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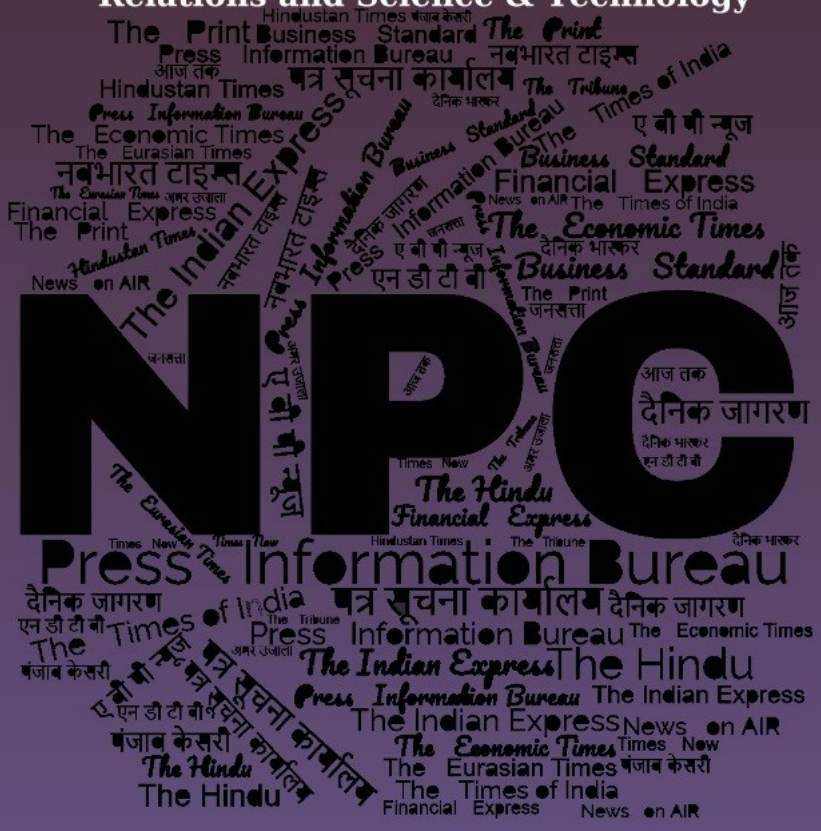
समाचार पत्रों से चयनित अंश
Newspapers Clippings

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



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CONTENTS

18	What is Thirty Meter Telescope and why is it significant for India?	*The Indian Express*	25

DRDO News

DRDO Technology News

जागरण

Thu, 11 July 2024

अब निजी हाथों में **DRDO** की सात बड़ी रक्षा परियोजनाएं, सैन्य शक्ति को मजबूत करने के इरादे से दी गई मंजूरी

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने निजी क्षेत्र की कंपनियों को सात रक्षा परियोजनाओं की जिम्मेदारी सौंपी है। इनमें पानी के भीतर प्रक्षेपित किए जाने वाले मानव रहित हवाई वाहन और लंबी दूरी की रिमोट संचालित प्रणालियों सहित कई परियोजनाएं शामिल हैं।

घरेलू रक्षा विनिर्माण को बढ़ावा देने के लिए रक्षा मंत्रालय की प्रौद्योगिकी विकास निधि योजना के तहत इन परियोजनाओं को मंजूरी दी गई। इन प्रौद्योगिकियों का स्वदेशी विकास सैन्य औद्योगिक ईकोसिस्टम को मजबूत करेगा। अधिकारियों ने बताया कि पानी के नीचे से प्रक्षेपित किए जाने वाले मानवरहित यान परियोजना का लक्ष्य ऐसे बहुमुखी समुद्री रणक्षेत्र सहायक उपकरणों का विकास करना है, जिन्हें विभिन्न लड़ाकू भूमिकाओं में तैनात किया जा सके।

निगरानी और सर्वेक्षण को विकसित करने पर जोर

यह परियोजना पुणे के 'सागर डिफेंस इंजीनियरिंग प्राइवेट लिमिटेड' को सौंपी गई है। अन्य परियोजनाओं में विमानों के लिए 'आइस डिटेक्शन सेंसर' का विकास, 'रडार सिग्नल प्रोसेसर' का निर्माण, पानी के नीचे की वस्तुओं का पता लगाने और उन्हें नेस्तनाबूद करने के लिए लंबी दूरी के रिमोट संचालित वाहनों का निर्माण शामिल है।

रिमोट संचालित वाहन दोहरे उपयोग वाली प्रणालियां होंगी, जो पानी के नीचे की वस्तुओं का पता लगाने, वर्गीकरण करने, स्थान निर्धारण करने और उन्हें नेस्तनाबूद करने में सक्षम होंगी, जबकि प्रमुख परिसंपत्तियों को संदिग्ध परिचालन क्षेत्र से दूर रखेंगी।

यह परियोजना स्टार्ट-अप 'आईआरओवी टेक्नोलॉजीज प्राइवेट लिमिटेड', कोच्चि को सौंपी गई है। सेंसर सिमुलेशन टूलकिट परियोजना नोएडा की स्टार्टअप कंपनी ऑक्सीजन 2 इनोवेशन प्राइवेट लिमिटेड को दी गई है। इस परियोजना में पायलटों के सिम्युलेटर प्रशिक्षण के लिए स्वदेशी स्वदेशी प्रणाली का विकास शामिल है। इसी तरह अन्य महत्वपूर्ण परियोजना प्राइवेट कंपनियों को सौंपी गई हैं।

https://www.jagran.com/news/national-now-seven-major-defense-projects-of-drdo-are-in-private-hands-approval-given-with-the-intention-of-strengthening-military-power-23756813.html

Press Information Bureau
Government of India

Ministry of Defence

Thu, 11 July 2024

DRDO sanctions seven new projects to the private sector under Technology Development Fund scheme

Aim is to nurture industries, especially MSMEs & start-ups, in defence and aerospace sectors

Providing impetus to Aatmanirbharta, Defence Research & Development Organisation (DRDO) has awarded seven new projects to industries under the Technology Development Fund scheme for various requirements of the Armed Forces and aerospace & defence sectors. These project sanctions are a testimony to the continuing endeavour of DRDO in nurturing Industries, especially MSMEs & start-ups, in defence and aerospace domains. The indigenous development of these technologies will strengthen the military industrial ecosystem. The details of the sanctioned projects are given below:

Indigenous Scenario and Sensor Simulation Toolkit

The project involves development of an indigenous toolkit for simulator training of pilots in realistic scenarios. This will help in full mission planning and large force engagement. The project has been awarded to start-up, Oxygen 2 Innovation Pvt Ltd, Noida.

Underwater Launched Unmanned Aerial Vehicle

The project relates to a versatile marine battlefield accessories which can be deployed in multiple combat roles. The objective is Intelligence, Surveillance and Reconnaissance (ISR) and Maritime Domain Awareness (MDA). The project has been awarded to Sagar Defence Engineering Pvt Ltd Pune.

Long-range Remotely Operated Vehicles for Detection & Neutralisation

The vehicles are dual-use systems that will enable detection, classification, localisation & neutralisation of underwater objects while keeping the key assets away from the suspected operational area. The project has been awarded to a start-up, IROV Technologies Pvt Limited, Kochi.

Development of Ice Detection Sensor for Aircraft

The project aims to develop detecting icing condition inflight, caused by super cooled water droplets that freezes after their impact against the aircraft external surfaces and is utilised by the aircraft for turning on the aircraft Anti-icing mechanism. It has been awarded to Craftlogic Labs Pvt Ltd, Bengaluru.

Development of Radar Signal Processor with Active Antenna Array Simulator

The project will enable deployment of multiple target system for test and evaluation of multiple short range aerial weapon system. It serves as the basic building block for larger radar systems. The project has been sanctioned to Data Pattern (India) Limited, Chennai.

Development of Indian Regional Navigation Satellite System-based Timing Acquisition & Dissemination System

The project has been sanctioned to Accord Software & Systems Pvt Ltd, Bengaluru. It aims to enable indigenisation of timing acquisition and dissemination system, use of Indian Constellation for acquiring time & development of customised and flexible timing system as per range requirements.

