अगस्त
Aug
2023

खंड/Vol. : 48 अंक/Issue : 156

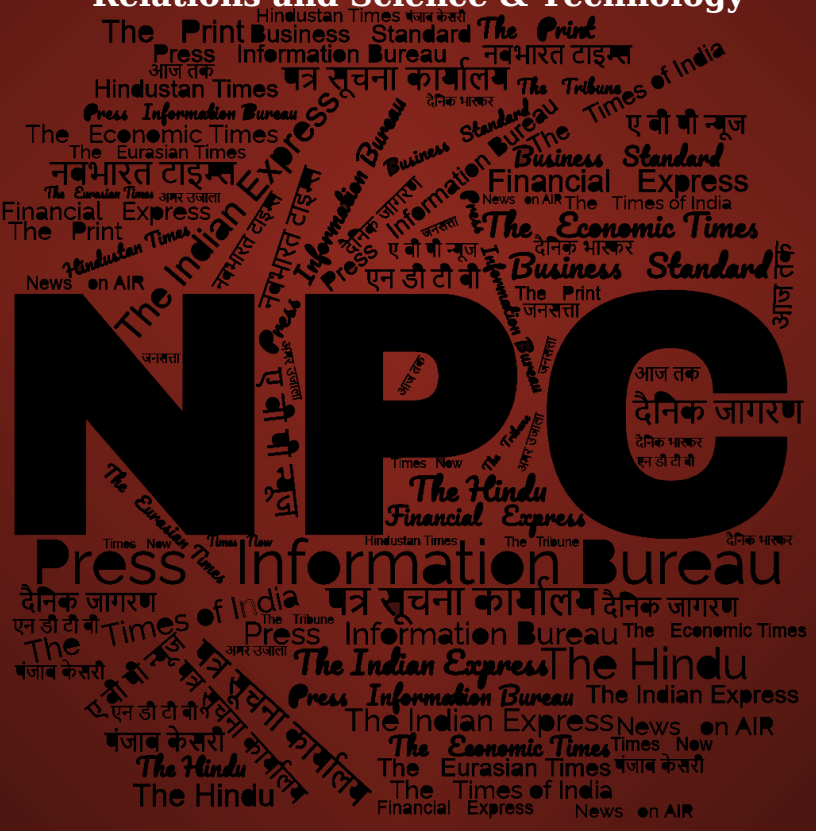
18/08/2023

समाचार पत्रों से चयित अंश

Newspapers Clippings

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

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



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

Thu, 17 Aug 2023

IIT Delhi और DRDO ने बनाई दुनिया की सबसे हल्की बुलेटप्रूफ जैकेट

भारत ने 15 साल की रिसर्च के बाद आखिरकार दुनिया की सबसे हल्की बुलेटप्रूफ जैकेट बनाने में सफलता हासिल की है. इस बुलेटप्रूफ जैकेट की खासियत यह है कि यह स्नाइपर के छह शाट्स भी झेल सकती है. भारतीय प्रोद्योगिकी संस्थान दिल्ली (IIT Delhi) और रक्षा अनुसंधान एवं विकास संगठन (DRDO) के सहयोग से यह बुलेटप्रूफ जैकेट तैयार की गई है.

प्रोफेसर नरेश भटनागर ने बताया कि, "सन 2008 में हमारे पास एक मेजर साहब आए जिनको खुद गोली लगी थी. वे बोले कि हमें लाइटवेट बुलेटप्रूफ जैकेट चाहिए क्योंकि अभी जो हम पहन रहे हें वह 25 किलो की है और लोहे की है." उक्त बातचीत के 15 साल बाद गुरुवार को आखिरकार हल्की बुलेटप्रूफ जैकेट बनाने में आईआईटी दिल्ली और डीआरडीओ को कामयाबी मिल गई.

स्नाइपर राइफल की गोलियां जैकेट को भेद नहीं सकीं

दो बुलेटप्रूफ जैकेटों को देखने पर पता चला कि एक में स्नाइफर राइफल की 6 गोलियां लगी हैं, फिर भी जैकेट को भेद नहीं सकी हैं. दूसरी बुलेटप्रूफ जैकेट में AK47 की 8 गोलियां लगीं लेकिन इसे भेद नहीं सकीं. जबकि स्नाइफर गोली के लिए बनी जैकेट महज 9.5 किलोग्राम और AK47 के लिए बनी जैकेट 8.2 किलोग्राम की है.

आईआईटी में Personel Body Armour सेंटर के प्रोफेसर डॉ नरेश भटनागर ने बुलेटप्रूफ जैकेट दिखाते हुए बताया कि सेरेमिक और पॉलिमर मैटेरियल से इस बुलेटप्रूफ जैकेट को तैयार किया गया है. डॉ नरेश भाटिया ने बताया कि, इस जैकेट को बनाने में इंटरफेस साइंस का सहारा लिया गया है, ताकि गोली भेद न पाए.

गैस से फायर करके जैकेट की टेस्टिंग

इन बुलेटप्रूफ जैकेट को टेस्टिंग लैब में टेस्ट किया गया है. आईआईटी के Armour testing lab में एक Single stage gas gun रखी हुई मिली, जो कि हर तरह की गोली को बारूद से नहीं बल्कि गैस से फायर करके टेस्ट करती है. सीनियर साइंटिस्ट डॉ हेमंत चौहान ने कहा, "हम गैस प्रेशर से सारी बैलेस्टिक बुलेट को फायर करते हैं. इसमें बैरेल है और फिर चैंबर अंडर वैक्यूम है..हम इंटर्नल टेस्ट करते हैं."

