he said.

https://www.thehindubusinessline.com/news/national/armoury-solutions-pistols-assault-rifles-combat-uavs-are-swadeshi-items-to-be-displayed-at-defexpo-tomorrow/article66018605.ece

THE HINDU BusinessLine

Fri, 14 Oct 2022

Over 400 MoUs to be Signed at DefExpo 2022 in Gandhinagar

Over 400 memorandum of understandings (MoUs) are expected to be signed at the biggest ever DefExpo 2022, with 33 of them would be Gujarat specific and worth ₹5,500 crore, defence secretary Ajay Kumar said on Friday. In the DefExpo at Gandhinagar which is starting from October 18 and will continue for five days, over 1,300 exhibitors including start-ups, from PSU and private industry, will display products that is aimed at boosting central government's initiative of bringing in Atmanirbharta (self-reliance) in military sector.

Speaking to media ahead of the expo in Gandhinagar, Ajay Kumar stated over 400 MoUs will be signed this time which is double since 201 were done during the last DefExpo at Lucknow. Apart from that, he stated ten States have also come up with their individual policies to attract manufacturers. So far, two defence corridors have also come up in Uttar Pradesh and Tamil Nadu to realise the potential of the defence sector which is also visible since stocks of related companies are doing well in the market. At the DefExpo, the government would be hosting two conclaves -- one for the Indian Ocean Region and the other for African nations. Keeping China in mind, the defence ministry is hosting Indian Ocean Region plus conclave and has invited 28 countries' defence ministers to showcase India's enhanced indigenous capacity development and deliberate to make the area safe and peaceful for trade and prosperity, special secretary defence Sanjay Jaju told the media.

With Africa being a large defence market India is trying to engage the continent nations through the conclave at the DefExpo. For the first time, there will be a special session for the first time on how to facilitate greater funding in the defence sector, defence secretary Kumar elaborated while adding there is no dearth of government funds. According to him, the defence budget has gone up by 35 per cent in the last three years which is based on the requirement of the forces.

Defence Research and Development Organization (DRDO), meanwhile, will display a wide range of 430 products encompassing the strategic and tactical weapon systems, defence equipment and technologies at the expo. The major theme for this year's DRDO participation is

based on 3D (DRDO, Designed and Developed) ecosphere which will highlight its strong linkages with both industry as well as academia, said the defence ministry. Further, the ministry stressed that the DRDO will showcase the advancements in technologies made by its laboratories as well as its partnerships with the industry, in recent years while representing a high level of indigenousness in advanced and futuristic defence products and technologies that contribute towards Aatmanirbharta in defence.

https://www.thehindubusinessline.com/companies/over-400-mous-to-be-signed-at-defexpo-2022-in-gandhinagar/article66011001.ece

FINANCIAL EXPRESS
Read to Lead

Sat, 15 Oct 2022

UK-Based BAE Systems to Display Make in India Theme at DefExpo

Highlighting its strategy of 'co-creating for a self-reliant India' the UK based BAE Systems is set to display a series of state-of-the-art defence capabilities at the DefExpo next week. The company will also demonstrate its technology solutions which are best suited to strengthen India's national security which will be useful in advancing the growth of the country's indigenous defence manufacturing ecosystem. "India is an important and key strategic market for us," said Ravi Nirgudkar, BAE Systems' Managing Director India, Bangladesh, and Sri Lanka said.

Adding, "Our presence at the show focuses on reflecting our commitment to India's 'Make in India' initiative and to demonstrate our industry-leading, advanced defence capabilities – across land, air and sea." Stating that the company has been a founding partner of defence manufacturing in India, he said that "we also look forward to meeting key stakeholders and industry partners to discuss ways to support India in its modernization journey, alongside bolstering its indigenous defence production capabilities."

What will be displayed?

Efforts to support India's `Make in India' initiative and its partnership with the local defence industries will all be demonstrated and this will be done through the digital representation of the M777 Ultra Lightweight Howitzer (ULH). This gun is being used by the Indian Army and providing it with unparalleled strategic mobility and in most hostile environments provides reliable fire support.

Make in India programme

As reported in Financial Express Online earlier, the 155mm M777A2 ULH systems are being assembled, integrated, and tested in India by Mahindra Defence Systems Ltd. (MDSL). This is as per the agreement between the governments of India and the US. These guns are already being used by the Indian army and are part of the Regiment of Artillery. And more than 125 guns have been produced and delivered by the company to the Indian Army.

Another digital presentation will be the APKWS laser-guided rocket. This according to the company is the most cost-effective laser-guided munition in its class. And this transforms an unguided 2.75-inch (70 millimeter) rocket into a precision-guided rocket. This also helps rotary- and fixed-wing military aircraft a low-cost surgical strike capability. The company will also demonstrate its maritime capabilities through Bofors 40 Mk4 Naval Gun and Bofors 57Mk3 Naval Gun System. At different levels of conflict both these systems provide tactical freedom and have high survivability. They are equipped with flexible and agile weapon systems, enabling a lightning-quick response. And 3P Ammunition and BONUS munition will also be on display.

https://www.financialexpress.com/defence/uk-based-bae-systems-to-display-make-in-india-theme-at-defexpo/2713096/lite/

The Indian EXPRESS

Sat, 15 Oct 2022

Defence Exports to Cross Rs. 13,000 cr, Gujarat to Get 5th Airbase

Defence Minister Rajnath Singh will chair the second India-Africa defence dialogue and a conclave of defence ministers of over 25 countries during the DefExpo 2022, scheduled to begin in Gandhinagar on October 18.The event, which will be formally inaugurated by Prime Minister Narendra Modi on October 19, will also see the virtual opening of a new Indian Air Force (IAF) base built at Deesa near the Indo-Pakistan border, Defence secretary Ajay Kumar told media persons Friday. At present, Gujarat has air bases in Vadodara, Jamnagar, Bhuj and Naliya in Kutch district. On October 18, Rajnath Singh will chair the second India-Africa defence dialogue at a hotel near Mahatma Mandir, while on October 19, he is expected to chair the IOR+ Defence Ministers conclave at the same venue. Over 25 defence ministers from Indian Ocean Region (IOR) and other counties will be present. At a media briefing on Friday, Sanjay Jaju, Additional Secretary (Defence production), MoD, said, “We have added countries with export possibilities in this conclave.” Last year, Singh had stated that India was ready to supply military equipment to countries in IOR where China is asserting its presence.

Kumar on Friday said that India’s defence exports is expected to exceed the Rs 13,000-crore mark it touched last year, adding that United States is the biggest importer of the country’s defence products. Kumar, who was in Gandhinagar to review the preparations for DefExpo 2020 — scheduled to be held between October 18-22, said, “In the past four-five years, there has been a eight-fold increase in defence exports from India. Last year, our defence exports touched a record Rs 13,000 crore and we hope to exceed this during coming years. Today, what our industry is manufacturing, is not a copy-paste. We are making our original technologies.” “Our highest defence exports are to the United States, where we supply a number of parts and components and sub-assemblies for various platforms. Apart from this, Philippines, Armenia, Israel and south-east Asian countries. In the coming days, we will be exporting to South America,” Jaju added.

https://indianexpress.com/article/cities/gandhinagar/defence-exports-to-cross-rs-13000-cr-gujarat-to-get-5th-airbase-8209385/

THE TIMES OF INDIA

Sat, 15 Oct 2022

Defence Airbase to Come up at Deesa at Rs 1k-crore

A new defence airbase is slated to come up at Deesa in Banaskantha district of for the Indian Air Force (IAF). The foundation stone for the airbase will be laid by Prime Minister during the Defence Expo 2022 scheduled to be held in Gandhinagar next week. The decision to set up the airbase was taken in 2020 by the Centre. This will call for an investment of at least Rs 1,000 crore, according to sources privy to the development. The runway at the upcoming airbase will be equipped to handle movement of new generation aircraft including the C-17 Globemaster. The entire airbase will be established by 2024. Sources confirmed that some 4,500 acre land has been earmarked for setting up the airbase, which will be situated some 130km from the Indo-Pak border and this proximitywill help reduce the aerial distance in Indian Air Defence along the western border.