Development of Graphene Based Smart & E-textiles for Multifunctional Wearable Applications

The start-up, Alohatech Private Limited, Coimbatore has been sanctioned the project. It will develop a conductive yarn and fabric-making processes using graphene nanomaterials and conductive inks. The outcome will be advanced nanocomposite materials-based E-textiles utilising the inherent advantages for practical clothing applications.

https://pib.gov.in/PressReleasePage.aspx?PRID=2032334

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Thu, 11 July 2024

Indian Air Force Contingent Lands In Australia To Participate In Ex Pitch Black 2024

An Indian Air Force (IAF) contingent landed at the Royal Australian Air Force (RAAF) Base Darwin, Australia for participating in Exercise Pitch Black 2024. The exercise is scheduled to be conducted from 12 July 24 to 02 August 24, and is a biennial, multi- national exercise hosted by the RAAF.

The name 'Pitch Black' was derived from the emphasis on night time flying over large un-populated areas. This edition is slated to be the largest in the 43 year long history of Ex Pitch Black, which includes participation by 20 countries, with over 140 aircraft and 4400 military personnel of various air forces.

The exercise will be focusing on Large Force Employment warfare aimed at strengthening international cooperation and shall facilitate experience enhancement with the IAF Su-30 MKI operating alongside the F-35, F-22, F-18, F-15, Gripen and Typhoon fighter aircraft.

The IAF contingent comprises of over 150 highly skilled Air Warriors including pilots, engineers, technicians, controllers and other subject matter experts, who will be operating the formidable Su-30 MKI multirole fighters, with the C -17 Globemaster and the IL-78 Air-to-Air Refuelling aircraft in combat enabling roles. The exercise would provide IAF with an opportunity towards force integration with participating nations and mutual exchange of best practices.

The exercise provides an excellent opportunity for strengthening the ability of the participating nations to deploy over large distances, support integrated operations in the Indo-Pacific region and building strong aviation associations in a highly challenging environment. The IAF has previously participated in the 2018 and 2022 editions of this exercise.

https://pib.gov.in/PressReleasePage.aspx?PRID=2032498

Press Information Bureau
Government of India

Ministry of Defence

Thu, 11 July 2024

Indian Air Force Ex Pitch Black 2024 At Darwin, Australia

An Indian Air Force (IAF) contingent landed at the Royal Australian Air Force (RAAF) Base Darwin, Australia for participating in Exercise Pitch Black 2024. The exercise is scheduled to be conducted from 12 July 24 to 02 August 24, and is a biennial, multi- national exercise hosted by the RAAF. The name 'Pitch Black' was derived from the emphasis on night time flying over large un-populated areas. This edition is slated to be the largest in the 43 year long history of Ex Pitch Black, which includes participation by 20 countries, with over 140 aircraft and 4400 military personnel of various air forces. The exercise will be focusing on Large Force Employment warfare aimed at strengthening international cooperation and shall facilitate experience enhancement with the IAF Su-30 MKI operating alongside the F-35, F-22, F-18, F-15, Gripen and Typhoon fighter aircraft.

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https://pib.gov.in/PressReleasePage.aspx?PRID=2032522

नवभारत टाइम्स

Fri, 12 July 2024

समंदर में भारत होगा और मजबूत, नेवी को मिलने वाली है **6** नई सबमरीन, प्रोजेक्ट-**75i** ने पकड़ी रफ्तार

लंबे वक्त से अटके पड़े प्रोजेक्ट-75i ने अब कुछ रफ्तार पकड़ी है। इस प्रोजेक्ट के तहत इंडियन नेवी को 6 नई सबमरीन मिलनी हैं। ये सबमरीन एयर इंडिपेंडेंट प्रपल्शन (AIP) वाली होंगी, ये सिस्टम सबमरीन को ज्यादा वक्त तक पानी के नीचे रहने में मदद करता है। अभी नेवी के पास इस तरह की कोई सबमरीन नहीं है। जबकि पाकिस्तान के पास AIP वाली सबमरीन हैं, हालांकि वे काफी पुरानी हो गई हैं। पाकिस्तान के लिए चीन नई 8 सबमरीन बना रहा है।

प्रोजेक्ट-75i स्ट्रैटजिक पार्टनरशिप मॉडल के तहत होना है। इसके तहत नेवी ने एल एंड टी और एमडीएल को आरएफपी जारी किया था। एल एंड टी जर्मन कंपनी टीकेएमएस के साथ मिलकर काम कर रही है और एमडीएल स्पेन की नावंतिया कंपनी के साथ मिलकर।

इस प्रोजेक्ट से पहले जब प्रोजेक्ट-75 शुरू किया गया था तब भी सबमरीन भारत में ही बनाई गई थी लेकिन विदेशी कंपनी का डिजाइन था और काम सिर्फ भारत में हुआ था। लेकिन प्रोजेक्ट-75i के तहत विदेशी कंपनी टेक्नॉलजी ट्रांसफर करेगी जिससे स्वदेशी कंपनी की क्षमता बढ़ेगी और आगे से वे खुद ही सबमरीन डिजाइन और डिवेलप करने में सक्षम हो सकेंगे। एल एंड टी और एमडीएल दोनों में से किसी एक को प्रोजेक्ट-75i के तहत सिलेक्ट किया जाना है।

अभी कितना समय लगेगा**?**

सबमरीन के लिए टेक्निकल मूल्यांकन हो चुका है और कुछ ही दिनों पहले फील्ड मूल्यांकन भी हो गया है। अब स्टाफ मूल्यांकन होना है। एक अधिकारी के मुताबिक यह 2-3 महीने में हो जाएगा। जिसके बाद रिपोर्ट रक्षा मंत्रालय को जाएगी और फिर मंत्रालय के अप्रूवल के बाद कॉन्ट्रैक्ट निगोसिएशन कमिटी इसे देखेगी। वहां से अप्रूवल मिलने के बाद कैबिनेट कमिटी ऑन सिक्योरिटी का अप्रूवल लिया जाएगा।

जब किसी कंपनी के साथ कॉन्ट्रैक्ट साइन होगा उसके 3 से 4 साल बाद ये सबमरीन मिलनी शुरू होगी। अभी नेवी के पास 16 कनवेंशनल सबमरीन हैं। जिसमें 5 कलवरी क्लास सबमरीन हैं और एक और कलवरी क्लास सबमरीन जल्दी ही मिलेगी। इसके अलावा जो भी सबमरीन नेवी के पास हैं वे 30 साल से भी ज्यादा पुरानी हैं और नेवी को उन्हें रिप्लेस करना है।

https://navbharattimes.indiatimes.com/india/project-75i-india-will-be-stronger-in-the-sea-navy-is-going-to-get-6-new-submarines/articleshow/111668700.cms#google_vignette

Hindustan Times

Fri, 12 July 2024

IAF flags concern over delay in new Tejas LCA

The Indian Air Force (IAF) is unhappy with the current pace of the Tejas light combat aircraft (LCA Mk-1A) programme because of the possible risks a delay in the induction of new fighter planes could pose to the air force's combat effectiveness, and has flagged the hot-button issue to plane maker Hindustan Aeronautics Limited (HAL), calling for timely execution of the ₹48,000-crore contract for 83 jets, senior IAF officers aware of the matter said on Thursday.

"We have told HAL that delay is unacceptable as it will affect our fighting capabilities. IAF is still waiting for the first Mk-1A aircraft that was to be delivered by March 31, 2024," said one of the officers cited above, who asked not to be named.

The state-run firm is now targeting the first delivery in August after completing the necessary certification requirements, and says it will deliver 16 of these fighters to IAF in the financial year 2024-25 as per schedule. It also hopes to deliver all the 83 aircraft on order by 2028-29, HAL officials said.

Many in the air force are, however, sceptical about the LCA Mk-1A deadlines being met, and one of the main reasons for that is the lingering delay in the supply of the F404 engines to HAL by US firm GE Aerospace. The delivery of the engines is delayed by around 10 months, HT has learnt.

The LCA Mk-1A made its maiden sortie from an HAL facility in Bengaluru on March 28.

"There are some observations relating to the LCA Mk-1A's maiden flight and then there is the engine issue. HAL doesn't have enough engines to deliver the 16 aircraft this year," said the IAF officer cited above.

The single-engine Mk-1A will be a replacement for the IAF's Mikoyan-Gurevich MiG-21 fighter.

"IAF should have started phasing out the last of its MiG-21s and raising the first LCA Mk-1A squadron by now. The conversion to new aircraft for pilots, and the training of technicians and maintenance crews will take time. If we don't get the new aircraft on time, the capability drawdown will be drastic. IAF doesn't have a Plan B for the MiG-21 replacement," said a second IAF officer, who also asked not to be named.

To be sure, IAF's leadership has firmly backed the LCA programme and more Mk-1 aircraft will be ordered. In a review last year, IAF chief Air Chief Marshal VR Chaudhari described the fighter aircraft as the flag-bearer of the air force's efforts towards the indigenisation of its combat fleet.