हाईस्पीड कैमरे की फुटेज में दिखाई दिया कि गोली बुलेटप्रूफ जैकेट को भेद नहीं पाती है. इस बुलेटप्रूफ जैकेट को BIS की मंजूरी मिल चुकी है. IIT ने उम्मीद जताई है कि जल्द ही ये बुलेटप्रूफ जैकेट सैनिकों की जान बचाने की कोशिश में अहम भूमिका निभाएगी.

https://ndtv.in/india/iit-delhi-and-drdo-made-the-worlds-lightest-bulletproof-jacket-4305822

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Thu, 17 Aug 2023

Launch of Y - 3024 (VINDHYAGIRI)

Vindhyagiri, the sixth Stealth Frigate of Project 17A being built at GRSE, was launched today at the shipyard by the Hon'ble President of India, Smt Droupadi Murmu. As Vindhyagiri descended into the waters of river Hoogly, a wave of euphoria swept across the gathering. Dignitaries, Naval personnel, Shipbuilders, and spectators were united in their heartfelt applause, in admiration of the vessel and the team behind her creation. Shri CV Ananda Bose, Hon'ble Governor of West Bengal, Ms Mamata Banerjee Chief Minister of West Bengal, Shri Ajay Bhatt Raksha Rajya Mantri, Admiral R Hari Kumar, Chief of Naval Staff, other senior officers from the Indian Navy and MoD, were amongst the several dignitaries who attended the launch ceremony.

M/s GRSE has established itself as a reliable partner of the Indian Navy, with a record of multiple successful conventional launches in the past. Vindhyagiri's launch is yet another milestone in the illustrious journey of the Shipyard, reflecting its commitment to deliver quality warships. Following the launch, 'Vindhyagiri' will join its two sister ships at the Outfitting Jetty at GRSE, to progress remaining activities and equipment trials, in the run up to their delivery and commissioning.

Project 17A Frigates are the follow-on class of the Project 17 (Shivalik Class) Frigates, with improved stealth features, advanced weapons & sensors and platform management systems. Seven Project 17A Frigates are under various stages of construction at MDL and GRSE. The design of Advanced Stealth Frigates also showcases the prowess of the Warship Design Bureau, in designing technologically advanced warships for the Indian Navy. With the launch, the Nation's indigenous expertise and engineering capabilities receives a major boost, reducing India's dependence on foreign suppliers, promoting self-reliance and fostering a robust defence industrial base. Over 75% of the orders of Project 17A, have been placed on indigenous firms including MSMEs, keeping in line with the Government's vision of 'Aatma Nirbhar Bharat'. Economic development, employment generation, growth of MSMEs and ancillary industry in the country, are positive spin offs of the shipbuilding project.

During the event, the Hon'ble President of India conveyed her profound satisfaction and heartfelt appreciation for the remarkable achievements of the Warship Design Bureau and other Naval Teams, for fulfilling the nation's aspiration of self-reliance in warship building. She also lauded GRSE for its unwavering commitment and steadfast support to warship production. The shipyard effort, has significantly enabled the Indian Navy to successfully execute its ship induction plan and emerge as a formidable force in the Indian Ocean Region. Emphasising the significance of the

newly christened 'Vindhyagiri,' she hoped that as Vindhyagiri touches the waters of the mighty Hooghly for the first time, it draws strength from the very mountains it is named after, sailing with unwavering determination, upholding the values we hold dear. May this warship serve as a powerful testament of our resolve and commitment to national security, and our vision of a prosperous and secure future.

https://pib.gov.in/PressReleasePage.aspx?PRID=1949974

THE ECONOMIC TIMES

Thu, 17 Aug 2023

Seventh Stealth Frigate to be Launched Next Month

The seventh and last of the stealth frigates being built by MDL under Project 17 Alpha will be launched on September 1, Chief of Naval Staff Admiral R Hari Kumar said here on Thursday. The Navy had placed orders for seven stealth frigates, four of which went to Mazagon Dock Ltd (MDL) and three to GRSE.

"The fourth stealth frigate being built by MDL under P17A will be launched on September 1," the CNS told reporters here following the launch of the third and last stealth frigate built by GRSE under P17A by President Droupadi Murmu.

He said that various ships of the Indian Navy are under construction in 19 shipyards.

"Sixty-three ships are under construction out of which 61 are being built in India... We are giving thurst to self-reliance as per the directives of the government," Kumar said.

Noting that patrol boat INS Ajay, the first naval ship to be built in India, was by GRSE, he said that the country has come a long way from there to build various ships like landing crafts, landing ships, corvettes, frigates, destroyers and aircraft carrier.

The CNS said that the Navy wants to be fully self-reliant by 2047, just as Prime Minister Narendra Modi has set a goal for India to be 'atmanirbhar' (self-reliant) by the same year.

"All effort is being put in to ensure that we make all the warships, submarines and aircraft required for the Navy to be built in India," he said.

Describing the launch of the state-of-the-art stealth frigate 'Vindhyagiri' as a landmark event, Kumar said that the addition of the combat platform adds to the potential of the Navy and the nation.

He said that the ship is much more potent than its previous avatar - a Leander class anti-submarine warfare frigate, which was decommissioned in 2012.

"She has got all capabilities desirable of a frigate of its size," he said.

Stating that there are three components of a ship - to float, to move and to fight, the CNS said that in the first category, the country has achieved around 95 per cent indigenisation, while in the move component, which are the engines, around 65 to 70 per cent indigenisation has been achieved.