The airbase will, therefore, be a strategic location for the Southwestern Air Command which is tasked to protect Maharashtra, Gujarat and Rajasthan. The airbase will expand the operating range of the Indian fighter jets in war situations, according to experts. In fact, it will complement the Indian Airforce operations by better coordination between airbases in Bhuj and Naliya in Kutch, Gujarat; and Jodhpur, Jaipur and Barmer, Rajasthan. The entire planning for the upcoming airbase will be executed by the Military Engineer Services. Deesa currently has only a single airstrip with a runway of about 1,000 metres, which is used for civilian and charter aircraft operations and helicopter landings for VVIP movements. The airstrip is classified as unserved and therefore eligible for development under the Regional Connectivity Scheme (RCS)-UDAN as well. Sources said that the Deesa airbase will provide an alternative for taking off and landing of defence aircraft given its proximity to the international border. In the first phase, a runway, taxiway, and aircraft hangars will be set up at the air base. Other technical infrastructure will come up in the next phase, sources confirmed. The airbase will be equipped with a smart fencing, groundwater recharging facilities, sensor-based lights and solar electricity farms, among others.

https://timesofindia.indiatimes.com/city/ahmedabad/gujarat-defence-airbase-to-come-up-at-deesa-at-rs-1k-crore/articleshow/94870477.cms

INDIA TODAY

Fri, 14 Oct 2022

India's Light Combat Helicopter | The Fiercest Chopper

The operations in the high-altitude battlefield of Kargil in 1999 is vivid in the memory of Group Captain R.K. Narang (retd), a helicopter pilot. Most of all, he recalls how the absence of an attack helicopter had cost the Indian Army dear. When infantry units asked for close air support, Gp Capt. Narang, who was flying in Kargil, claims that the Indian Air Force's then-existing fleet

of Russian-origin Mi25 and Mi-35 choppers were ineffective over the craggy terrain of Kargil and Drass because of their weight. “These choppers are heavy, meant for low-altitude operations and are supposed to carry combat troops.” The Kargil experience led to an introspection within India’s defence establishment, and designs for a Light Combat Helicopter (LCH) were first drawn up in 2003. The government sanctioned the indigenous LCH project in 2006, with state-owned Hindustan Aeronautics Ltd spearheading the effort. There were occasional setbacks, like the absence of some sophisticated infrastructure needed to develop such hardware, but progress was steady—over the next decade, extensive flight testing was carried out on four prototypes, and operational clearances came between 2017 and 2019.

https://www.indiatoday.in/magazine/defence/story/20221024-indias-light-combat-helicopter-the-fiercest-chopper-2285197-2022-10-14

Outlook

Fri, 14 Oct 2022

Rafale, SU-35 or Super Hornet?: IAF Hunts for Next Set of Fighter Jets to Tackle Dwindling Strength

A few weeks ago, the Indian Air Force (IAF) retired the iconic Srinagar-based No. 51 Squadron which operates the MiG-21 Bisons—the same squadron that Group Captain (then Wing Commander) Abhinandan Varthaman was part of in the clash with Pakistan after the February 2019 Balakot air strike. The remaining three MiG-21 Bison squadrons that the IAF has will be phased out gradually by 2025. Post that, it will start phasing out the six squadrons of ageing Jaguars in the early 2030s. The Mirage-2000s and MiG-29s will follow soon after that. While the IAF is charting out a retirement plan for its older jets, the focus is back on its strength with concerns being raised over its dwindling numbers. At a recent IAF press conference, Air Chief Marshal V.R. Chaudhari, the Chief of the Air Staff, said, “It will be impossible to keep watch and do combat air patrol across the country with the given number of 31 squadrons,” adding that it might take a decade to meet the proposed target of 42 squadrons.

The current number will further dip as and when older jets are phased out. “Considering the planned rate of inflow of Tejas fighters, the squadron strength will continue to go down,” says retired Air Vice Marshal Manmohan Bahadur. This drawdown of squadrons is concerning as hostile neighbours continue to build and flex their muscle, with China even developing a sixth-generation fighter jet now. What is even more concerning is that India’s drive to replenish its fleet is not keeping pace with its dipping aircraft numbers, with several delays denting the process. In 2018, the IAF had floated a $20-billion multirole fighter aircraft (MRFA) request for proposal (RFP) to procure 114 foreign fighter jets or nearly six squadrons with various countries across the world competing.

Seema Sirohi, a Washington DC-based columnist, says, “The original [IAF] tender for 126 multirole aircraft was floated in 2007 and we are now in 2022. The problem is that geopolitical shifts and advancements in aerial warfare wait for no one. One of the most important criteria is expected to be acquiring jet engine technology—something that India has struggled to get over the years." This RFP, which would be one of the largest ever in the history of military procurements, is crucial for the IAF as it urgently needs to boost its falling fleet numbers. “The

IAF has stated clearly that 114 MRFA would be required to have the bare minimum squadron strength. The government needs to quickly find the money to finance this vital requirement," says Bahadur.

The foreign fighter jets on the IAF's radar under this proposal are France's Dassault Rafale, the US' Boeing F/A-18 Super Hornet, F-15EX Eagle II and Lockheed Martin F-21, Sweden's Saab Gripen E/F, Eurofighter Typhoon co-manufactured by a consortium of European nations, and Russia's Sukhoi Su-35 and Mikoyan-Gurevich (MiG)-35. Other than the 36 Rafales that India has, the country does not have any of the fighters in the MRFA tender. The selection would depend on various factors like the indigenous and foreign twin-engine deck-based fighter options, the allocation between the Indian Navy and the IAF, among others. Let's take a look at what the jets have to offer.

https://www.outlookindia.com/business/rafale-su-35-or-super-hornet-iaf-hunts-for-next-set-of-fighter-jets-to-tackle-dwindling-strength-news-229664

नवभारत टाइम्स

शुक्रवार, 14 अक्टूबर 2022

Kalyani M4 जैसा बख्तरबंद किला ही नहीं, किलर मिसाइल्स भी बनाती है Bharat Forge... सबकुछ जानिए

भारतीय सेना को 16 कल्याणी M4 बख्तरबंद वाहनों की खेप सौंपी गई है। स्वदेश में बने इन चलते-फिरते किलों को भारत फोर्ज ने तैयार किया है। अभी इनका इस्तेमाल संयुक्त राष्ट्र पीसकीपिंग ऑपरेशंस में किया जाएगा। कल्याणी M4 एक क्विक रिएक्शन फाइटिंग वीइकल (हेवी) है। इसे कभी भी युद्ध में उतारा जा सकता है। इसमें एक इन्फैंट्री प्लाटून बड़े आराम से जा सकती है। भारत फोर्ज के मुताबिक, 10 किलो का TNT ब्लास्ट हो या 50 किलो IED, कल्याणी M4 पर कोई असर नहीं पड़ेगा। इसे किसी भी तरह के टेरेन में ऑपरेट किया जा जा सकता है। कल्याणी M4 बख्तरबंद वाहन बनाने वाली कंपनी भारत फोर्ज असल में कल्याणी समूह का हिस्सा है। जून 1961 में नीलकंठराव कल्याणी ने इसकी नींव रखी। इसकी सब्सिडियरी कंपनियां भारतीय सेना के लिए Spice 2000 बमों से लेकर Barak 8 जैसी मिसाइलें बनाती हैं।

Kalyani M4 में क्या खास है?

- **कल्याणी एम**4 **एक चलता-फिरता किला है।**
- **करीब** 16 **टन वजनी इस वाहन में** 2.3 **टन वजन लादा जा सकता है। आठ सैनिक बैठ सकते हैं।**
- **यह** 43 **डिग्री के अप्रोच ऐंगल और** 44 **डिग्री के डीसेंट ऐंगल पर आसानी से चल सकती है।**
- -20 **डिग्री से लेकर** 50 **डिग्री तापमान में लगातार चल सकती है।**

- **इसका डिजाइन मोनोकॉक है यानी सबकुछ इसके भीतर है, बाहर कुछ भी नहीं।**
- **इसमें लगे शीशे इतने मजबूत हैं कि वे स्नाइपर और ऐंटी-मैटीरियल राइफल के फायर को झेल सकते हैं।**
- **इसमें छह सिलिंडर का टर्बाचार्ज्ड डीजल इंजन लगा है। भारतीय सेना के पास मौजूद किसी भी वाहन से दोगुना ताकतवर।**
- **कल्याणी एम**4 **की टॉप स्पीड** 140 **किलोमीटर प्रतिघंटा है और इसकी रेंज** 800 **किलोमीटर तक है।**
- **इसके भीतर** 16 **किलोवॉट का एयर कंडीशनिंग सिस्टम लगा है।**
- **यह वाहन आसानी से मशीन गन का फायर झेल सकती है।** 10KG **के ऐंटी-टैंक माइन का इसपर कोई असर नहीं होगा।**
- Kalyani M4 **से सेना को मुश्किल इलाकों तक आसानी से पहुंचने में मदद मिलेगी**

  Kalyani M4 बनाने वाली Bharat Forge को जानिए
- **नीलकंठराव कल्याणी ने** 19 **जून** 1961 **को भारत फोर्ज की नींव रखी। इस वक्त**, **उनके बेटे बाबा कल्याणी चेयरमैन हैं।**
- **भारत फोर्ज आज भी कल्याणी समूह की फ्लैगशिप कंपनी है।**
- **पुणे का सबसे बड़ा** SEZ (4,200 **एकड़**) **भारत फोर्ज के पास है।**
- **वित्त वर्ष** 2022 **में कंपनी का रेवेन्यू** 10,460 **करोड़ रुपये रहा है।**
- **कंपनी की ऑपरेटिंग इनकम** 1,081.75 **करोड़ रुपये है।**
- **भारत फोर्ज में करीब** 5 **हजार कर्मचारी काम करते हैं।**
- BSE **में भारत फोर्ज का एक शेयर** 762.45 **रुपये का है।** (**तारीख** : 14 **अक्टूबर** 2022)
- NSE **में** Bharat Forge **का शेयर** 763.05 **रुपये में है।** (**तारीख** : 14 **अक्टूबर** 2022)

क्या-क्या बनाती हैं Bharat Forge से जुड़ी कंपनियां?