IAF's endorsement, however, does not absolve HAL of the delays in the project, said a third IAF officer.

LCA Mk-1A is an advanced variant of the LCA Mk-1, which has already been inducted by IAF.

"You must cut us some slack as the Mk-1A is more or less a new aircraft," said one of the HAL officials cited above, asking not to be named.

“This means there is a comprehensive certification process for the new systems and that is taking some time. HAL has ramped up its production capacity to be able to meet IAF’s requirements for new fighters. The project is a top priority for us,” he added.

HAL has set up a new production line in Nashik for LCA Mk-1As to meet IAF’s growing needs. HAL says it can build 16 LCA Mk-1As every year in Bengaluru, and the Nashik line will help it ramp up production to 24 jets.

HAL officials acknowledged the engine delay issue but said that the plane maker was working towards resolving it and has plans in place to ensure that the project doesn’t suffer.

“We are hoping to get some F404 engines to deliver 16 Mk-1A aircraft in FY 2024-25. If there is more delay, HAL will still keep building the planes and fly them with Category B engines (reserve ones). When the GE engines come, we will fit those on the aircraft and deliver the planes to IAF. We are confident of sticking to the overall delivery schedule (by 2028-29),” said a second HAL official.

There was no response from GE Aerospace to a set of queries from HT on the reasons for the engine delay till the time of going to print. Engine deliveries are believed to have been delayed because of supply chain challenges.

Even as doubts shroud the delivery schedule of the LCA Mk-1A jets, more are likely to be ordered soon. In April, the defence ministry issued a tender to HAL for the proposed acquisition of 97 more LCA Mk-1As to strengthen the air force’s capabilities at a time it is grappling with a shortage of fighter squadrons. The new fighter planes are expected to cost around ₹67,000 crore.

LCA is set to emerge as the cornerstone of IAF’s combat power in the coming decade and beyond as it is expected to operate around 350 LCAs (a mix of Mk-1s, Mk-1As and the future Mk-2).

Forty Mk-1 jets operated by IAF are in the initial operational clearance (IOC) and the more advanced final operational clearance (FOC) configurations --- the first variants of LCA.

IAF recently relocated its last MiG-21 fighters from their home base at Suratgarh in Rajasthan to the sprawling Nal desert fighter base near Bikaner, where the only other remaining Indian MiG-21s are based, as the world’s fourth largest air force prepares the ground to pull these iconic planes out of service and begins raising its new LCA-Mk-1A fleet.

Both squadrons operate the MiG-21 Bison, the last variant of the single-engine workhorse.

The LCA project was sanctioned in 1983 as a replacement for MiG-21s. IAF raised its first LCA Mk-1 squadron in Sulur with two aircraft in July 2016. While the existing Mk-1 and the new Mk-1A variants will replace MiG-21 fighters, the Mk-2 aircraft is planned as a replacement for the MiG-29s, Mirage-2000s and Jaguar fighters that will start retiring in the coming decade.

https://www.hindustantimes.com/india-news/iaf-flags-concern-over-delay-in-new-tejas-lca-101720722499259.html

THE ECONOMIC TIMES

Thu, 11 July 2024

Army commander visits Siachen, asks troops to be prepared for challenges

Ladakh and asked the troops to remain in a "high state of operational readiness". The commander appreciated the professional excellence of the brigade guarding the borderline with Pakistan, the Northern Command said.

"Lt Gen M V Suchindra Kumar, Army commander northern command accompanied by GOC Fire and Fury corps visited forward posts of Siachen brigade to review operational preparedness," it wrote on X.

The commander asked the troops to remain in a high state of operational readiness to meet all challenges and be prepared for future challenges.

https://economictimes.indiatimes.com/news/defence/army-commander-visits-siachen-asks-troops-to-be-prepared-for-challenges/articleshow/111668370.cms

THE ECONOMIC TIMES

Thu, 11 July 2024

Three major defence testing facilities to be launched in Uttar Pradesh

Uttar Pradesh is making significant strides to bolster its defence and space technology sectors. The Uttar Pradesh Expressway Industrial Development Authority (UPEIDA) will implement three critical projects under the Defence Testing Infrastructure Scheme (DTIS), funded by the Union Ministry of Defence. These initiatives aim to address key shortcomings in the current defence technology testing infrastructure.

Project Locations and Objectives

The projects, located in Kanpur and Lucknow, are designed to enhance India's defence technology testing capabilities. By addressing fundamental shortcomings, these efforts are crucial for improving the state’s defence infrastructure.

Funding and Support

With a total allocation exceeding Rs 117 crore, the DTIS projects in Uttar Pradesh will receive substantial financial backing. The Union government is providing a 75% grant, while the Uttar Pradesh administration, led by Chief Minister Yogi Adityanath, will contribute the remaining 25%. This funding model reflects the collaborative effort to enhance defence capabilities.

Focus on Advanced R&D

The DTIS aims to conduct advanced research and development to improve testing technologies. It will provide recommendations and guidance for upgrading testing facilities. Ensuring quality and standards in defence production is a key objective

Boosting Indigenous Defence Production

A primary goal of DTIS is to strengthen indigenous defence manufacturing. The scheme places special emphasis on supporting MSMEs and startups, effectively addressing the current deficiencies in defence testing infrastructure. These projects will be a part of the Uttar Pradesh Defence Industrial Corridor.

Key Investments

Several significant investments will support these initiatives:

- MIDHANI (Mishra Dhatu Nigam Limited) will establish a mechanical and material testing facility in Lucknow with an investment of over Rs 40 crore.
- Bharat Electronics Limited (BEL) will invest over Rs 31 crore in a communication testing facility at IIT Kanpur.
- Hindustan Aeronautics Limited (HAL) will set up an Unmanned Aircraft System (UAS) testing facility at IIT Kanpur.idor.

Management and Oversight

These schemes will operate through a Special Purpose Vehicle (SPV), managed by a five-member team. This structure ensures dedicated and focused management of the projects. The DTIS aims to ensure quality and standards in defence production. By providing robust testing facilities, the scheme seeks to bolster indigenous defence production capabilities and support domestic companies.

The primary focus is to boost indigenous defence manufacturing with a special emphasis on MSMEs and startups, addressing the current deficiencies in defence testing infrastructure. In a TOI report, UPEIDA officials highlighted the importance of the DTI scheme, stating, "The DTI scheme will play a crucial role in India's selfreliance initiative."

This sentiment underscores the significance of these projects in enhancing India's defence and space technology capabilities. Through these initiatives, Uttar Pradesh is poised to become a significant hub for defence and space technology. The collaborative efforts of the Union and state governments, along with key industry players, will significantly enhance the state's defence infrastructure, supporting India’s broader self-reliance mission.

https://economictimes.indiatimes.com/news/defence/three-major-defence-testing-facilities-to-be-launched-in-uttar-pradesh/articleshow/111662364.cms

FINANCIAL EXPRESS
Read to Lead

Thu, 11 July 2024

HAL's strategic move: To export SU-30 fighter jets soon

India is poised to make a significant mark on the global defence landscape with ongoing discussions between state-owned Hindustan Aeronautics (HAL) and various global defence forces regarding the production and export of the Sukhoi Su-30 fighter jets. This development signifies a major leap in India's aerospace capabilities and reflects the nation's growing prowess in defence manufacturing.

Strategic Collaborations and Agreements

Sources within the defence and security establishment have confirmed to FinancialExpress.com, "HAL is in active talks to build these fighter jets at its Nashik facility. Russia, the original manufacturer of the Sukhoi jets, has agreed to support this production effort, reinforcing the strategic partnership between the two countries."

"This collaboration underscores a broader agreement between India and Russia to encourage joint manufacturing and technology transfer, as highlighted during Prime Minister Narendra Modi's recent visit to Moscow," they explained.

Both nations have committed to fostering joint ventures for the maintenance and production of Russian-origin defence equipment under the Make-in-India program. This initiative aims to meet the needs of the Indian Armed Forces and facilitate subsequent exports to friendly third countries, marking a significant milestone in India's defence export strategy.

Enhancing the Su-30MKI Fleet

HAL's Nashik division has already demonstrated its capability by overhauling the Sukhoi-30MKI fighter jets. Recently, the defence secretary handed over the 100th overhauled Su-30MKI to the Indian Air Force (IAF), lauding HAL's efforts in establishing a robust Repair and Overhaul (ROH) facility. Despite supply chain challenges caused by the current geopolitical situation, HAL's Nashik division has achieved a peak overhaul capacity of 20 Sukhoi-30MKI aircraft per year.