"We have taken up a case to make all these things in India - gas turbine generators, gas turbines, diesel engines of 12 megawatt and above and electric propulsion," he said.

Kumar said that India is likely to achieve a very high level of indigenisation in the move component within five to seven years. The CNS said that 55 per cent indigenisation has been achieved in the fight component and so more weapons, radars, etc are required to be made here.

A Defence official said that 75 per cent of orders for equipment and systems of P17A ships are from indigenous firms, including micro, small and medium enterprises (MSMEs).

The first five ships of the project were launched between 2019 and 2022.

https://economictimes.indiatimes.com/news/defence/seventh-stealth-frigate-to-be-launched-next-month/articleshow/102811030.cms

FINANCIAL EXPRESS
Read to Lead

Thu, 17 Aug 2023

India Strengthens Bilateral Ties by Handing Over Advanced Dornier Aircraft to Sri Lanka

In a significant display of robust bilateral ties and collaboration, the Indian Navy Dornier aircraft was officially transferred to the Sri Lanka Air Force (SLAF) during a ceremony at SLAF Base Katunayake.

The ceremonial handover was conducted by Gopal Baglay, the Indian High Commissioner to Sri Lanka, to Sagala Ratnayaka, Chief of Staff and Senior Adviser to Sri Lanka's President on National Security. The event, attended by senior officials from both air forces, accentuated the importance of this occasion.

This India-manufactured Dornier aircraft signifies a momentous milestone in the cooperative efforts of both nations. This marks the second Dornier aircraft provided to SLAF through a grant from the Indian Government. It replaces the initial Indian Navy Dornier, which served for a year and was returned to India for maintenance after its ceremonial handover to President Ranil Wickremesinghe on August 15, 2022.

The introduction of the advanced Indian Navy Dornier Maritime Reconnaissance aircraft significantly bolsters Sri Lanka's surveillance capabilities. This addition to SLAF's fleet is expected to be a substantial force multiplier, enhancing the nation's security endeavors. Indian High Commissioner Baglay emphasized India's commitment to bolstering Sri Lanka's defense capabilities, aligned with the "Security and Growth for All in the Region" (SAGAR) initiative.

The successful deployment of the Indian Navy Dornier aircraft in the past showcased its efficacy in maritime reconnaissance and search and rescue missions. It also streamlined operational procedures between the Indian Navy and the Sri Lanka Air Force.

Ratnayaka expressed gratitude for India's unwavering support, especially during challenging times. He highlighted the enduring bond between the two nations, noting India's assistance extended beyond the aircraft, particularly during an economic crisis.

The operational readiness and capabilities of the Dornier aircraft are expected to play a pivotal role in addressing shared security challenges within the region, including drug and human trafficking, smuggling, and search and rescue operations. Equipped with advanced sensor technology, the Dornier empowers the Sri Lanka Air Force to safeguard its Exclusive Economic Zone (EEZ) from maritime threats. This exchange reinforces the steadfast partnership between India and Sri Lanka in upholding regional security.

https://www.financialexpress.com/business/defence-india-strengthens-bilateral-ties-by-handing-over-advanced-dornier-aircraft-to-sri-lanka-3214059/

FINANCIAL EXPRESS
Read to Lead

Thu, 17 Aug 2023

Revolutionizing Drones: CUMI & IdeaForge Nanomaterial-Powered Future

Carborundum Universal Limited (CUMI), a trailblazer in material sciences and an integral part of the venerable Murugappa Group, has entered into a partnership with ideaForge Technology.

Together, they are creating revolutionary nanomaterial-infused composite components that will redefine the very essence of drone technology.

Nanomaterial-enriched composites, exemplified by graphene-fortified polymers, hold a transformative potential for aerospace applications, particularly in the structural domain. These innovative materials exhibit a multitude of enhanced physical attributes, including augmented mechanical strength, heightened toughness and rigidity, superior electrical and thermal conductivity, exceptional fire resistance, and an elevated resistance to moisture and gases. Beyond these attributes, nanocomposites unlock unparalleled design possibilities, unleashing a realm of potential to tailor materials precisely for designated applications. By leveraging these advanced nanomaterials, drones can be crafted to be more compact, agile, robust, and enduring, ushering in a new era of performance.

Sunil Jha, Senior Director of Engineering at ideaForge Technology, expressed his enthusiasm about this collaboration, highlighting the exhilarating prospects that nanomaterial-enriched composites bring to drones. He emphasized how these materials could redefine the landscape of airframes and related structural elements within drones. The partnership with CUMI, a pioneer with a rich legacy of innovative material science endeavors, adds another layer of excitement to this endeavor.

Subbu Venkatachalam, the Head of Marketing at Carborundum Universal Limited, commended ideaForge's strides in advancing drone technology and securing its leadership position in the Indian unmanned aerial vehicles market. He expressed confidence that the fusion of ideaForge's expertise with CUMI's profound material science knowledge will spark synergies that give birth to the next generation of drone technologies. He anticipates that this collaboration will not only invigorate the 'Make in India' movement but also open new horizons of opportunity.