भारत फोर्ज की कई सब्सिडियरीज डिफेंस सेक्टर में हैं। कल्याणी स्ट्रैटीजिक सिस्टम लिमिटेड (KSSL) भारतीय सेना के लिए कम्पोनेंट्स और सबसिस्टम्स बनाती है। कल्याणी ग्रुप ने फ्रांस की राफेल एडवांस्ड डिफेंस सिस्टम्स के साथ मिलकर 2015 में एक कंपनी KRAS बनाई थी। यह कंपनी रिमोट वेपंस सिस्टम, प्रिसिजन गाइडेड म्यूनिंशस बनाती है। हैदराबाद में 24,000 वर्गफीट में इसकी फैक्ट्री है। KRAS अब Spice 2000 बम बनाती है। 2019 में कपंनी को सेना और वायुसेना के लिए 1000 Barak 8 मिसाइलें बनाने भी ठेका मिला।

https://navbharattimes.indiatimes.com/business/business-news/kalyani-m4-indian-army-new-armoured-vehicle-maker-company-bharat-forge-know-all-about-it/articleshow/94851503.cms

जागरण

रविवार, 16 अक्टूबर 2022

अलीगढ़ डिफेंस इंडस्ट्रीज कारिडोर में तैयार रक्षा हथियारों से लैस होगी सेना

उद्यमियों ने मुख्यमंत्री योगी आदित्यनाथ से जीटी रोड पर नया बड़ा औद्योगिक क्षेत्र विकसित करने, दाउद खां फ्रेट कारिडोर में कंटेनर डिपो के निर्माण व नई फूड प्रोससिंग यूनिट लगाने की तरह ताला, हार्डवेयर व अन्य उत्पादन इकाइयों को सब्सिडी देने की मांग की। सीएम योगी ने कहा कि नई उद्योग नीति से प्रदेश के उद्योग उड़ान भरेंगे। इस उद्यमियों के सुझावों से तैयार किया गया है। धनीपुर एयरपोर्ट से जल्द ही जल्द उड़ान शुरू होगी। एमओयू साइन हो गया है। देश के पहले डिफेंस इंडस्ट्रीज कारिडोर अलीगढ़ नोड में तैयार होने वाले रक्षा हथियारों से सेना लैस होगी।

मुख्यमंत्री का जताया आभार

सर्किट हाउस में प्रवुद्धजनों के साथ मुख्यमंत्री ने बैठक ली। 30 के स्थान पर 70 से अधिक लोग इस बैठक में शामिल हुए। उद्योगपति धनजीत वाड्रा ने सीएम का डिफेंस कारिडोर तेजी के साथ विकसित कराने व निवेशकों को मूलभूत सुविधाएं मुहैया कराने पर आभार जताया। वाड्रा ने निवेशक उद्योगपतियों की ओर से भरोसा भी दिया, वे गुणवत्ता के साथ आधुनिक हथियार व सेना के अन्य साजो सामान का जल्द से जल्द बनाना शुरू होगा। फैक्ट्रियों के निर्माण का काम तेजी से शुरू हो गया है। उद्योगपित अजय पटेल ने बताया कि ताला नगरी सहित अन्य औद्योगिक क्षेत्रों में भूखंड नहीं है। नए उद्योग लगाने के लिए जीटी रोड पर नया औद्योगिक क्षेत्र विकसित किया जाए। राजीव गर्ग ने जीटी रोड पर कृषि उपजाऊ भूमि का लैंड चेंज कराने का सुझाव दिया।

कंटेनर डिपो बनाने की मांग

अलीगढ़ एक्सपोर्ट एसोसिएशन के महामंत्री इंजी. दिनेश चंद्र वाष्णेय ने कंटेनर डिपो बनाने की मांग रखी। उद्यमी निशांत सिंघल ने फूड प्रोससिंग की तर्ज पर अन्य उद्योगों को सब्सिडी सुविधा दिलाने का सुझाव दिया। शेखर सर्राफ मेमोरियल हास्पिटल के संचालक सुमित सर्राफ ने सीएम को बताया कि वह कैंसर हास्पिटल शुरू कर रहे हैं। इंडस्ट्रियल पार्क में खोलने की बात कही। लघु उद्योग भारती के प्रदेश संयुक्त महामंत्री गौरव मित्तल ने धनीपुर हवाई अड्डे के निकट बौनेर से भुखरावली तक फोर लेन रिंग रोड बनाया जाए। एंबिशन फ्लाइंग क्लब के डायरेक्टर विशाल अग्रवाल ने हवाई अड्डा को जल्द शुरू करने का सुझाव दिया। अपने ईंट उद्योग के निर्यात की जानकारी भी दी। डा. राकेश भार्वग व डा. सुदेश वार्ष्णेय ने निजी मेडिकल कालेज एस्थापित करने में सरल नीति बनाने का अनुरोध किया। अविरल धारा के संस्थापक अतुल सिंह ने बताया कि उनकी संस्था विद्यार्थियों को सरकारी प्रतियोगी परीक्षाओं की निशुल्क तैयारी

कराती है। अबतक 150 अभियार्थियों का सरकारी सेवाओं में चयन हो चुका है। सीएम ने राष्ट्रीय बाल पुरस्कार विजेता चंद्रय सिंह चौधरी और इंटरनेशनल शूटिंग में पदक जीतने वाली सबीरा हारिस की विशेष तौर पर प्रशंसा की।

प्रबुद्धजन रहे उपस्थित

बैठक में उद्योगपति राहुल गौतम, विजय बजाज, स्वप्निल जैन, सुमित सराफ, हरभजन सिंह सुखदेवा, विनोद गर्ग, सुशील चौधरी, अतुल अग्रवाल, सौरभ सिक्स संस, अंकुर माहेश्वरी, उद्यमी राजीव गर्ग, विजय बजाज, मोहित अग्रवाल, संजीव, वरूण गर्ग, मनीष बंसल, नेकराम शर्मा, उर्वशी गौड़, प्रवीन अग्रवाल, राजेश माहेश्वरी, संतोष कुमार सिंह, ललित कुमार सिंह, मनोज प्रताप, अशोक कुमार, मानव उपकार संस्था के विष्णु कुमार बंटी, पर्यावरण संरक्षण के लिये सुबोध नंदन शर्मा, दुग्ध उत्पादन में श्यौराज सिंह, विनोद कुमार, चिकित्सा क्षेत्र में डा. पवन वार्ष्णेय, डा. आलोक गुप्ता, शिक्षा क्षेत्र में डा. राजीव अग्रवाल, डा. संजय कुमार, नीलम शर्मा, भूपेंद्र सिंह, राजीव रंजन, ग्राम प्रधान अमित कुमार, सुंदर सिंह, मानवेंद्र प्रताप सिंह राणा, नीलम सिंह, नीरज सिंह, प्रशांत , महिला स्वयं सहायता समूह से पूनम देवी, प्रेमवती एवं पूनम सिंह, चन्द्रय सिंह चौधरी बाल पुरस्कार विजेता, बेसिक शिक्षा के क्षेत्र में सुरेंद्र , सुनील कुमार शर्मा, हेमलता गुप्ता, नीता कुमारी एवं राजकुमार वार्ष्णेय मौजूद आदि उपस्थित थे।

रखे रहे गए स्मृति चिन्ह

कई उद्यमी व सामाजिक कार्यकर्ता सीएम को स्मृति चिह्न देने के लिए मूर्ति साथ लाए थे। मगर सीएम ने किसी भी प्रकार का स्मृति चिह्न लेने से इंकार कर दिया। उन्होंने समय कम होने का हवाला दिया।