The establishment of the ROH facility in 2014 was a pioneering move, making it the first of its kind globally. HAL has mastered ROH technology with invaluable support from the IAF, regulatory bodies, and private industries, positioning itself as a key player in the aerospace sector.

Upgrading the Su-30MKI Fleet

In a significant boost to India's defence capabilities, HAL, with support from the Defence Research and Development Organisation (DRDO), will undertake a Rs 60,000 crore upgrade of the Su-30MKI fighter jet fleet. Approved by the defence ministry, this project aims to enhance the aircraft's capabilities with new radars, mission control systems, electronic warfare capabilities, and integration of advanced weapon systems.

Earlier this year, HAL Chairman and Managing Director CB Ananthakrishnan confirmed substantial private sector involvement in this project, positioning HAL as the lead integrator. The upgrade project is divided into two phases: the first focusing on installing new avionics and radars, and the second on flight control systems. Indigenous systems will replace several Russian-origin components, reflecting India's push towards self-reliance in defence manufacturing.

Key upgrades include a new indigenous radar system to enhance target detection and engagement capabilities, addressing previous concerns about radar performance. Additionally, the aircraft will be equipped with a new electronic warfare system to counter incoming threats and disrupt enemy communication, alongside indigenous infrared search and track systems to significantly improve air-to-air and air-to-ground targeting capabilities.

Expanding Market Reach

With over 600 Su-27/30 type aircraft manufactured globally, HAL's strategic move to export these upgraded jets presents significant market opportunities. Countries like Vietnam, Malaysia, Indonesia, and Algeria are potential buyers, keen to bolster their air force capabilities with the proven performance of the Su-30MKI.

https://www.financialexpress.com/business/defence-hals-strategic-move-to-export-su-30-fighter-jets-soon-3550509/

THE ECONOMIC TIMES

Thu, 11 July 2024

Budget 2024: India trails China in defence spending, but must fill the 'insufficient' allocation

Allocating a robust amount to bolster military capabilities has emerged as a pivotal strategy for governments seeking to fortify their defences against foreign powers. Finance Minister Nirmala Sitharaman is set to present the Union Budget on July 23 and experts predict a higher allocation for the defence sector in the upcoming budget, continuing the trend of previous years.

For India, the focus seems to have shifted from the early Independence decades, wherein most of the focus was on our neighbour Pakistan. But now, as India grows in stature and power, China has emerged as a formidable country and a neighbour that India has had a few skirmishes. To step up the defences, India's strategy must focus on keeping China at bay.

China's adventures with the littorals of the South China Sea hint at preparedness on the part of India considering the world conflict scenario, says Dr Amit Singh Associate Professor, Special Centre for National Security Studies, JNU. All the more when Chinese manoeuvring at the LAC and LOC poses challenges for India's defence sector to defend its territorial integrity, he says.

"India's defence budget is expected to cater to the rapidly changing geopolitical scenarios at the global stage instantaneously. India may tackle some of these security challenges by increasing the defence budget significantly," he adds.

We take a look at how India’s defence budget compares to that of China’s.

China’s defence budget:

For any analysis of China's military spending, it's in order to begin with a disclaimer — the numbers issued by the Chinese government and as such, must be taken with a grain of salt.

China in March announced its defence budget for 2024 and interestingly maintained the growth rate of its military expenditure at precisely the same percentage as last year, as Chairman Xi Jinping continues to prioritize the People's Liberation Army (PLA) at the expense of other sectors of government funding.

China’s defence budget for 2024 will rise 7.2 per cent to Chinese Yuan (CNY) 1.66554 trillion, which equates to USD 231.4 billion.

As a proportion of GDP, China’s core defence budget amounted to 1.25 per cent, well below the global average of 1.8 per cent and the 2 per cent target for NATO countries, according to a report by the International Institute for Strategic Studies (IISS). Putting China's spending in proper regional perspective, it is twelve times that of Taiwan's and four times as much as Japan's defence expenditure.

India’s defence budget vs China’s:

Despite the economic slowdown of China, the country has doubled its defence expenditure since 2015, says Dr Singh. “In the Interim budget 2024-25, the Modi government allocated approx $75 billion which is not sufficient given the threat perception faced by India from China,” he adds.

Sitharaman disclosed the allocation of a staggering Rs 6.21 lakh crore for India's Ministry of Defence during the Interim Budget presentation in February. This marked a 4.3 per cent increase from the previous year, constituting a substantial portion of the Union Budget at 13.04 per cent.

The Union Budget is expected to be an extension of the Interim Budget itself, as per experts. Defence Minister Rajnath Singh in October 2023 said that India needs stronger armed forces with modern equipment in order to become a developed country by 2047 when we celebrate 100 years of Independence.

At present, Modi 3.0 is loading and the defence sector is expecting that the government should spend at least 25 per cent of the central government’s total expenditure every year, Dr Singh says. “Consequently, India can ‘handle’ the threat perception at the LAC/LOC and their neighbourhood.”

Expectations for defence allocation:

Going by the threat perception faced by India from China and Pakistan including the current geopolitical scenario, Dr Singh says India should spend at least 25 per cent of the central government’s total expenditure in the coming budget.

https://economictimes.indiatimes.com/news/defence/budget-2024-india-trails-china-in-defence-spending-but-must-fill-the-insufficient-allocation/articleshow/111662877.cms

THE ECONOMIC TIMES

Thu, 11 July 2024

Indian ship captain, crew win 'exceptional bravery' awards for Red Sea rescue

Captain Avhilash Rawat and his crew of an oil tanker have been named among the winners of the International Maritime Organisation (IMO) 2024 Award for Exceptional Bravery at Sea for their "extraordinary courage" shown in a Red Sea rescue mission. Rawat and his crew were declared winners by the IMO on Wednesday for the "determination and endurance" demonstrated while coordinating firefighting and damage control efforts to combat a fire that broke out after an anti-ship missile reportedly fired by Iranian-backed Houthi rebels struck their vessel 'Marlin Luanda' earlier this year.

Captain Brijesh Nambiar and the crew of the Indian Navy ship INS Visakhapatnam have been conferred a Letter of Commendation for their support to the oil tanker when in distress. "On the evening of J26 January 2024, the Marlin Luanda, carrying 84,147 tonnes of Naphtha, was en route from Suez to Incheon when it was struck by an anti-ship ballistic missile.

The explosion ignited a cargo tank, creating a significant fire hazard with flames exceeding 5 meters," reads the award citation.

"Despite the damage, Captain Avhilash Rawat swiftly organised firefighting efforts, ensuring the crew's safety and maintaining the ship's navigability amidst the chaos. With the starboard lifeboat destroyed, the remaining crew mustered at the port lifeboat station, ready for potential evacuation," it added.

Despite the extreme danger and the constant threat of further attacks, Rawat and his crew fought the fire using fixed foam monitors and portable hoses. The fire continued to spread, particularly affecting an adjacent tank, but the crew managed to contain it using seawater after foam supplies were exhausted, the IMO notes.

After four and a half hours fighting the fire on their own, assistance arrived from the merchant tanker Achilles and later from the French frigate FS Alsace and the United States frigate USS Carney, which provided additional firefighting foam and support, followed soon after by the Indian warship INS Visakhapatnam.

Despite relentless efforts by the Marlin Luanda crew, the fire reignited multiple times. The situation remained critical, and expert consultations suggested abandoning the vessel. However, Captain Rawat and his crew persisted. The turning point came when professionally trained firefighters from the Indian Navy boarded the ship.

They managed to get closer to the fire due to their superior equipment, and their efforts, combined with those of the Marlin Luanda crew, finally succeeded in extinguishing the fire and sealing a significant hull breach. "Twenty-four hours after the missile strike, the Marlin Luanda sailed to safety under naval escort," the IMO noted.

Captain Rawat and his crew were nominated for the award by the Marshall Islands and, along with Captain Jorge Fernando Galaviz Fuentes and the crew of the tugboat Pemex Maya, nominated by Mexico, will receive their awards at the annual ceremony to be held at the IMO Headquarters in London on December 2, during the 109th session of the Maritime Security Committee.

A total of 41 nominations were received from 15 member states and three nongovernmental organisations in consultative status with IMO. Nominations were initially reviewed by an Assessment Panel, and their recommendations were considered by a panel of judges, who ultimately selected the recipients of honours.