Drawing upon over fifty years of experience, CUMI's Composites Manufacturing Division is poised to play a pivotal role in this venture. This division, with its invaluable expertise, is geared towards conceiving, crafting, and testing cutting-edge composite technology specifically tailored for unmanned aerial vehicles (UAVs). From CFRP (carbon fiber-reinforced polymer) tubes, panels, and landing gear to bespoke composite structural components, CUMI's dedicated facility for CFRP parts boasts a comprehensive range of manufacturing processes including vacuum infusion, vacuum bagging, Resin Transfer Moulding (RTM), Pultrusion, and Filament Winding, among others. Through this partnership, the stage is set for a revolutionary leap forward in drone technology, underpinned by the prowess of nanomaterials and the expertise of two pioneering entities.

https://www.financialexpress.com/business/defence-revolutionizing-drones-cumi-amp-ideaforge-nanomaterial-powered-future-3213322/

The Tribune

Thu, 17 Aug 2023

Russia-Ukraine War Impacts Supply of Aircraft Spares, Spurs IAF to Step up Indigenisation Efforts

The ongoing Russia-Ukraine conflict has impacted the supply chain of spare parts for aircraft, both in terms of availability of items as well as increased monetary costs, forcing the Indian Air Force to spur up its indigenisation efforts.

“The conflict has had a strong impact on the availability of spares for Russian-origin aircraft and in the bargain we have gone in for indigenisation of certain parts and components that we would not have pursued otherwise,” Air Commodore Rajeev Shrivastava, Air Officer Commanding, No.3 Base Repair Depot (BRD) said on Thursday.

Located at Chandigarh, 3 BRD is responsible for the maintenance and overhaul of Russian-origin helicopters in the IAF’s inventory and AN-32 aircraft engines as well as developing technology for the indigenous production of aero-spares.

Air Commodore Shrivastava said that the depot has already indigenised over 15,000 types of spares for the IAF’s Mi-17 series of helicopters as well as the Kamov variants in service with the Navy.

The conflict has further given an impetus to the indigenisation efforts and over the next five years, it is endeavoured to end dependence on foreign suppliers. The indigenisation of many components and complex sub-systems has been completed and many projects are at an advanced stage, he added.

The IAF has a large fleet of Mi-17 medium lift helicopters (MLH) that form the back bone of its vertical lift component. These include the older Mi-17 and the Mi-17 1V as well as the latest Mi-17 V5 variant, totaling about 270 platforms.

“The biggest challenge of the depot has been sustenance of the huge MLH fleet with limited or no support from the original equipment manufacturers in terms of supply of critical spares,” Air Commodore Shrivastava said.

“We have been mitigating the challenge through life revision studies, outsourcing, innovative in-house technology, reclamation and indigenisation in collaboration with the industry and academia,” he added.

For example, the IAF is undertaking a project with the Punjab Engineering College, Chandigarh, to develop an artificial intelligence based tool for health monitoring and preventive maintenance of Mi-17 aero-engines.

The depot, in association with Defence Research and Development Organisation and other public and private agencies, has also developed the capability to overhaul the Mi-17 V5 variant and its aggregates indigenously, for which there had been no transfer of technology from Russia.

According to IAF officers, the overhaul of a Mi-17 overseas costs about Rs 6 crore per aircraft with a time cycle of about 12 months. With indigenous capability, this is reduced to just Rs 80 lakh per aircraft with a time frame of four months.

Though the IAF began overhauling the older variants of the Mi-17 in 1992 for which Russia had then transferred technology, the project to develop indigenous technology for the 1V and V5 versions, which have different engines, avionics suits and flight parameters, began in 2019.

The Mi-17 requires to be overhauled after 2,000 flying hours or 10 years. The IAF's projected requirement is to overhaul about 30 helicopters every year, for which it is working out a plan for roping in the private sector to provide manpower, equipment and spares and execute specified tasks under its control and supervision.

https://www.tribuneindia.com/news/nation/russia-ukraine-war-impacts-supply-of-aircraft-spares-spurs-iaf-to-step-up-indigenisation-efforts-535736

Hindustan Times

Fri, 18 Aug 2023

Airbus to Deliver 1st C-295 Aircraft to IAF on September 13

The Indian Air Force (IAF) will receive the delivery of its first C-295 transport aircraft from Airbus Defence and Space at Seville in Spain on September 13, with the ceremony expected to be attended by IAF chief Air Chief Marshal VR Chaudhari, officials aware of the matter said on Thursday, asking not to be named.

This aircraft is the first of the 56 such planes ordered by IAF under a ₹21,935-crore project to modernise its transport fleet. The European plane maker will deliver the first 16 planes in flyaway condition, while the rest will be assembled in India at a Tata facility in Gujarat's Vadodara.

The delivery of the first C-295 will come two years after the defence ministry signed a contract with Airbus for 56 planes to boost self-reliance in the defence manufacturing sector. Tata Advanced Systems Limited (TASL) and Airbus are jointly executing the programme.

IAF's second C-295 is in final assembly at Airbus's Seville facility and will be delivered in May 2024, the officials said. The last of the 16 flyaway aircraft will be delivered to IAF by August 2025, while the first "made in India" C-295 will roll out of the Vadodara facility in September 2026 and the remaining 39 by August 2031.

The final assembly of the C-295 in India will involve a raft of key processes and works in predefined sequence before the fully recognisable military aircraft rolls out of the facility, the officials said. Being built on the lines of the Seville facility, the final assembly line in Vadodara will be operational in November 2024.

The assembly will involve the integration of several main components including the nose, fuselage, wings and the tail unit, and a series of key tests, the officials said. The parts that will go into building the full aircraft will be transported to Vadodara from the main constituent assembly for the C-295 set up by Tata at Hyderabad. The facility at Hyderabad became functional in July-end, and domestic production of the parts is already underway in the run-up to the production of the aircraft in Vadodara.

In October 2022, Prime Minister Narendra Modi laid the foundation stone of the Vadodara manufacturing facility. The C-295 will be the first military aircraft to be manufactured in India by a private consortium.