लाजिस्टि हब बनाने की दिशा में कर रहे हैं काम

सीएम ने कहा कि लीक से हटकर समाज को जो प्रेरणा देते हैं वही वास्तविक हीरो कहलाते हैं। जो लकीर के फकीर नहीं बने वह वास्तव में प्रशंसा के पात्र हैं।उन्होंने जनप्रतिनिधियों के साथ आप प्रबुद्धजनों से बात करने का उद्देश्य है इनको पता होना चाहिये कि आप सभी के कारण गांव, तहसील, जिले और प्रदेश का नाम विश्व पटल पर चमक रहा है। जो लोग शिक्षा के क्षेत्र में कार्य कर रहे हैं, नई शिक्षा नीति आने के बाद बच्चों को सरल ढ़ंग से विद्यालय में बुलाएं ताकि उनकी शिक्षा के प्रति रूचि पैदा हो।

https://www.jagran.com/uttar-pradesh/aligarh-city-army-will-be-equipped-with-ready-made-defense-weapons-in-aligarh-defense-industries-corridor-23143591.html

The EurAsian Times

Mon, 17 Oct 2022

Sixth-Generation Fighter Jet – How the Goalposts for Next-Gen Warplanes are Ever-Changing

By Vijainder K Thakur

The initial idea was derived from advances in traditional fighter aircraft technologies – materials, electronics, and engines. Rapid strides in software algorithms for machine learning and AI-based decision-making were not adequately factored into the concept. The goalposts laying down how sixth-gen fighters must score continuously shift.

Sixth-Generation – Defining Capabilities

Initially, the capabilities defining sixth-generation fighters included:

- Optional Manning depending on the nature of the mission
- Broad Spectrum Stealth
- Next-Generation Power Plants
- Directed Energy Weapons
- Unified electronic warfare system

Optional Manning

Optional Manning would allow the aircraft to fly missions in highly contested airspace without fear of loss of life. Missions such as suppression of enemy air defenses (SEAD) and attacks on high-value surface targets entail high risks even for stealth fighters because Low Observability (LO) is never absolute.

Broad Spectrum Stealth

Unlike fifth-gen fighters, which are only invisible to centimetric wave radars, sixth-gen fighters would be invisible even to metric and decimetric wave radars such as Russia's Nebo M.

Next-Generation Engines

Next-generation turbine-based power plants will feature enhanced electrical power generation capacity to power sensors, communications systems, directed energy weapons, actuation systems, accessories, and avionics.

Directed Energy Weapons

Next-generation fighters will feature powerful lasers to burn the seeker of air defense (AD) or air-to-air missiles. Conceivably, they could be powerful enough to attack fragile ground targets.

Unified Electronic Warfare System

A Unified Electronic Warfare System (UEWS) will serve as radar, electronic warfare, data transmission, and communications equipment. It will also function as a navigation system and IFF transponder.

Scope Creep

Even as technology was maturing for the sixth-gen concept, additional capabilities were added to the concept because of rapid technological advances, including drones. These included"

- Control Centre Operations
- Inflight Software Updates
- Radio Photonic Radar
- Multispectral Optical System

Control Centre Operations

Next-gen fighters would be able to function as a command center for drones, including attack drones, when performing joint operations.

Inflight Software Updates

The feature will allow upgrades of software that controls the hardware. Advances in software architecture now facilitate updates that don't interfere with fighters' ability to fly; you can remove software bugs or unlock new capabilities while the fighter is on a mission!

Radio Photonic Radar

They use pulsating lasers instead of radio crystals to generate and process near-perfect sine wave transmissions and reflections. As a result, they can use smaller antennas to transmit wide-band UHF signals that defy RF LO shaping. The returned signal can be processed to an extent where it produces a 3D image of the target, not unlike an optical image.

Multispectral Optical System

Multi-spectral optical systems operating in various ranges – the laser, infrared, ultraviolet, and optical band – will supplement the radio-photonic radar.

Computing & AI Advances

Meanwhile, increase in onboard computer capabilities, governed by Moore's law, and advances in artificial intelligence opened up the possibility of outsourcing many of the abilities of a sixth-gen fighter to inexpensive, attritable drones either directly controlled by the sixth-generation fighter or controlled through a larger behind the scenes mothership aircraft. The US is pursuing the concept of a sixth-gen fighter operating with drones using a system-of-systems approach now referred to as Next Generation Air Dominance (NGAD).

Next Generation Air Dominance (NGAD)

The Next Generation Air Dominance (NGAD) envisions fielding a Family of systems (FoS) centered around a new sixth-generation fighter aircraft to be fielded in the 2030s – the F-X or Penetrating Counter Air (PCA) in the case of the USAF and the FA-XX in the case of the

USN. No one is quite sure what capabilities would be retained in the sixth-generation fighter and what outsourced to supporting specialized drones, now referred to as CCA (Cooperative Combat Aircraft)

Collaborative Combat Aircraft (CCA)

The CCA concept is driven by the need to team a pilot with drones easily. Current generation drones serve as eyes and ears or as guided weapons. They have to be piloted from the ground. Because of their autonomy, CCAs can execute directions given by a pilot just as a formation pilot executes directions given by the formation lead. CCAs will provide capabilities such as magazine depth (weapon truck), battlespace surveillance, and communication relay. In surveillance roles, the CCAs will not simply relay their sensor data and overwhelm man-in-the-loop operators. They will use AI to relay assessments and, if necessary, take action on their own accord or in concert with the rest of the force.

Program Status

The capabilities of the 6th gen fighter that will be a part of the NGAD are yet to be firmed up. The US Defense Department has yet to decide if the critical technologies used in the (NGAD) fighter aircraft were mature enough to support entry into the engineering and manufacturing development (EMD) phase of the NGAD program's acquisition timeline. CCAs are even more distant into the future. The challenges include maximizing functionality while retaining attritability and integrating them into operational units. It's interesting to note that the NGAD concept is not tied to a sixth-generation fighter. Fifth and even 4.5-generation fighters could be adapted to NGAD.

https://eurasiantimes.com/sixth-generation-fighter-jet-how-the-goalposts-for-next-gen-warplanes/

Sat, 15 Oct 2022

Navy's Dornier Patrol Aircraft makes Maiden Night Landing at Lakshadweep Archipelago

The Dornier-228 Maritime patrol aircraft of the Indian Navy made history by performing a night landing at the country's only airstrip in the Lakshadweep archipelago, on the western seaboard. Located nearly 460 kilometres west of Kerala's Kochi city, the Agatti atoll houses the lone airstrip available in the union territory of Lakshadweep. While the airstrip there, operated by the Airports Authority of India (AAI) was inaugurated in April 1988 for the operation of Dornier-228, the operations were extended to the ATR-72 aircraft in September 2010. However, owing to the short runway length and limited airfield services available, both civil and military aircraft operated only during daylight hours.

Under the aegis of the Indian Navy, the Southern Naval Command (the lone training command of the Indian Navy) took the initiative to overcome this limitation and worked with AAI and the

Directorate General of Civil Aviation (DGCA). The maiden night landing was successfully carried out on October 13. As part of the trials, multiple approaches and landings were carried out from both sides of the runway to validate the suitability of operations. The successful night trials would enable future night operations of the Navy's Dornier-228 aircraft and boost the Navy's efforts towards round-the-clock maritime surveillance and support to the islands.

https://www.wionews.com/india-news/india-navys-dornier-patrol-aircraft-makes-maiden-night-landing-at-lakshadweep-archipelago-525724

THE TIMES OF INDIA

Sun, 16 Oct 2022

Army to Get Drones for Precision Strikes

Having deployed around 350 artillery systems and 'winterised' howitzers along the frontier during the continuing military confrontation with China in eastern Ladakh, the Army has now kicked off acquisition of a variety of drones and surveillance devices to more accurately direct long-range and high-volume firepower against enemy targets. The RFPs (request for proposal) for the indigenous procurement of 80 mini remotely piloted aircraft systems (RPAS), 10 runway-independent RPAS, 44 upgraded longrange surveillance systems and 106 inertial navigation systems will be issued within the next few days. The existing much larger unmanned aerial vehicles (UAVs), like the Israeliorigin Herons and Searcher-IIs, are being used for strategic surveillance by the Army Aviation wing.