The recommendations of the Panel of Judges have now been endorsed by the IMO Council, meeting for its 132nd session being held in London this week.

https://economictimes.indiatimes.com/news/defence/indian-ship-captain-crew-win-exceptional-bravery-awards-for-red-sea-rescue/articleshow/111659241.cms

The EurAsian Times

Thu, 11 July 2024

Pakistan 'Plotting' UAV Attacks On Indian Military In J&K; How Can India Repel Next-Gen Terror Attacks? OPED

Jammu region of Jammu and Kashmir appears to be becoming the hotbed of terrorism. A few days back, five Indian Army soldiers were martyred after terrorists attacked an army truck in Kathua district. This was preceded by an encounter where two Indian soldiers, including an elite paratrooper, were killed. The Indian army eliminated six terrorists in the operations in the Kulgam district of the Kashmir region.

On June 26, three terrorists were eliminated during a clash with Indian forces in the Gandoh region of Doda district in Jammu. On June 9, terrorists attacked a bus carrying pilgrims, resulting in the death of at least 10 people in the Reasi district of the Jammu region. In June 2021, in a first-of-its-kind attack in India, low-flying drones dropped IEDs on the Jammu Air Force station. What could be alarming for Indian security forces is the possible use of drones in future terror attacks.

The strategy of using drones for cross-border intrusions has gradually increased. In the last three years, drone sightings across the international border have expanded dramatically. A few days back, Indian soldiers fired several rounds to shoot down a Pakistani drone along the Line of Control in Jammu and Kashmir. The drone, however, returned to Pakistan after briefly hovering over Indian territory.

India's Line of Control (LoC) and International Border (IB) with Pakistan are well-fenced, surveyed, and manned. Yet Pakistani state and non-state players are upping the ante and using technology to smuggle illegal arms, ammunition, drugs, currency, propaganda pamphlets, and other items to their supporters and operatives. Drones are cheap and available commercially off-the-shelf and have replaced human smugglers and even terrorists in some cases, as was the case in the

Jammu airfield attack a few years ago. India needs to be prepared for next-gen terror attacks in Jammu and Kashmir and info warfare in Punjab and neighboring states.

The US has been extensively using drone strikes against targets as part of the 'War on Terror.' Drones have even been used for assassination. Ayman al-Zawahiri, al-Qaeda leader, was killed in a US drone strike in early August 2022. On January 3, 2020, Qasem Soleimani, an Iranian major general, was killed by a US drone strike at Baghdad International Airport. A significant terror plot by Pakistan's ISI was averted by the Special Operations Group (SOG) and Jammu police after they recovered a consignment of arms and ammunition dropped by a Pakistani drone along the IB in the RS Pura Sector in Jammu district in February 2022. The future is unmanned on many counts, including use for terrorism.

An unmanned combat aerial vehicle (UCAV) can carry ordnance such as rockets, missiles, and bombs. Small bomb-laden drones can make a Kamikaze attack. Till recently, most drones were usually under real-time human control. However, Artificial Intelligence (AI) technology now supports more significant flight and decision-making autonomy levels.

Jammu Airfield Attack

Pakistan-based Lashkar-e-Taiba (LeT) made a drone attack on IAF's Jammu airbase on June 27, 2021. This was the first reported use of drones to attack military facilities in India. There were twin blasts, five minutes apart, around 1:35 a.m. The first drone dropped a bomb that damaged a building when it went through the roof, while the second exploded on the open tarmac at a little distance from a parked helicopter.

There was no damage to any operational asset or loss of life. It was later understood that the target was Air Traffic Control (ATC) tower and parked IAF helicopters. The two Improvised Explosive Devices (IED) weighed five to six kilograms, with RDX as the main explosive charge. The drop was made through stored location coordinates. The two drones had flown from across the border, a mere 14.5 kilometers away. Drones have continued to be used in Punjab, Rajasthan, and Jammu & Kashmir sectors for Intelligence, Surveillance, and Reconnaissance (ISR). They are also used for smuggling drugs and small arms. The drones were assembled from Chinese-origin kits, which increased their deniability.

Drones, New Dimension To Border Security

For long unmanned aerial vehicles (UAV) have been used for border surveillance and often through incursions into adversary's territory. Drones are also used for intelligence gathering, especially for military and BSF installations near the border. Drones are small and have low visual, noise, smoke, and infrared (IR) signatures. They can fly ultra-low or at high altitudes, making it difficult to detect, intercept and neutralize.

Most conventional air defense radars cannot detect them. A few dedicated bird detection avian radars at airports monitor bird activity within the airfield zone and near the approach and take-off path. Such radars will pick up drones, but it is not affordable to position such radars across the entire border. Sensitive IR sensors are required in large numbers at a considerable cost to detect the heat signature of drones. Small size and nearly no smoke signature means late visual detection. Even the drone sound can be heard very late.

Drones could be autonomous or remotely controlled and, because these are sourced from the open market, enable deniability. Drones could travel a few 100 kilometers deep, carrying a significant quantity of contraband payload. The types of cargo captured from the downed drones included substantial amounts of heroin, opium, pistols and revolvers, ammunition, detonators, and other explosives. More recently, they have been bringing even currency.

Pakistani Drone Production Ecosystem

For years, Pakistan had been pushing the US to allow it to acquire the MQ-1 Predator, the primary UCAV system the US used as a strike platform. However, such requests were denied amid fear of technology proliferation. Pakistan's National Engineering and Scientific Commission (NESCOM) and the Pakistan Air Force (PAF) jointly began developing its own Burraq UCAV. The initial variants were for surveillance and intelligence gathering.

In 2015, they had the first UCAV variant. Pakistan borrowed ideas from the Chinese CASC Rainbow CH-3A UCAV and may have received assistance, too. The Shahpar II is a UCAV built by Global Industrial Defence Solutions of Pakistan. It is currently in production following the completion of a test and qualification phase. It reportedly can fire missiles at both stationary and moving targets. Pakistan is working closely with Turkey on Bayraktar TB2, medium-altitude long-endurance (MALE) drones for offensive and air defense use. They showcased these at the Pakistan Air Force (PAF) day event. Satellite images revealed the presence of one Bayraktar TB2 at PAF's Murid Airbase. Pakistan has thus raced ahead of India in Indigenous MALE and UCAVs.

Pakistan also signed a contract with Turkey for the co-production of ANKA UCAVs and acquired CH-4 and Wing Long UCAVs from China. The Pakistan Navy already operates several UAVs, such as Scan Eagle and Uqab, for surveillance. The SATUMA Jasoos II is another indigenous drone in the PAF inventory, fulfilling dual purposes of ISR and training. The Pakistan military has claimed to have eliminated three high-profile Tehrik-i-Taliban Pakistan (TTP) terrorists using its indigenous Burraq combat drone during an operation in North Waziristan's Shawal Valley.

Pakistan's Drone Infiltration Mechanism

Pakistan is following an all-of-the-nation approach with many government agencies, the armed forces, and Inter-Services Intelligence (ISI) supporting the covert operations. Their border security force, Pakistani Rangers, has reportedly set up drone centers to help drone crossings by smugglers and terrorists to send arms and drugs into India.

Pakistan's focus has been much higher in Ferozepur and Amritsar sectors. The BSF has seized about 1,150 kg of drugs at the Punjab border in the last three years. Also found on the intercepted drones were some AK series assault rifles, pistols, MP4 carbines, carbine magazines, high explosive grenades, as well as narcotics.

Pakistan's Chinese Off-The-Shelf Drones

Most Pakistani drones are of Chinese origin. Da-Jiang Innovations (DJI), Shenzhen, is one of the major drone manufacturers, and several Chinese state-owned entities back it. DJI manufactures commercial drones for aerial photography and videography. It accounts for around 70 percent of the world's consumer drone market. The company's products have also been used by militaries, police forces, and terrorist groups.

DJI drones have been extensively used in Ukraine. These drones can be of different sizes and have significant payload capacities. Some caught on the Indian border include the DJI Matrice 300 Quadcopter with RTK (Real-Time Kinematic) drone. It can have a maximum take-off weight of nine kg, fly at 80 km/h, and have an endurance of 55 minutes on fully charged batteries. It can fly autonomously on pre-fed waypoints and transmit live mission recordings. It costs nearly INR 1,500,000.

The payload could be three to four kilograms. The operator in Pakistan could control the payload drop based on the drone's video feed. Alternatively, it could fly autonomously. The US government has prohibited DJI products because the drone is known to transmit all data to parent organizations in China.

Forensic Analysis Of Downed Pakistani Drones

Most Pakistani downed drones give tell-tale signs. Knowing the flight path, the number of flights done recently, the quality of onboard equipment and sensors, and assessing their vulnerabilities is possible.

Also, it is possible to determine the communication equipment and frequencies, which could be jammed later. Sometimes, it is possible to burst into the recipient terrorist networks and find terror-related hardware, arms and ammunition, narcotics, and foreign currency. India's National Investigation Agency (NIA) has monitored and investigated all incidents.