The final assembly in Vadodara will involve the integration of the power plant, propellers, flight controls, beam structure and cargo launching system; work related to electrical harnesses, antennas, fairings, rigging, doors, windows, and air conditioning; impermeability tests; several functional tests; and painting of the aircraft, HT has learnt. A comprehensive final inspection and several flight tests will be carried out before the planes are delivered to IAF.

Six IAF pilots and 20 technicians have thus far been trained at the Seville facility. Another 18 pilots and 60 technicians will be trained at Seville next year. The first plane will be flown to India by a four-man IAF crew, including the two pilots, and supported by an Airbus pilot and a flight engineer.

IAF will be the world's largest operator of the C-295. The aircraft was ordered as a replacement for the IAF's fleet of ageing Avro-748 planes that entered service in the early 1960s.

As part of the C-295 India project, the manufacturing of more than 13,000 parts, 4,600 subassemblies and all major component assemblies will be carried out in the country. To be sure, equipment such as engines, landing gear and avionics will be provided by Airbus, and integrated on the aircraft. The tactical airlifter is powered by two Pratt & Whitney PW127G turboprop engines.

The final assembly line in Vadodara (the first one outside Spain) will have a capacity for 12 aircraft per year. The C-295 contract covers performance-based logistics support for five years, supply of spares across 10 operating bases for 10 years, ground support and test equipment, and training, the officials said.

The C-295 can carry up to nine tonnes of payload or 71 personnel or 45 paratroopers and has a maximum speed of 480 kmph. It can also operate from short or unprepared airstrips, and has a rear ramp for para dropping troops and cargo.

All 56 aircraft will be fitted with an indigenous electronic warfare suite developed by Bharat Electronics Ltd and Bharat Dynamics Limited. While BEL has supplied the radar warning receiver and the missile approach warning system, BDL has provided the countermeasure dispensing system.

https://www.hindustantimes.com/india-news/indian-air-force-to-receive-first-c-295-aircraft-from-airbus-in-september-in-21-935-crore-project-101692297140204-amp.html

THE ECONOMIC TIMES

Thu, 17 Aug 2023

HAL-Safran Chopper Joint Venture to be in Place within 3 Months

India has expedited work on a new military helicopter, which includes the design and development of a new engine and heavy involvement of the private sector defence industry to meet a tight timeline. The programme was a key highlight of Prime Minister Narendra Modi's visit to France and finds mention in the Roadmap on Indo-French Strategic Partnership Horizon 2047.

Officials told ET that a joint venture company with France's Safran to co-develop the engine will be set up within three months and the process to find partners in the Indian private sector has been initiated. The Indian Multi Role Helicopter (IMRH) programme is being led by Hindustan Aeronautics Limited (HAL) and will replace imports from Russia.

"It is a 12 tonne category helicopter, which has never been done in India before. The project timelines are very short and we need to come up with the helicopter within 6 to 7 years. Things now are moving very fast," HAL chairman and managing director CB Ananthakrishnan told ET.

Sharing details, the official said that the project has been divided into three categories where work will be done in parallel to meet the timelines. For airframe, avionics and accessories, HAL will find partners in the Indian private sector who will be part of the project from the design stage itself. For

transmission and rotor system, the company is looking at co-development with major foreign aircraft manufacturers like Airbus and Sikorsky.

And for the development of a new engine, a joint venture is being formed with Safran. "We have entered into a shareholders agreement and the joint venture with Safran will be in place within the next three months. It will be a joint development and IPR (intellectual property rights) will remain within the country (India)," Ananthakrishnan said.

Discussions on expediting the programme have taken place with the defence ministry and a funding proposal is likely to be submitted soon. It is estimated that the biggest helicopter development programme being undertaken by India will cost close to '10,000 crore and will replace all Mi 17 category helicopters operated by the armed forces.

Two versions of the helicopter are being developed. One will be for air force and army requirements and the other for navy. The naval variant will have a different configuration with folding rotors and tail boom. Even the size of rotor blades will be different for the naval IMRH.

https://economictimes.indiatimes.com/news/defence/hal-safran-chopper-joint-venture-to-be-in-place-within-3-months/articleshow/102811959.cms

FINANCIAL EXPRESS
Read to Lead

Thu, 17 Aug 2023

India-China Border Standoff Talks: Quest for Resolution Continues amidst Complex Dynamics

By Huma Siddiqui

The India-China Corps Commanders' Meeting on the ongoing border standoff, held recently, has once again highlighted the challenges of resolving one of the most complex geopolitical issues in the world. The talks, which marked the 19th round of Corps Commander-level discussions, took place over two days. While both sides have described the discussions as "positive, constructive, and in-depth", however, no concrete breakthrough has been achieved, leaving the situation in a state of limbo.

The border standoff between India and China has been a cause for concern since the deadly clash in the Galwan Valley in 2020. The clash resulted in the loss of lives on both sides and drew global attention to the longstanding tensions between the two countries. Since then, efforts have been made to disengage troops and create buffer zones to prevent further escalations. However, the recent meeting's inability to reach a resolution on the disengagement in Dapsang and Demchok areas is indicative of the complexity of the issue.

Central to India's stance is the restoration of its pre-May 2020 patrolling rights at all 'friction points'. While the creation of 'buffer zones' might provide temporary relief, it doesn't address the underlying concerns that led to the standoff in the first place. India's insistence on regaining its patrolling rights is not just about asserting sovereignty, but also about ensuring that the status quo is restored to prevent further encroachments.