"The new smaller RPAS, with an operational range from 15- 20-km to 60-90-km, in turn, are needed by artillery units for tactical over-the-hill surveillance in high-altitude areas. If they perform well, the Army will go in for larger numbers," a source said. These RPAS are different from the loitering munitions or kamikaze drones and the autonomous surveillance and armed drone swarms (A-SADS) also being procured by the 12-lakh strong Army, as was reported by TOI last month. Army chief General Manoj Pande recently said "a significant level" of border infrastructure has been developed in the forward areas of eastern Ladakh over the last two years, which included habitats for 35,000 troops as well as garages for 450 tanks and other armoured vehicles, and 350 artillery systems and howitzers. The artillery systems deployed in the 30-month standoff range from old 105mm field guns and Bofors howitzers and the 'upgunned' Dhanush and Sharang guns to the new M777 ultra-light howitzers and K-9 Vajra self-propelled tracked guns. They also include the indigenous Pinaka multi-launch rocket systems as well as similar Russian-origin Smerch and Grad units. While the artillery guns have strike ranges from 30 to 40-km, the rockets can go up to 90-km.

"The new RPAS with dayand-night capability are consequently needed by forward observation posts to look deeper and then direct, correct and analyse artillery fire. An indigenous LORROS (long range reconnaissance and observation system) is also about to begin trials. The existing Israeli Lorros were inducted two decades ago," the source said. The Army said the new man-portable mini-RPAS, with an allup weight of 15-kg, should have a mission range of not less than 15-km and at least 90 minutes of operational endurance. The runway-independent RPAS, in turn, should be capable of vertical take-off and landing at an altitude of 13,000-feet with a minimum

four-hour endurance. "With electro-optical payloads, the RPAS should be ideal for a dynamic sensor-shooter linkage, reducing fixed-wing launch and recovery challenges," the source said.

https://timesofindia.indiatimes.com/india/army-to-get-drones-for-precision-strikes/articleshow/94887856.cms#:~:text=A%20source%20said%20that%20the,surveillance%20in%20high%2Daltitude%20areas.

THE ECONOMIC TIMES

Fri, 14 Oct 2022

India, China Commanders' Talks on LAC Western Sector Soon

India and China on Friday announced that the next (17th) round of talks of senior army commanders would be held at an early date to resolve remaining issues along the Line of Actual Control in the western sector. The decision was taken at the 25th meeting of the working mechanism for consultation and coordination on India-China border affairs, the foreign ministry said in a statement after the WMCC talks on Friday. The Indian delegation at the talks was led by joint secretary (East Asia) from the Ministry of External Affairs. The Director General of the Boundary and Oceanic Department of the Chinese Ministry of Foreign Affairs led the Chinese delegation.

The two sides reviewed the situation along LAC in the western sector. Recalling the developments since the last meeting of WMCC in May 2022, they welcomed the disengagement in the area of Gogra-Hot Springs (PP-15) that was carried out in a phased, coordinated and verified manner between 8-12 September 2022. They noted that these steps reflected the understandings between External Affairs Minister S Jaishankar and the Chinese State Councilor and Foreign Minister Wang Yi, including at their meeting in Bali in July 2022. The two sides agreed to continue discussions through diplomatic and military channels to resolve the remaining issues along the Line of Actual Control at the earliest to create conditions for restoration of normalcy in bilateral relations, the MEA statement said.

https://economictimes.indiatimes.com/news/india/india-china-commanders-talks-on-lac-western-sector-soon/articleshow/94868494.cms

Hindustan Times

Sun, 16 Oct 2022

India-Indonesia Naval Cooperation Stepped Up Significantly: INA Krisnamurthi

Ina Krisnamurthi, ambassador of Indonesia to India & the Kingdom of Bhutan.

Indonesia has significantly stepped up naval cooperation with India, including joint exercises and port visits by warships, as part of Jakarta's focus on maritime security across the Indian Ocean, Indonesian ambassador Ina Krisnamurthi has said. With Indonesia the current president of G20 and India set to take over the position in December, Jakarta and New Delhi are working closely at the highest levels like "never before" to manoeuvre through an increasingly fluid and dynamic global scenario in the aftermath of the Ukraine war, Krisnamurthi said in an exclusive interview. "For the first time in the history of our bilateral relations, we have a very senior officer – a commodore from the navy – as the defence attaché. It is very clear that it is being further strengthened to the level that maybe in one or two years, we will have a full-fledged defence attaché here with (officers from) the air force and army.

Now we are strengthening cooperation with the navy first," she said. For the first time, India and Indonesia will conduct two joint exercises in 2022, instead of just one wargame, and there have been about six port visits since March. Following a trip to Jakarta by India's national security adviser, Indonesia's coordinating minister will visit India soon, she said. Krisnamurthi said the issue of enhancing security cooperation with India was postponed for too long because of Indonesia's earlier focus on the Pacific Ocean. "I think we need to take care of the Indian Ocean more...in cooperation with the ministry of external affairs. We also organised something with the Indian Ocean Rim Association (IORA) because we want to start thinking about more on the Indian Ocean, not only as passing through Suez [or] Africa...it really needs to be dealt with in a very serious manner because the Indian Ocean is very substantial for us,"

she said. Amid growing concerns about the fallout of the Ukraine war affecting consensus within the G20 grouping, Krisnamurthi said India and Indonesia are working in close coordination for the bloc's upcoming summit to be held in Bali in November. "I have said that never before at the highest levels, we have had such a very close relationship on a daily basis because the global dynamics are very fluid. That is why coordination between the top management of countries such as ours is very important to manoeuvre the dynamics," she said. In the context of Indonesia's invitation to both Russian President Vladimir Putin and Ukrainian

President Volodymyr Zelenskyy to attend the G20 Summit, the envoy said the presence of both leaders at the meeting will be a sign of hope for the international community.

"I think what we want is not attendance but for everyone to sit together and think about what will happen to the world, to the management of the world...To see the leaders sit down together now, it's also a challenge," she added. "So if they come and sit together with the other leaders, that's a plus. That's hope, just to give a hope that everyone will sit at the same table, thinking about the future of the earth," Krisnamurthi said, adding that the invitation to both leaders that Indonesia and other emerging economies "remain neutral in managing a prime framework such as G20, that we set aside one issue in one certain area or certain region, and think about the future of the earth."

All the key preparatory meetings held ahead of the G20 Summit have ended without joint statements or consensus outcomes because of differences over the Ukraine war, though Krisnamurthi said implementation of policies is more important than consensus. "Consensus outcome is one thing, but first, continuity of discussions on certain issues is more important than the consensus...If you remember (at) the beginning of the (Ukraine) war, the word boycott was used by some, (but) it didn't happen. That's a positive way of looking at what happened with our presidency...I think consensus in joint communiqués is not as important as implementation of the policy itself," she said.

https://www.hindustantimes.com/india-news/indiaindonesia-naval-cooperation-stepped-up-significantly-ina-krisnamurthi-101665927358064.html

THE HINDU

Sun, 16 Oct 2022

Russia Joins Race to Supply Light Battle Tanks to Indian Army

Russia will field its Sprut-SDM1 light amphibious tank for the Indian Army's upcoming tender for light tanks and has submitted technical details of the same, according to an official from Rosoboronexport. "In response to India's request, we have submitted our technical proposals. We are ready to hold consultations and show the tank to the Indian side," a Rosoboronexport official said ahead of the DefExpo to be held from October 18 to 22 in Gandhinagar. Stating that Rosoboronexport will definitely take part in the Indian tender for the supply of light tanks, the official stated, "We are ready to transfer technologies and provide assistance in launching the manufacture of the tank in India." Following the standoff with China in eastern Ladakh, the Indian Army is prioritising the procurement of a light tank, named 'Zorawar', for deployment in the mountains. In April 2021, the Army had issued a Request For Information (RFI) for the procurement of 350 light tanks weighing less than 25 tonnes in a phased manner, along with performance-based logistics, niche technologies, engineering support package, and other maintenance and training requirements.

The project, which has already received in-principle approval, is planned to be procured under the 'Make-I' acquisition category of the Defence Acquisition Procedure (DAP)-2020, in line with the 'Make in India' initiative. The Acceptance of Necessity (AoN) from the Defence Acquisition Council is expected shortly. The Defence Research and Development Organisation (DRDO) and Larsen & Toubro (L&T) are jointly developing a light tank as per the Army's specifications.