Anti-Drone Measures

Large UAVs and Kamikaze drones have been extensively used in the Ukraine War and earlier in the Azerbaijan-Armenia conflicts. These have become more sophisticated, accurate, and lethal. Security establishments worldwide are working on anti-drone measures and systems that include hard and soft kill. The armed forces' air defense units will use missiles and air defense guns to tackle the large UAVs. Fighter aircraft or UAVs with air-to-air ability can also shoot down the larger drones. Attack helicopters like the recently inducted Light Combat Helicopter (LCH) Prachand also have air combat missiles.

BSF or other border guarding force sniper rifles can shoot the smaller drones. Special nets can be fired from hand-held guns that will entangle the drone rotors and bring them down. The GPS signal of the drone can be jammed and send it off track or astray. Also, drone communication links can be jammed. Special laser-beam firing guns can burn the drone electronics or dazzle the optical systems. There are cyber means to take control of the drone and bring it down at a place of own choosing, as was done by the Russians in Syria.

It is a good achievement even if the drone is forced to drop its load through counter-drone action. Even the drone warhead could be exploded in the air. With more drones being flown in a swarm, the complexity of neutralizing would increase.

Drone Ecosystem In India

Indian armed forces are already flying Israeli Heron and Searcher UAVs and Harpy and Harop UCAVs. India will soon have MQ-9 Reaper or Predator B UCAVs from General Atomics of the USA. For a long time, DRDO's Aeronautical Development Establishment (ADE) was responsible for UAV development in India. Lakshya and Nishant had little success. Indian DRDO's Stealth

UCAV Ghatak project is being accelerated. The first flight of a scaled-down test-bed flying wing was carried out in July 2022. It may be inducted by 2026.

Tapas MALE is also progressing well. DRDO must find private production partners for UAVs. The Adani Group is making the Israeli Hermes UAVs in India through a joint venture with Elbit Systems at Hyderabad. Meanwhile, the private sector has been rightly galvanized for mid-sized drones. Over 100 drone start-ups are operating, and many have started getting significant orders from armed forces and other security agencies. Indian Air Force's 'Mehar Baba' competition helped identify drone and drone swarm start-ups.

Bengaluru-based start-up NewSpace Research and Tech is working with Hindustan Aeronautics Limited (HAL) to develop a futuristic air-launched swarm drone system called the Combat Air Teaming System as part of the Manned-Unmanned-Teaming project. As per the Drone Federation of India, the manufacturing of drones and related systems is happening in India, but critical components like batteries, motors, sensors, semiconductors, GPS, and cameras are still being outsourced. Select countries have developed mass production capabilities against aggregated demand for such components. India needs to get into such mass production.

Anti-Drone Actions In India

Notwithstanding the sporadic successes of shooting down a few intruding Pakistani drones, it must be understood that the initiative of timing and place is with the aggressor. Considering that India's border with Pakistan and China is large, we have to be selective in providing anti-drone means to the border guarding forces.

Also, human intelligence (HUMINT) and other means must support anti-drone actions. The Indian Army and BSF are acquiring large numbers of drones, some of which could be used to monitor borders and identify incursions in a timely manner. It all requires inter-agency coordination in India. The BSF conducts round-the-clock surveillance through patrols, checkpoints, and observation posts. The fence's floodlighting enhances visibility at night. India has invested in radars for detection.

Indian security forces also use drones for anti-drone operations. BSF has installed anti-drone systems using integrated surveillance technology equipped with cameras, sensors, alarms, and a command-and-control system at more sensitive points on the Punjab border. They have also created 'drone hunting teams' to shoot down enemy UAVs. The success rate in downing drones is going up. BSF conducts awareness campaigns among the public in border areas to sensitize them about UAVs/drones. With many drone start-ups in India, anti-drone systems can be acquired easily in more significant numbers.

Way Ahead For India

Pakistan's support of radical Islamic elements and the technological backing of China enhances the terror threat pan-India that sees the risk of drones being used for more lethal chemical or biological forms of terrorism. The Indian government is giving the drone ecosystem in India a very high priority. India must promote more research and development in drones and unmanned systems to remain globally relevant.

As India becomes drone-friendly, there is a need to strengthen regulation and control over drones. Air defense procedures have to be evolved. More no-fly zones may be designated to make vital installations safer. Sensors and weapons against drones would one day be integrated like the IAF's Integrated Air Command and Control System (IACCS). Inter-ministerial coordination would be significant with the proliferation of drones within the country.

Local police and the Intelligence Bureau (IB) must monitor drones more closely. The police and security personnel should be educated and trained to respond to drone transgressions. India must prepare to take on drone swarms. An anti-drone force may be created one day. The national drone policy would need continuous evolution, using global interactions and inputs. Greater indigenization of both platforms and sensors is needed to counter the risk of embedded malware in drone electronic sensors. Drones are the future, and India must take a facilitative, proactive approach while being conscious of security implications and preparing for them.

https://www.eurasiantimes.com/pakistan-plotting-uav-attacks-on-indian/

THE ECONOMIC TIMES

Thu, 11 July 2024

Four European nations agree to jointly develop long-range cruise missiles

France, Germany, Italy and Poland signed a letter of intent on Thursday to develop ground-launched cruise missiles with a range beyond 500 km (310 miles), aiming to fill what they say is a gap in European arsenals exposed by Russia's war in Ukraine.

Speaking on the sidelines of the NATO summit in Washington after the signing ceremony, French Defence Minister Sebastien Lecornu said the new missile was meant to serve as a deterrent.

"The idea is to open it up as widely as possible," he told reporters, and suggested Britain's new Labour government could join. "It has value, including on a budgetary level, because it obviously also allows the various costs to be amortized."

A first draft of the weapon might be sketched out by the end of the year, he said, with the specifications such as the range to be worked out in more detail later. He was speaking one day after Washington and Berlin announced they would begin deploying U.S. long-range missiles on German soil in 2026, including the SM-6, Tomahawks and developmental hypersonic weapons.

The deployment, condemned by Moscow as a "very serious threat" to Russian national security, is seen as a stop-gap solution until Europe has its own longrange missiles ready.

Cruise missiles with a range of several hundred km have had a revival since Russia's invasion of Ukraine in 2022, with Moscow launching cross-border strikes and Kyiv hitting back at targets in Russian territory. Europe's existing stocks of cruise missiles include weapons launched by fighter jets, such as Britain's Storm Shadow, France's Scalp and Germany's Taurus with a range of some 500 km.

LOW-FLYING MISSILES

Unlike ballistic missiles, cruise missiles fly low, making them harder to detect by radar. A military source said the aim was for the new ground-based missile to have a range of 1,000 to 2,000 km to meet NATO demands for such a capability.

Paris has suggested basing the weapon on a modification of its existing naval cruise missile MdCN (Missile de Croisiere Naval), made by European defence company MBDA that also produces Taurus, Storm Shadow and Scalp.

MBDA, owned by Franco-German Airbus, British BAE Systems and Italian Leonardo, has been working on the development of an MdCN modification that could be fired from truck-mounted rocket launchers.

The development of a missile with a range exceeding 500 km means European NATO allies will in effect reintroduce a category of weapons banned under the Intermediate-Range Nuclear Forces Treaty until 2019.

The INF treaty signed in 1987 outlawed nuclear and conventional groundlaunched missiles with a range between 500 and 5,500 km. It eliminated a whole category of weapons. Germany, Hungary, Poland and the Czech Republic also destroyed their missiles in the 1990s, followed later by Slovakia and Bulgaria.

The U.S. quit the INF Treaty in 2019, saying Moscow was violating the accord, citing Russia's development of the 9M729 ground-launched cruise missile, known in NATO as the SSC-8. Russia denied the accusation and imposed a moratorium on its own development of missiles previously banned by the INF treaty.

Russian President Vladimir Putin said last month Moscow should resume production of intermediate and shorter range nuclear-capable missiles after the U.S. brought similar missiles to Europe and Asia.

https://economictimes.indiatimes.com/news/defence/four-european-nations-agree-to-jointly-develop-long-range-cruise-missiles/articleshow/111667713.cms

THE ECONOMIC TIMES

Thu, 11 July 2024

Echoes of Cold War: US missile plan draws praise, misgivings in Germany

A plan to allow the deployment of U.S. long-range missiles in Germany drew praise and misgivings alike on Thursday, with supporters saying it made Europe safer but critics warning it could antagonise Russia and spark a new arms race.