BRICS & G20

The talks between China and India are taking place against the backdrop of larger geopolitical dynamics. The upcoming BRICS summit, where Chinese President Xi Jinping and Indian Prime

Minister Narendra Modi are expected to meet, adds an element of urgency to these discussions. Additionally, Xi's planned visit to India for the G20 summit is another significant event that could influence the direction of negotiations. The world will be closely watching to see if these high-level meetings can pave the way for meaningful progress in resolving the border standoff.

One of the key challenges in these negotiations is the difference in perceptions of the Line of Actual Control (LAC) between India and China. This disparity has been a longstanding issue and has led to multiple standoffs in the past. The recent clash in the Depsang Plains and Demchok areas highlights the ongoing disagreements about the territorial boundaries.

It is important to acknowledge that despite the lack of a concrete breakthrough, the fact that both sides have agreed to maintain the momentum of dialogue and negotiations is a positive sign.

The maintenance of peace and tranquillity in the border areas, as agreed upon, is crucial to prevent any further escalation. Freezing troop numbers and equipment build-up along the LAC indicates a mutual understanding of the need to avoid unnecessary militarization.

The road ahead is undoubtedly challenging. Both countries have significant stakes in the region, and any resolution will require careful consideration of their respective interests. Moreover, the border standoff is just one facet of the larger India-China relationship, which spans economic, political, and security dimensions. The complexities of this relationship make finding a lasting solution all the more difficult.

In conclusion, while the recent India-China Corps Commanders' Meeting didn't yield a breakthrough on the border standoff, the upcoming high-level meetings could provide opportunities to address the issue comprehensively.

https://www.financialexpress.com/business/defence-india-china-border-standoff-talks-quest-for-resolution-continues-amidst-complex-dynamics-3213459/

ANI
South Asia's Leading Multimedia News Agency

Thu, 17 Aug 2023

Israel 'One of the World's Top Cyber Powers'

Israel's position as a cyber superpower places it in an exclusive club of world powers, despite having a population a little larger than New York City, according to former Israeli defence official Chuck Freilich.

Freilich, a senior research fellow at the MirYam Institute and the Institute for National Security Studies and a former deputy national security adviser in Israel, recently published a book on the subject, titled, "Israel and Cyber Threat: How the Startup Nation Became a Global Cyber Power."

A former senior fellow at Harvard's Kennedy School who teaches at Columbia and at Tel Aviv University, Freilich said Israel's cyber capabilities are prominent at both the civilian and military levels. The number of cyber start-ups in Israel equals the total number of cyber start-ups in the world, excluding the United States, he noted.

"This is a stunning statistic. It's the result of a really unique contribution to the Israeli hi-tech scene in general, and the cyber realm especially, by the defence establishment and intelligence agencies," said Freilich. Graduates of the Israel Defense Forces cyber units, mainly Unit 8200 and Unit 81, as well as intelligence agencies, enter the private sector and become a primary source of commercial start-ups, he explained.

This in turn acts as a driving force behind cyber innovation. The fact that the Israeli defence establishment funds incubators and technological innovation programs also contribute to the prosperity of the local cyber scene, according to Freilich.

The military units "find and train Israel's cyber personnel, and most importantly, the really top-level personnel. In the cyber world, a few geniuses make all the difference," he added.

Between 2011 and 2020, some 100 veterans of Unit 81, who served in the years between 2003 and 2010, went on to found 50 start-ups, with an accumulated evaluation of over $10 billion, Freilich noted. "That's 100 veterans alone," he said.

"Another mind-blowing statistic is that the NSA [the U.S. National Security Agency] has about 40,000 personnel, while Unit 8200 [its Israeli equivalent] reportedly has a quarter of that, 10,000 people. Most of what Unit 8200 does is cyber-based. Here you have little Israel on the scale of a global superpower. Each year, between a few hundred and a thousand cyber personnel are discharged in Israel. China's 2022 graduating cyber school count was 1,300. So we have a cyber force on the scale of global superpowers," he stated.

Pointing to compulsory military service as the core secret sauce behind this success, Freilich argues that this enables the IDF to track down the best and the brightest, with the military scouting high school databases and beginning to locate suitable youths by the 10th grade.

"One per cent of the best high school graduates go to Atuda (a program that enables them to study and delay military service) and Talpiyot [a program that sends students to complete BAs in mathematics and natural sciences as part of their service]. Talpiyot looks at the top 2 per cent and then begins an intensive testing process. Only 10 per cent of that 2 percent pass and are then further winnowed down through a gruelling aptitude testing process," said Freilich, describing the rigorous screening process.

With regard to Unit 81, while 10,000 candidates passed the initial annual screening, only a few hundred went on to be selected.

"All told, the IDF trains 10,000 people a year in cyber programs. This is a huge training program, not only giving people computer skills but also reaching the real geniuses," he said.

Freilich added that a third of graduates of a Unit 8200 high school program that teaches university-level cyber come from peripheral areas.

He also drew attention to Israel's national style, which he described in his book as "hutzpah went viral."

"Israeli society has a never-ending propensity to challenge authority and reject accepted norms, refusing to take no for an answer, and thirsting for new ways of achieving things," said Freilich.

"Our strategic circumstances mean we have a greater willingness to take risks, and we are non-hierarchical and informal," he added. "That's the same culture you find in R&D firms around the world. So cyber fits Israel like a glove."

On August 8, the Mayanei HaYeshua Medical Center in Bnei Brak announced that it had been struck by a cyber-attack, forcing personnel to switch to pen and paper before recovering computer networks.