Light amphibious combat vehicle

Talking of the features of the Sprut-SDM1, the Rosoboronexport official said it was the only light amphibious combat vehicle in its class having firepower of a main battle tank and equipped with a 125 mm tank gun. "All the ammunition produced in India for T-72M1 and T-90S tanks can be used by the Sprut-SDM1," he stated. The Sprut can cross water obstacles and fire its gun while afloat, disembark from a ship, operate day and night on terrain — in the high mountains in conditions of thin air, at very high and low temperatures, the official elaborated. The tank is equipped with a guided missile system designed to defeat armoured targets, including those equipped with ERA, at ranges up to 5 km, he added. As reported by The Hindu earlier, in the last two years China has deployed the third-generation modern light tank ZTQ 15 (Type 15), latest ZTL-11 wheeled Armoured Personnel Carriers and the CSK series of assault vehicles along the Line of Actual Control (LAC) in eastern Ladakh.

https://www.thehindu.com/news/national/russia-has-submitted-technical-proposals-on-light-tank-for-indian-armys-tender-official/article66018004.ece

The EurAsian Times

Fri, 14 Oct 2022

Ukraine Eyes Indian Co-Developed Air Defence System to Counter Russia's 'Missile Rain' & Iranian Drones

Armed Forces of Ukraine (AFU) admit being overwhelmed by the barrage that their existing Soviet-era Buk and S-300 AD platforms cannot tackle. Israel has, however, been reported to be unwilling to transfer its drones and missiles, fearing a backlash in Syria where Russia might give a free hand to Iranian militias and Syria's Syrian Arab Army (SAA). Israel and Russia have a deconfliction mechanism in Syria where both are on opposite sides in the 11-year-old civil war.

Current State of Ukrainian Air Defences

While Ukraine has successfully shot down several Russian missiles and jets like the Su-35, Su-37, Su-35, and Su-25, many of these have been with the help of Man Portable Air Defence Systems (MANPADS). These are Soviet-era Igla, US-made Stinger missiles, and the tracked 9K35 'Strela,' which cannot shoot down smaller and more unpredictable land attack cruise missiles (LACM) like the 3M54 Kalibr and the X-101 and X-555. The bigger Russian jets themselves become MANPAD targets since they fly low to avoid the larger AD systems and the military dynamics of the war that do not yet require high-altitude bombing. Russian cruise missiles are being fired from warships in the Black Sea and Tu-22M and Tu-95 strategic bombers. Russia has also not seemed to have used its tactical battlefield missile, the 9K720 Iskander, in the present missile strike phase. Iskanders are even harder to detect and intercept, according to unnamed AFU officers in earlier reports.

President Volodymyr Zelenskyy's last G7 virtual summit, where he asked Europe and NATO for an "air shield" to stop Russia, coincided with Germany's delivery of its highly advanced

Iris-T surface-to-air missile (SAM) system. The United States is also expediting the sale of its National Advanced Surface-to-Air Missile System (NASAMS). But until then, the larger Ukrainian AD systems may not last, which have been managing to move around and keep changing positions in the countryside at the cost of leaving the cities unprotected. Worst, Ukraine is now solely depending on foreign weapons, ammunition, and missiles, having all its defense industry knocked out by similar Russian long-range missile strikes at the beginning of the war. On the first day of the Russian missile attacks on Monday, Ukrainian AD took down more than half of the 80 projectiles. AFU then claimed only eight out of 28 missiles hit their targets on day 2. But ordnance stocks are liable to be depleted, and Russia is capable of continuing to manufacture more with its advanced defense industry.

Ukraine Wants Indo-Israeli Missile System

According to a New York Times report, Ukraine has also asked Israel for air defense systems with Iron Dome and Barak-8 platforms being identified by Kyiv.Barak-8 has been a collaborative effort between the Israeli Aerospace Industries (IMI) and the Defence Research Development Organization (DRDO) of India. It is a different matter that the Iron Dome has long been pointed to be ineffective to the far more sophisticated Russian missiles. This is compounded by the larger geographical size of Ukraine and the greater number of radars and sensors that would need to be deployed. Also called the Medium Range Surface-to-Air Missile System (MR-SAM) meant for the Indian Air Force, the Barak-8 was originally co-developed with Israel for the Indian Navy under the designation Long Range Surface-to-Air Missile System (LR-SAM).

It was inducted by the Indian Air Force in September last year, while it is already installed on board frontline destroyers and frigates of the Indian Navy (IN). Israeli firm Rafael Advanced Defence Systems, Bharat Electronics Limited (BEL), Bharat Dynamics Limited, and Larsen and Toubro are some other firms involved in the project. It can destroy jets, missiles, helicopters, and drones at a range of 70 km. While India has developed the solid-fuelled rocket motor/propulsion system and thrust vector controls, Israel has developed the electronics seeker that guides the missile in its terminal phase, critical avionics, electronics, and command and control (C2) system. The missile can receive and process continuous updates on the position and flight trajectory of the target and use these updates to adjust its own flight to best intercept and destroy the target.

The naval LRSAM functions in consonance with the Israeli-developed MF-Star multifunction radar and provides point-and-area air defense. The agreement to co-develop the project was signed between India and Israel in January 2007, with several tests of the LR-SAM and MR-SAM conducted between December 2015 to March 2022.

https://eurasiantimes.com/ukraine-eyes-indian-missiles-defence-system-to-counter-russias/

THE ECONOMIC TIMES

Mon, 17 Oct 2022

South Korea Kicks off Military Drills Amid Talk of North Korean Nuclear Test

South Korea's troops kicked off their annual Hoguk defence drills on Monday, designed to boost their ability to respond to North Korea's nuclear and missile threats amid simmering tension over both sides' military activities. The drills, due to end on Saturday, are the latest in a series of military exercises by South Korea in recent weeks, including joint activities with the United States and Japan. The latest field training came as North Korea has been carrying out weapons tests at an unprecedented pace this year, firing a short-range ballistic missile and hundreds of artillery rounds near the heavily armed inter-Korean border on Friday. Pyongyang has angrily reacted to the South Korean and joint military activities, calling them provocations and threatening countermeasures. Seoul says its exercises are regular and defence-oriented.

Joined by some U.S. forces, the South Korean troops will focus on maintaining readiness and improving the troops' ability to execute joint operations during the Hoguk drills, the South's Joint Chiefs of Staff said. "The forces will conduct real-world day and night manoeuvres simulated to counter North Korea's nuclear, missile and other various threats, so that they can master wartime and peacetime mission performance capabilities and enhance interoperability with some U.S. forces," it said in a statement. Last week, tensions flared after the North fired a missile, shot more than 500 artillery shells and flew a multitude of warplanes near the skirmish-prone sea border. Seoul condemned Pyongyang and imposed its first unilateral sanctions in nearly five years, describing the moves as a violation of a 2018 bilateral military pact banning "hostile acts" in the border area.

But the North accused the South's military of escalating tension with its own artillery firing. South Korean lawmakers have said the North has completed preparations for what would be its first nuclear test since 2017, and might conduct it between China's key ruling Communist Party congress, which began on Sunday, and the Nov. 7 U.S. midterm elections. But some analysts do not expect any tests before the Chinese congress ends.

https://economictimes.indiatimes.com/news/defence/south-korea-kicks-off-military-drills-amid-talk-of-north-korean-nuclear-test/articleshow/94905169.cms

the pioneer

Sat, 15 Oct 2022

North Korea Fires Missile, Artillery Shells, Inflaming Tensions

North Korea fired a ballistic missile and hundreds of artillery shells toward the sea Friday and flew warplanes near the tense border with South Korea, further raising animosities triggered by the North's recent barrage of weapons tests. The North Korean moves suggest it is reviving an old playbook of stoking fears of war with provocative weapons tests before it seeks to win greater concessions from its rivals. South Korea's Joint Chiefs of Staff said in a statement the short-range missile lifted off from the North's capital region at 1:49 a.M. Friday (1649 GMT Thursday; 12:49P.M. EDT Thursday) and flew toward its eastern waters. It was North Korea's 15th missile launch since it resumed testing activities Sept. 25.

North Korea said Monday its recent missile tests were simulations of nuclear strikes on South Korean and U.S. Targets in response to their "dangerous" military exercises involving a U.S.Aircraft carrier. Soon after the latest missile test, North Korea fired 130 rounds of shells off its west coast and 40 rounds off its east coast. The shells fell inside maritime buffer zones the two Koreas established under a 2018 inter-Korean agreement on reducing tensions, South Korea's military said. On Friday afternoon, South Korea's military said North Korea fired 90 additional shells off its east coast. It said it also spotted about 300 other North Korean artillery launches from two separate western coastal areas.

https://www.dailypioneer.com/2022/world/north-korea-fires-missile--artillery-shells--inflaming-tensions.html

THE HINDU

Sat, 15 Oct 2022

Pakistan with N-Weapons without Cohesion is 'One of the Most Dangerous Nations in the World': President Biden

U.S. President Joe Biden has said Pakistan is "one of the most dangerous nations in the world" as it has "nuclear weapons without cohesion". "… And what I think is maybe one of the most dangerous nations in the world: Pakistan. Nuclear weapons without any cohesion," Mr. Biden said. The U.S. president's remarks at the reception of the governing party were made in the context of the changing geopolitical situation globally. The West has expressed concern over the safety and security of Pakistan's nuclear weapons. Many in the West are worried that Pakistan's nuclear weapons could fall into the hands of terrorists or jihadi elements."Ever since May 1998, when Pakistan first began testing nuclear weapons, claiming its national security demanded it, American presidents have been haunted by the fear that Pakistan's stockpile of nukes would fall into the wrong hands.