The agreement, unveiled during a NATO summit in Washington, is to deploy capabilities from 2026 including SM-6, Tomahawk and developmental hypersonic weapons with a longer range than

European powers currently have. The issue could cause new tensions in Chancellor Olaf Scholz's coalition and provide campaign fodder for the far-right Alternative for Germany (AfD) party ahead of local elections in east Germany in September where it is expected to perform well.

Germany is one of several NATO countries that host U.S. nuclear weapons, and domestic opposition to such deployments stretches back to when thenWest Germany was a front-line state during the Cold War. Moscow called it an escalatory move and vowed a response. Nils Schmid, a spokesperson for Scholz's Social Democrats, told Reuters "this is a necessary step to deter Russia." The opposition conservatives, who - given the unpopularity of Scholz's centreleft coalition - could be in power by the time the missiles are deployed, also endorsed the move.

However, Scholz's Greens coalition partner complained it had not been properly kept in the loop about the decision and said it contradicted a budget deal that they had only just agreed after long and difficult negotiations. "The chancellor should explain himself quickly," Greens spokesperson Sara Nanni told the Rheinische Post. That Scholz had not commented on the decision, she said, was "irritating" and could "increase fears and leave room for disinformation and incitement" about the threat level NATO faced.

The AfD, which opposes German weapons deliveries to Ukraine as it battles Russia's invasion, and is seen by critics as overly friendly with Moscow, said the U.S. missile decision made "Germany a target". "Chancellor Olaf Scholz is not acting in Germany's interest," said AfD leader Tino Chrupalla.

"He is allowing Germany's relationship with Russia to be permanently damaged and we are falling back into the pattern of the EastWest conflict." The leftist Die Linke party called the decision "highly problematic" and warned of a new arms race being launched under the guise of deterrence.

https://economictimes.indiatimes.com/news/defence/echoes-of-cold-war-us-missile-plan-draws-praise-misgivings-in-germany/articleshow/111662769.cms

Science & Technology News

Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 11 July 2024

Securing our future - a huge ‘quantum’ leap in data encryption

Indian scientists have made a major breakthrough in cybersecurity. They've created a new, user-friendly way to generate truly unpredictable random numbers, which is crucial for stronger encryption in quantum communications. This advance could revolutionize how we protect sensitive data in the future.

The security of quantum communications relies on inherent randomness as a seed, such as randomness in measurement bases chosen by sender and receiver. This prevents malicious agents from deciphering secure information through prior knowledge of such choice of bases.

The Quantum Information and Computing (QuIC) lab at Raman Research Institute, Bengaluru, an autonomous institute of Department of Science and Technology, had performed a photonic experiment to demonstrate violation of what are called the Leggett Garg Inequalities (LGI)-- -- a litmus test for "quantumness" in a system in a loophole free manner.

Taking this further, over the last few years, the group has carried out extensive research in collaboration with researchers from Indian Institute of Science (IISc), Bengaluru, IISER-Thiruvananthapuram and the Bose Institute, Kolkata to use such LGI violation in a completely unexplored domain-- truly unpredictable random number generation, secure against device tampering and imperfections. These numbers are crucial in applications like cryptographic key generation, secure password creation and digital signatures among others.

“We have successfully generated random numbers using temporal correlations certified by the violation of the Leggett Garg Inequality (LGI). These are temporal analogues of the popularly known Bell inequalities-- a set of mathematical expressions that compare the predictions of quantum mechanics with those of classical physics. Our experimental setup ensures a loophole-free violation of LGI, providing an additional advantage of generating loophole-free randomness,” said Professor Urbasi Sinha, faculty at RRI, PI of the QuIC lab where the work was carried out, and the corresponding author of the paper recently published in the Physical Review Letters.

In today's digital world, where we rely heavily on technology, strong passwords are vital for everyone's safety. This new method offers the enhanced protection we all need in our daily lives, by using truly random numbers to generate keys that will be used to encrypt the passwords, the researchers noted.

“It is resilient against attacks on the initial state, which is typically the most vulnerable point in this scheme. The certified random numbers are important because any predictability of these numbers can compromise the entire security system, making it vulnerable to attacks. These numbers ensure the robustness of encryption, authentication and data integrity processes and maintain trust and security in digital interactions,” added Sinha.

There are several advantages in generating certified random numbers using this method.

“These include the creation of strongly protected passwords, enhanced account security by resisting brute-force attacks, ensuring uniqueness, integrity thereby preventing forgery and token generation with multi-factor authentication, adding a crucial security layer in this vulnerable cyber world” said Dr. Debashis Saha, IISER Thiruvananthapuram faculty and co-author of the study.

In the photonic experiment led by RRI, the team replaced this conventional two-particle system with a single-particle setup.

“The existing two-particle scenario for measuring correlations had drawbacks, wherein, an entangled state of two particles would get created and transferred to two measurement stations. Noise generated during the process could, thus, interfere in the entanglement. Besides, the requirement of maintaining a distance of 200 meters between the two particles to ensure the

loophole free design, makes the whole process highly complicated", said Pingal Pratyush Nath, a PhD student at IISc and the first author of the study, who is co-supervised by Professor Sinha.

Additionally, the single-particle scheme used measurements that required temporal separation instead of spatial, thus providing a compact random number generator with a potential to get commercialized for varied applications.

The experiment generated over 9,00,000 random bits at a rapid rate of nearly 4,000 bits/second. This high random number generation can help in using these numbers towards various applications that require rapid randomness.

With further engineering interventions and innovations, devices adopting this method could find powerful applications not only in cybersecurity and data encryption, but also in the context of varied types of randomness-based simulations and randomized control trial statistical studies in diverse important areas.

"These include economic surveys, drug designing/testing, as well as for any futuristic technology that would rely on provable unpredictability as a critical resource", said Bose Institute's Professor Dipankar Home, another co-author of the study.

https://pib.gov.in/PressReleasePage.aspx?PRID=2032507

THE ECONOMIC TIMES

Thu, 11 July 2024

Space regulator nod must from April 1 next year for use of non-Indian satellites

The government has issued an advisory to satellite television broadcasters to seek authorisation from India's space regulator IN-SPACe for using nonIndian satellites from April 1 next year. In May, the Indian National Space Promotion and Authorisation Centre (IN-SPACe) issued Norms, Guidelines and Procedures (NGP) for the implementation of the Indian Space Policy-2023 which states that only INSPACe authorised non-Indian satellites will be allowed to provide services in the country.

"With effect from April 1, 2025, only IN-SPACe authorised non-Indian satellites/constellations in any of the frequency bands shall be permitted to enable provisioning of their capacity in India," the advisory issued by the Ministry of Information and Broadcasting said, quoting the relevant section of the NGP document. The existing arrangements/mechanisms/processes for provisioning of capacity in any of the frequency bands (C, Ku or Ka) from the Non-Indian Satellite operators can be extended till March 31, 2025.

Effective from April 1, 2025, only IN-SPACe authorised non-Indian GSO satellites and/or NGSO satellite constellations are permitted to provision their capacity to provide space-based communication/ broadcast services in India, it said. The government advisory has been issued to all private television channel broadcasters/teleport operators. It said any new capacity, additional

capacity, or change of satellite on a nonIndian Satellite/Constellation needs IN-SPACe Authorisation, through an Indian Entity, to enable provisioning of its capacity to users for communication/broadcast services in Indian Territory.

The advisory said that beyond March 31, 2025, only satellites authorised by INSPACe can provide space-based communication and broadcast services in India, and any new or additional capacity must comply with these authorisation requirements.

https://economictimes.indiatimes.com/news/science/space-regulator-nod-must-from-april-1-next-year-for-use-of-non-indian-satellites/articleshow/111666297.cms

The Indian EXPRESS

Fri, 12 July 2024

Why ISRO wants to venture into planetary defence

Indian Space Research Organisation (ISRO) Chairman S Somanath said last week that "we should be able to go and meet" the asteroid Apophis when it passes by Earth at a distance of 32,000 km in 2029. However, "it is yet to be decided in what way [ISRO] should participate". The Indian space agency might send its own spacecraft, or collaborate with other space agencies. A NASA mission has already been confirmed. Somanath's remarks reveal ISRO's intent to develop capabilities in planetary defence — an area it has so far not entered. A mission to study an asteroid would be the first step towards building a programme aimed at preventing celestial bodies from colliding with Earth with potentially catastrophic consequences.