Despite Israel's cyber achievements, problems still exist in protecting the civil sector, Freilich admitted. "There is reason to be concerned about that and critical national infrastructure, like water and communications—the type of sites that the Israel National Cyber Directorate defends the most. They get specially tailored defence packages, but there is still reason for concern," said Freilich.

Iran, for its part, woke up to the cyber realm after sustaining the devastating 2009 Stuxnet attack, which international media reports attributed to Israel and the United States.

“Be wary of the law of unintended consequences,” said Freilich. “Until 2010, Iran wasn’t doing much in this area. By 2012, it was launching offensive attacks around the world.”

https://www.aninews.in/news/world/middle-east/israel-one-of-the-worlds-top-cyber-powers20230817230153/

THE ECONOMIC TIMES

Thu, 17 Aug 2023

Israel Says Arrow-3 Missile-Killer Sale to Germany Approved by U.S.

The United States approved a $3.5 billion sale of Israel's Arrow-3 missile defence system to Germany on Thursday, in what will be Israel's biggest-ever defence deal, the Israeli Defence Ministry said.

Israel and Germany will sign a Letter of Commitment, with a $600 million initial payment, to commence work on the project, the statement said, adding that the full contract will be ready to sign by the end of 2023.

The U.S. is a partner in the Arrow project, which was developed jointly by the Israel Missile Defense Organization and the United States Missile Defense Agency.

Russia's war in Ukraine has laid bare a shortage of ground-based air defence systems such as Raytheon's Patriot units or the more recently developed IRIS-T in many Western nations.

While Patriot and IRIS-T cover the medium layer of air defence, Arrow-3 - produced by Israel Aerospace Industries and Boeing Co - offers protection for the higher layer. Using a detachable warhead that collides with the target, it is designed to intercept ballistic missiles outside the earth's atmosphere, an altitude allowing for the safe dispersal of any non-conventional warheads.

Germany has said that it expected its air force to take delivery of Arrow-3 by the fourth quarter of 2025. Israel's Army Radio said the signing ceremony with Germany on the Arrow-3 sale was expected to take place in November.

https://economictimes.indiatimes.com/news/defence/israel-says-arrow-3-missile-killer-sale-to-germany-approved-by-u-s-/articleshow/102792976.cms

THE ECONOMIC TIMES

Thu, 17 Aug 2023

North Korea Prepares for Military Actions in Protest of US, South Korea, Japan Summit - South Korea

North Korea may launch an intercontinental ballistic missile or take other military action to protest a summit between the United States, South Korea and Japan, a South Korean lawmaker said on Thursday, citing the country's intelligence agency.

U.S. President Joe Biden will hold a meeting at Camp David on Friday with South Korean President Yoon Suk Yeol and Japanese Prime Minister Fumio Kishida, hoping to tighten ties between Seoul and Tokyo amid nuclear threats from North Korea and China's influence in the region.

North Korea has criticised deepening military cooperation among the three nations as part of a dangerous prelude to the creation of an "Asian version of NATO".

The reclusive state could also attempt another spy satellite launch at the end of August or early September after failing to put the country's first such platform into space in May, Yoo Sang-bum, a member of the South Korean parliament, told reporters after meeting the chief of the National Intelligence Service.

Yoo said there was a chance the North would launch the satellite to celebrate its founding anniversary on Sept. 9.

North Korean leader Kim Jong Un has made it a priority to conduct a launch during the second half of this year, Yoo noted.

North Korea and Russia agreed on broad defence cooperation when the Russian defence minister met Kim last month and watched a military parade with him in Pyongyang, Yoo quoted South Korean intelligence as saying.

"The National Intelligence Service is anticipating that Russia and North Korea will speed up their defence cooperation and it is closely tracing movements" to spot any possible Russian transfer of nuclear missile technology to Pyongyang, the lawmaker said.

The United States has accused North Korea of providing weapons to Russia for its war in Ukraine, which it calls a "special operation", including artillery shells, shoulder-fired rockets and missiles. Pyongyang and Moscow have denied arms transactions.

https://economictimes.indiatimes.com/news/defence/north-korea-prepares-for-military-actions-in-protest-of-us-south-korea-japan-summit-south-korea/articleshow/102795393.cms

Science & Technology News

Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 17 Aug 2023

A Software Solution for Preventing Attacks on 5G Networks

A new indigenous software technology solution can now proactively detect and prevent zero-day vulnerability attacks in the 5G networks thereby reducing the network downtime. This can help smoothen countrywide communication as 5G networks become its lifeline in the near future.

Around ninety percent of the 5G technology is implemented into software by integrating several latest technologies (NFV, SDN, control plane/user plane segregation) which enable testing the technology easily. But attack surface area is increased multifold in this process and is impossible to

manage manually. Automating the whole testing process and continuous monitoring is the only sustainable solution.

Currently majority of the run time zero-day vulnerabilities are identified post attack, thereby creating damage to the brand as well as increasing the cost of recovery.

IITM Pravartak Technologies Foundation at IIT Madras, a Technology Innovation Hub for Sensors, Networking, Actuators and Control Systems (SNACS), supported by the Department of Science and Technology (DST) under National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS), along with its incubated startup, is developing an indigenous security testing solution for 5G core network functions and Radio Access Network (RAN) software. This technology solution can automatically identify zero-day vulnerabilities in the network in advance by using techniques such as fuzzing and test oracles.

This solution has been manually tested in the 5G security lab of IITM Pravartak. Since it can help avoid the attacks in advance, it protects organisations against loss and saving the credibility of the brands.

The team used ethical hacking for finding vulnerabilities in the system. They tested the functionality issue in the network, created various attack scenarios based on topology, feature interaction, and the number of nodes involved by following the defined 5G standards of 3GPP.