That fear now includes the possibility that jihadis in Pakistan, freshly inspired by the Taliban victory in Afghanistan, might try to seize power at home," Marvin Kalb, a nonresident senior fellow with the Foreign Policy programme at Brookings wrote last year. The top U.S. general Mark Milley had warned that a rapid withdrawal of forces from Afghanistan would pose an increased risk to the security of Pakistan's nuclear arsenal. In his speech, Mr. Biden said the world was changing rapidly and countries were rethinking their alliances."And the truth of the matter is — I genuinely believe this — that the world is looking to us. Not a joke. Even our enemies are looking to us to figure out how we figure this out, what we do." There was a lot at stake, Biden said, emphasising that the U.S. had the capacity to lead the world to a place it had never been before. "Did any of you ever think you'd have a Russian leader, since the Cuban Missile Crisis, threatening the use of tactical nuclear weapons that would — could only kill three, four thousand people and be limited to make a point?.

In a televised speech in September, Russian President Vladimir Putin said he would "certainly use all the means at our disposal to protect Russia and our people." He added that he was not bluffing. "Did anybody think we'd be in a situation where China is trying to figure out its role relative to Russia and relative to India and relative to Pakistan?" Talking about his Chinese counterpart Xi Jinping, the U.S. president termed him as a man who knew what he wanted but had an "enormous" array of problems. Earlier this month, the U.S. urged its citizens to reconsider travel to Pakistan, especially its restive provinces, due to terrorism and sectarian violence. Earlier this week, it emerged that Pakistan, once a key U.S. ally, was not even mentioned in the U.S. National Security Strategy 2022, which identified China as "America's most consequential geopolitical challenge". The 48-page document does mention terrorism and other geo-strategic threats in the South and Central Asian region, but unlike in the recent past, it does not name Pakistan as an ally needed to tackle those threats. Pakistan was also absent from the 2021 strategy paper.

A formerly warm relationship between the U.S. and Pakistan frayed due to Pakistan's support for the Taliban in Afghanistan and the presence of large numbers of Jihadi militants on its soil. Americans have been particularly upset with Pakistan since 2011, after al Qaeda founder Osama bin Laden was found and killed there. After a hiatus of a few years, Pakistan and the United States have started to re-engage. Over the past few weeks, Pakistani Foreign Minister Bilawal Bhutto Zardari met with U.S. Secretary of State Antony Blinken and Chief of Army Staff General Qamar Javed Bajwa met with Secretary of Defense Lloyd Austin.

https://www.thehindu.com/news/international/pakistan-with-n-weapons-without-cohesion-is-one-of-the-most-dangerous-nations-in-the-world-president-biden/article66013684.ece

Science & Technology News

NEWS18

शनिवार, 15 अक्टूबर 2022

ISRO का सबसे भारी रॉकेट GSLV MK3 पहली कमर्शियल उड़ान के लिए तैयार, 23 अक्टूबर को होगा लॉन्च

भारतीय अंतरिक्ष एजेंसी ISRO ने रॉकेट जीएसएलवी एमके3 को लेकर बड़ी घोषणा की है. ISRO अपने इस सबसे भारी रॉकेट की पहली व्यावसायिक उड़ान को लॉन्च करने जा रहा है. इसी क्रम में इसरो 23 अक्टूबर को सुबह 7 बजे आंध्र प्रदेश के श्रीहरिकोटा से सैटेलाइट संचार कंपनी वनवेब के साथ 36 सैटेलाइट को लॉन्च करने के लिए तैयार है. इसके लॉन्च के साथ ही GSLV MK3 ग्लोबल कमर्शियल लॉन्च सर्विस मार्केट में प्रवेश कर जाएगा.

ISRO का सबसे भारी रॉकेट GSLV MK3 23 अक्टूबर को अपनी पहली कमर्शियल उड़ान पर निकलेगा. (फोटो ISRO)

इंडियन एक्सप्रेस के अनुसार एक ट्वीट में इसरो ने कहा कि LVM3 – M2 / OneWeb India-1 मिशन के लॉन्च का समय 23 अक्टूबर 2022 को सुबह 7 बजे है. क्रायो स्टेज इक्विपमेंट बे (ईबी) असेंबली पूरी हो गई

है. उपग्रहों को इनकैप्सुलेट किया गया है और वाहन में असेंबल किया गया है. अंतिम वाहन जांच प्रगति पर है. इसरो इस प्रक्षेपण को न्यूस्पेस इंडिया लिमिटेड (इसरो की वाणिज्यिक शाखा) और यूके स्थित लो अर्थ ऑर्बिट सैटेलाइट संचार कंपनी वनवेब के बीच एक अनुबंध के हिस्से के रूप में कर रहा है. अंतरिक्ष एजेंसी ने लॉन्च देखने के लिए लोगों के लिए व्यूइंग गैलरी भी खोली है. कोरोना महामारी के बाद यह पहली बार किया जा रहा है कि लोगों को लॉन्च देखने के लिए मौका मिला है.

भारत के सबसे भारी रॉकेट लॉन्च को यूनाइटेड किंगडम स्थित नेटवर्क एक्सेस एसोसिएटेड लिमिटेड द्वारा न्यू स्पेस इंडिया लिमिटेड के माध्यम से खरीदा गया था. भारती समूह समर्थित वनवेब ब्रॉडबैंड सेवाएं प्रदान करने के लिए पृथ्वी के ऑर्बिट में उपग्रहों का एक समूह है. यह पहली बार है जब भारत के सबसे भारी रॉकेट को कमर्शियल प्रक्षेपण के लिए इस्तेमाल किया जा रहा है. इसके अलावा, यह पहली बार होगा जब भारत के वर्कहॉर्स पोलर सैटेलाइट लॉन्च व्हीकल (PSLV) के अलावा किसी रॉकेट का इस्तेमाल कमर्शियल लॉन्च करने के लिए किया जा रहा है. वर्तमान में भारत के पास तीन परिचालन प्रक्षेपण वाहन हैं – पीएसएलवी, जीएसएलवी, और जीएसएलवी एमके 3. अंतरिक्ष एजेंसी ने एक छोटा उपग्रह प्रक्षेपण यान भी विकसित किया है, जिसकी पहली उड़ान इस साल की शुरुआत में आंशिक सफल रही थी.

https://hindi.news18.com/news/nation/isros-heaviest-rocket-gslv-mk3-ready-for-first-commercial-flight-to-be-launched-on-23-october-4747005.html

INDIA TODAY

Sat, 15 Oct 2022

ISRO Moves Rocket with 36 OneWeb Satellites to Pad, Launch on Oct 23

The Indian Space research Organisation (ISRO) has finally rolled out the Launch Vehicle Mark-III on the pad for the launch of the OneWeb satellite constellation. The launch is scheduled for October 23 late at 12:07 am from Satish Dhawan Space Centre in Sriharikota. Isro has re-designated the GSLV-MkIII to LVM-3 since the rocket will not be depositing the satellites in the geosynchronous orbit, but instead in the Low Earth Orbit. The launch is part of two launch service contracts with M/s Network Access Associated Limited (M/s OneWeb) to launch the satellites. The agreement was signed between OneWeb and India's New Space India Limited (NSIL) after Russian denied launch services to the United Kingdom over sanctions from western countries following its invasion of Ukraine. The Soyuz rocket was rolled out on the launch at the Russia-operated Baikonur Cosmodrome in Kazakhstan when the Russian space agency laid out demands in front of the UK government in order to launch the satellite.

The demands included a guarantee that OneWeb satellites will not be used for military purposes, and that the UK government withdraw as a shareholder from OneWeb. OneWeb has since then

partnered with not only the Indian space agency but also its rival SpaceX for launch services. The satellites arrived in India late last month after which work on their integration has been ongoing. The company in a release said that with this launch, OneWeb will have more than 70 per cent of its planned Gen 1 Low Earth orbit (LEO) constellation in orbit as it progresses to deliver high-speed, low-latency connectivity services around the world. "It is the first LVM3 dedicated commercial launch on demand through NSIL. This contract with M/s OneWeb is a historic milestone for NSIL and ISRO, as LVM3, is making its entry into the Global commercial launch service market," ISRO has said.

https://www.indiatoday.in/science/story/isro-moves-lvm-3-with-36-oneweb-satellites-to-pad-launch-on-oct-23-2285803-2022-10-15

Hindustan Times

Fri, 14 Oct 2022

Next Generation Innovations Take Centre Stage at IIT Meet

"The world today will invest more vigorously in India. India's talent, digital-first attitude, market size, emerging purchasing power and growing aspirations is a heady mix to take India forward at an unprecedented speed and scale. Our IITs should seize this opportunity," Union education minister Dharmendra Pradhan said. From drones that can carry upto 10 kg of weight to innovative devices for people with disabilities, affordable prosthetic limbs to smart vending carts, environment-friendly batteries to real time flood forecasting portal – these were among 80 research and development (R&D) innovations which were showcased at a fair collectively organised by 23 Indian Institutes of Technology (IITs) here on Friday. Inaugurated by Union education minister Dharmendra Pradhan, the two-day event titled 'IInvenTiv' is the first ever all-IITs R&D showcase. It is being organised to mark 75 years of Independence, in line with the Centre's Azadi ka Amrit Mahotsav initiative.