An alarming asteroid

When Apophis was discovered in 2004, scientists thought there was a 2.7% chance of a collision with Earth — the highest probability of any large asteroid hitting Earth in the recent past. Initial observations showed that if not in 2029, Apophis could hit Earth in 2036 or 2068. Given the asteroid's size — it measures about 450 m at its widest — a collision with Earth could cause large-scale damage. Some scientists compared the potential impact to the event that wiped out dinosaurs and most other extant life some 66 million years ago.

Subsequent observations showed these initial fears to have been unfounded — the Earth did not face any risk from Apophis in 2029, 2036, or 2068. The asteroid will come the closest to Earth in 2029, when it flies by at a distance of 32,000 km. This is close enough to be visible to the naked eye, and at a distance at which some communication satellites operate.

Threats from space

Apophis may not pose a threat, but asteroids are headed towards Earth all the time. In fact, thousands enter the Earth's atmosphere every day. Most are very small and burn up in the atmosphere due to friction — some of the larger ones burn spectacularly, and show up as fireballs in the sky. In some cases, unburnt fragments make it to surface, although they are not large enough to cause much damage. Once in a while, however, asteroids do cause damage. In 2013, a 20-metre wide asteroid entered the atmosphere and exploded about 30 km above a Russian town, releasing

energy equivalent to the blast yield of 400-500 kilotons of TNT — 26 to 33 times the energy released by the atom bomb that detonated over Hiroshima. While most of this energy was absorbed by the atmosphere, shock waves travelled to the ground, flattened trees, damaged buildings, and injured 1,491 people, according to the Russian Ministry of Health.

Worryingly, the asteroid was detected only after it entered the atmosphere. This was in part because it came from the direction of the Sun, and was hidden by its glare. Scientists know of at least 1.3 million asteroids, but there could be more surprises in store. A planetary defence programme seeks to track and neutralise these threats.

From sci-fi to reality

In 2022, NASA demonstrated technology that has long been a science fiction staple. A spacecraft launched in the previous year crashed into an asteroid named Dimorphos, and changed both its shape and its trajectory. Dimorphos did not pose a threat to Earth, and was circling the Sun some 11 million km away from our planet. But this showed the beginning of a planetary defence programme. Asteroids are yet to be studied in detail, and very few missions have been dedicated to them.

This is why the approach of Apophis has generated huge interest among space agencies around the world. While formal announcements are yet to be made, several missions, including those from private agencies, are expected to be launched in order to study the asteroid from close quarters. NASA has already redirected one of its spacecraft, one that previously studied the asteroid Bennu, to track Apophis. This spacecraft will go within a distance of 4,000 km of Apophis in April 2029, and then trail the asteroid for 18 months, collecting data and analysing its surface.

ISRO’s intention to join such an endeavour displays its growing confidence in taking on newer challenges, and contributing proactively to global space objectives. It is also a reaffirmation of its continuing evolution into a well-rounded space agency, with capabilities that match the best in the world.

https://indianexpress.com/article/explained/explained-sci-tech/why-isro-wants-to-venture-into-planetary-defence-9447875/

The Indian EXPRESS

Thu, 11 July 2024

What is Thirty Meter Telescope and why is it significant for India?

The Thirty Meter Telescope (TMT) is a revolutionary class of extremely large telescopes that will enable us to explore deeper into space and observe cosmic objects with unparalleled sensitivity.

Indian scientists have developed an open-source tool to generate an infrared star catalogue for the Adaptive Optics System (AOS) of the TMT. This advancement is crucial for the telescope’s ability to generate sharper astronomical images.

What is Thirty Meter Telescope project?

This is an ambitious international project involving India, the United States, Canada, China, and Japan that aims to significantly advance our understanding of the universe. The TMT is a next-generation astronomical observatory designed to provide unprecedented resolution and sensitivity with its massive 30-meter primary mirror, advanced adaptive optics system, and state-of-the-art instruments.

The primary goals of the TMT are to:

- Study the early universe and the formation and evolution of the first galaxies and stars after the Big Bang.
- Investigate the formation, structure, and evolution of galaxies across cosmic time.
- Study the relationship between supermassive black holes and their host galaxies.
- Investigate the formation of stars and planetary systems.
- Characterize exoplanets and study their atmospheres.

The preferred site for the TMT is Mauna Kea, Hawaii, one of the world's premier astronomical sites. However, due to conflicts with indigenous Hawaiians who consider the site sacred, alternative locations such as the Observatorio del Roque de los Muchachos (ORM) on La Palma in the Canary Islands, Spain, are being explored.

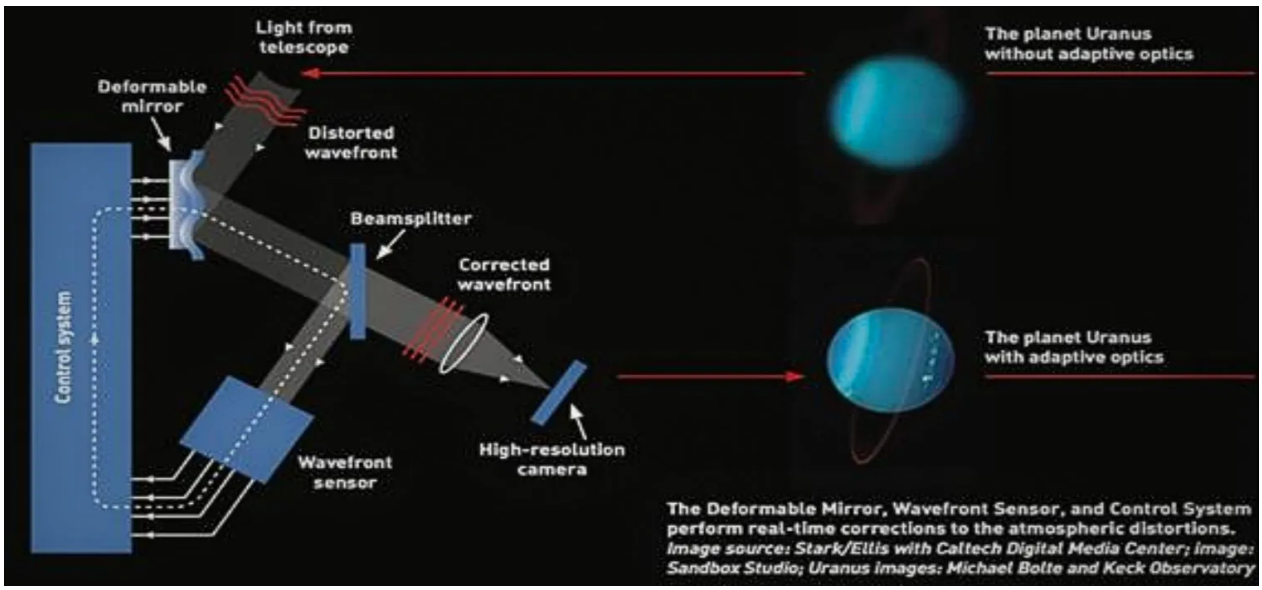
Key Features of the TMT

Mirror System

Primary Mirror: 30 meters in diameter, composed of 492 hexagonal segments.

Secondary Mirror: Composed of 118 smaller hexagonal segments.

Tertiary Mirror: 3.5 meters by 2.5 meters, positioned centrally within the primary mirror.



A schematic diagram illustrating the working of an AO system in a telescope. (Photo: PIB/TMT International Observatory)

Adaptive Optics System

The TMT's AOS, known as the Narrow Field Infrared Adaptive Optics System (NFIRAOS), uses deformable mirrors and laser guide stars to correct atmospheric turbulence, enhancing image resolution. Indian scientists have developed a tool to generate a comprehensive all-sky catalogue of NIR stars for this system.

Scientific Instruments

The TMT will feature instruments like the Infrared Imaging Spectrometer (IRIS) and the Wide-Field Optical Spectrograph (WFOS) for various observations.

Why is it significant for India?

With contributions from the Indian Institute of Astrophysics (IIA), Bengaluru, the Inter-University Center for Astronomy and Astrophysics (IUCAA), Pune, and the Aryabhatta Research Institute for Observational Sciences (ARIES), Nainital, India is seen as a major contributor to the TMT project, providing hardware, instrumentation, software, and funding worth $200 million.

The new tool developed by Indian researchers will help mitigate atmospheric distortions by creating an all-sky NIR star catalogue, ensuring high-quality images from the TMT.

Researchers at the IIA in Bengaluru, led by Dr. Sarang Shah, have developed an automated code to generate this catalogue, essential for the NFIRAOS to function optimally. This tool will enable the TMT to use Natural Guide Stars (NGS) to correct atmospheric effects, crucial for its successful operation.

https://indianexpress.com/article/technology/science/thirty-meter-telescope-significant-for-india-9447787/