The team is testing interoperability and security issues with multi-vendor products. Tests are conducted at the network packet level, the binary level, the code level and also using the code vulnerability scanners. A combination of all these methods will help reducing zero-day attacks by pre-emption mechanism.

Reducing zero-day vulnerabilities will reduce attack surface area, which in turn will reduce the need to pay ransom and also decrease network downtime of 5G networks which are crucial for communication.

https://pib.gov.in/PressReleasePage.aspx?PRID=1949829

Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 17 Aug 2023

Indian Scientist Develops Novel Method to Improve Accuracy and Precision of Nanomechanical Testing Technology

The new method enables faster testing of mechanical strength of extremely small volumes of materials for a wide range of fields from medicine to space

A novel method to test nanomechanical properties of materials at very minute scales with high precision and accuracy has been developed by an Indian scientist in collaboration with two international institutions.

The new methodology not only significantly improves the precision and accuracy of what is known as nanoindentation technique or testing of mechanical strength, but enables testing at much higher rates, thus facilitating high throughput.

With Conventional testing methods not always feasible at nano scales, which are usually of the order of 1/100th of the diameter of a human hair, the nanoindentation technique was invented by Dr. Warren Oliver (KLA Corp.) and Dr. John Pethica (Oxford University) in the 80s and the analysis procedure was proposed by Dr. Warren Oliver and Dr. George Pharr (Texas A&M University) in their seminal work which had a huge impact on a broad spectrum of scientific research.

The technique has been widely used to measure the strength of semiconductor devices and structural materials that have ubiquitously penetrated every aspect of our daily life through electronic gadgets. The technique has been used for a wide range of applications from identifying cancerous cells to establishing how meteorites are formed in deep space.

In developing the new methodology, Dr. Sudharshan Phani of the Advanced Nanomechanical Characterization (ANC) Centre at Centre for Engineered Coatings, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, collaborated with Dr Warren Oliver at KLA and Prof. George Pharr of Texas A & M University.

The novel approach involved a combination of extensive modeling and simulation to understand the material response during an indentation test and subsequent tailoring of the methodology to improve the precision and accuracy. The modeling results have also been validated by experiments under extreme conditions.

Setting the tone for high precision and high accuracy nanoindentation measurements at much higher rates than what is traditionally possible, the new methodology is expected to impact a broad spectrum of scientific research on measuring the strength of materials at small scales. The details of methodology have been recently published in the prestigious journal in the field of materials science, ‘Materials & Design’.

Publication links: https://doi.org/10.1016/j.matdes.2020.108923

& https://doi.org/10.1016/j.matdes.2020.108924

https://pib.gov.in/PressReleasePage.aspx?PRID=1949827

THE TIMES OF INDIA

Thu, 17 Aug 2023

Chandrayaan-3 Vikram & Pragyan Separate, De-boost Operations to Follow

The Chandrayaan-3 landing module comprising Vikram (the lander) and Pragyan (the rover) has successfully separated from the propulsion module, marking a major milestone for the mission.

"Landing module is successfully separated from the propulsion module. Landing module set to descend to a slightly lower orbit upon a de-boosting planned for tomorrow (August 18) at 4pm," Isro said.

The separation manoeuvre was carried out by Isro a day after it guided the spacecraft — an integrated module with the propulsion module sitting on top of the landing module — into 'an orbit of 153km x 163km, as intended'.

— isro (@isro)

In his post-launch remarks on July 14, Isro chairman S Somanath had said the spacecraft's altitude will be reduced to a 100km circular orbit and the landing module will get separated on August 17, which was a 'nominal' estimation.

During Chandrayaan-2, which aimed for a 100km circular orbit with the last lunar-bound manoeuvre, the spacecraft was put into a 119km x 127km orbit. That was only off marginally from the initial plans but as intended going by estimations made closer to the last lunar manoeuvre.

For Chandrayaan-3, a senior scientist had told TOI on July 15, the plan was to achieve a circular orbit, with an altitude of either 100km or 150km. "That will be decided closer to the date of the manoeuvre," another scientist had said. And the orbit achieved Wednesday, Isro reiterated: "was as intended".

Now, a series of de-boost manoeuvres will eventually put Vikram in an orbit where the Perilune (closest point to Moon) is 30km and Apolune (farthest point from Moon) is 100km. Again, this is a nominal estimation, and the final orbit achieved could vary marginally as was the case with Chandrayaan-2.

Once the 30km x 100km orbit has been achieved, the most critical part of the landing, the process of reducing the velocity of the lander from 30km height to the final landing, as Isro chairman S Somanath had said earlier, will begin.

Isro will also have to overcome the phase where the spacecraft's horizontal orientation needs to change to a vertical one, before Vikram makes the final descent on August 23.

Chandrayaan-3 was launched 34 days ago (July 14). After the initial orbit achieved soon after the launch, Chandrayaan-3 completed five Earth-bound manoeuvres between July 15 and 25, which raised its altitude to more than 1.2-lakh-km at the farthest point from Earth. Following this, Isro carried out the trans-lunar injection (TLI) on August 1, which put the spacecraft in a path towards Moon at an altitude of nearly 3.6-lakh-km before the Lunar Orbit Insertion (LOI) put it in an elliptical orbit around Moon on August 5. This was followed by five lunar-bound manoeuvres and the separation of the landing module.

https://timesofindia.indiatimes.com/india/chandrayaan-3-vikram-pragyan-separate-de-boost-operations-to-follow/articleshow/102796952.cms