In his inaugural speech, Pradhan stressed that technology will drive the next phase of growth and development with information technology and communications technology among the frontrunners. "The world today will invest more vigorously in India. India's talent, digital-first attitude, market size, emerging purchasing power and growing aspirations is a heady mix to take India forward at an unprecedented speed and scale. Our IITs should seize this opportunity," he said. The Covid-19 pandemic has shown the people what happens when technology-driven research commits itself to the service of the human race, he said.

Citing the development of Indian vaccines within a short period to stress that it not only benefitted Indians but millions of people around the world, he said: "It has all been possible because of brilliant minds like yours." These are the signs of an 'Aatmanirbhar Bharat', he noted. The projects that were on display covered diverse themes such as defence and aerospace, healthcare, environment and sustainability, clean energy and renewables, manufacturing, communication technologies, robotics and sensors and semiconductors. Among innovations showcased by IIT-Delhi were replacement of diesel generators with vanadium redox flow

battery, 3D bioprinted skin disease models, smart public transport toolkit and continuous electrospinning machine.

"A prototype of the vanadium redox flow battery (VRFB) has been installed in IIT-Delhi for charging mobile gadgets as product validation in the real environment. A VRFB-based electric vehicle charging station is being developed for 2W/3W electric vehicles plying in IIT-Delhi. It can replace diesel generators for a clean and sustainable environment," Anil Verma, a professor at chemical engineering department at IIT-Delhi, and innovator of the VRFP system project, said. The institute also showcased technological innovation with social impact such as a 'smartcane device' to provide audio clues to visually-challenged persons and help them detect route number of buses, and 'DotBook' that is also known as India's first braille laptop.

"The laptop provides line-by-line output of textual content in electrical Braille. It also has built-in applications for creating documents, web browsing, emailing, reading books and more," Pulkit Sapra, an IIT-D alumni and a member of the team working on the startup 'Assistech' at the institute, said. IIT-Kanpur's startup 'EndureAir' that prepares drones was a major attraction at the event on Friday. The startup has two types of drones – VIBHRAM and ORBIT. While VIBHRAM is for surveillance and security purposes, ORBIT can carry upto 10 kg of weight and can be used for logistic delivery, according to Abhishek, an associate professor at department of aerospace at the institute. "This (ORBIT) can also be used to spray pesticides in the fields. It can fly upto two hours at a stretch," he said.

A smart vending cart by Rural Technology Action Group (RuTAG), which is centred in seven IITs – in Delhi, Mumbai, Madras, Guwahati, Roorkee, Kanpur and Kharagpur – also attracted many visitors. The cart has various versions developed by the IITs. For instance, the one

displayed at IIT-Bombay helps in reducing food wastage, provides better hygiene and increases the shelf life of food products by 48 hours, according to a poster pasted on the cart that was on display at the event. The product is also supported by the ministry of panchayati raj and office of the principal scientific adviser of Government of India.

IIT-BHU, Varanasi, showcased an 'Affordable Myoelectric Prosthetic Hand'. "This project mainly proposes an affordable and fully functional myoelectric prosthetic hand that will fulfil the basic needs of a transradial amputee with minimum number of training sessions," Neeraj Sharma, an official from the institute, said. Meanwhile, IIT-Kharagpur showcased 'COVIRAP', a device for affordable and rapid diagnostics of infectious diseases. Initially developed for Covid-19 testing, the device can now be used to diagnose any infectious disease. "Being a platform technology, the device can be adapted to detecting any bacterial, viral or parasitic infection, simply by pre-programming the testing protocol in the portable thermal unit.

This will emerge as a preferred substitute of common rapid tests that often compromise the detection accuracy. This will be ideal for implementation in Educational Institutions and other Community Centers for extensive disease screening and infection management at the grassroot level," said professor Suman Chakrobarty from the institute. The event brought over 300 representatives from industries, including startups, along with government and embassy officials and global IIT-alumni, according to a statement by the education ministry.

https://www.hindustantimes.com/india-news/next-generation-innovations-take-centre-stage-at-iit-meet-101665770486458.html

The Indian EXPRESS

Mon, 17 Oct 2022

Securing India's Cyberspace from Quantum Techniques

***By** Arjun Gargeyas **,** Sameer Patil*

Last month, there were reports that the Indian Army is developing cryptographic techniques to make its networks resistant to attacks by systems with quantum capabilities. The Army has collaborated with industry and academia to build secure communications and cryptography applications. This step builds on last year's initiative to establish a quantum computing laboratory at the military engineering institute in Mhow, Madhya Pradesh. With traditional encryption models at risk and increasing military applications of quantum technology, the deployment of "quantum-resistant" systems has become the need of the hour. This requires upgrading current encryption standards that can be broken by quantum cryptography. Current protocols like the RSA will quickly become outdated. This means that quantum cyberattacks can potentially breach any hardened target, opening a significant vulnerability for existing digital infrastructure. Hack proofing these systems will require considerable investments.

This is a challenge that India will have to proactively deal with as cyber risks arising from quantum computing are accentuated by the lead taken by some nations in this sector. For example, the US National Quantum Initiative Act has already allocated $1.2 billion for research in defence-related quantum technology. Particularly worrying for India is the fact that China now

hosts two of the world's fastest quantum computers. India is getting there slowly but steadily. In February 2022, a joint team of the Defence Research and Development Organisation and IIT-Delhi successfully demonstrated a QKD link between two cities in UP — Prayagraj and Vindhyachal — located 100 kilometres apart. China's quantum advances expand the spectre of quantum cyberattacks against India's digital infrastructure, which already faces a barrage of attacks from Chinese state-sponsored hackers. India's dependence on foreign, particularly Chinese hardware, is an additional vulnerability. The question then arises: How to make India's cyberspace resilient?

In 2019, the Centre declared quantum technology a "mission of national importance". The Union Budget 2020-21 had proposed to spend Rs 8,000 crore on the newly launched National Mission on Quantum Technologies and Applications. This has to be complemented by a strong focus on securing cyberspace from quantum attacks. Currently, India has very few capabilities in developing advanced systems capable of withstanding quantum cyberattacks. India must consider procuring the United States National Security Agency's (NSA) Suite B Cryptography Quantum-Resistant Suite as its official encryption mechanism. The NSA is developing new algorithms for their cypher suite that are resistant to quantum cyberattacks. This can then facilitate India's official transition to quantum-resistant algorithms.

The Indian defence establishment can consider emulating the cryptographic standards set by the US's National Institute of Standards and Technology (NIST) which has developed a series of encryption tools to handle quantum computer attacks. It has developed a series of four algorithms to frame a post-quantum cryptographic standard. After adopting these technical steps, India must start its national initiatives to develop quantum-resistant systems. For this, the government can fund and encourage existing open-source projects related to post-quantum cryptography along with active participation in the Open Quantum Safe project — a global initiative started in 2016 for prototyping and integrating quantum-resistant cryptographic algorithms.

Two, the country should start implementing and developing capabilities in quantum-resistant communications, specifically for critical strategic sectors. QKDs over long distances, especially connecting military outposts for sensitive communications, can be prioritised to ensure secure communications whilst protecting key intelligence from potential quantum cyberattacks. Eventually, this can help establish a nationwide communication network integrated with quantum cryptographic systems, thereby protecting cyberspace from any cross-border quantum cyber offensive. Finally, diplomatic partnerships with other "techno-democracies" — countries with top technology sectors, advanced economies, and a commitment to liberal democracy — can help India pool resources and mitigate emerging quantum cyber threats. The world is moving towards an era in which the applications of quantum physics in strategic domains will soon become a reality, increasing cybersecurity risks. India needs a holistic approach to tackle these challenges. At the heart of this approach should be the focus on post-quantum cybersecurity.

https://indianexpress.com/article/opinion/columns/securing-indias-cyberspace-must-take-steps-to-tackle-newest-threat-8212744/