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THE NEW INDIAN EXPRESS

Thu, 27 Jan 2022

Republic Day 2022: DRDO's tableaux display indigenous weapons for Tejas, propulsion system for subs

Twenty-five tableaux of different states, departments and armed forces were part of the parade.

New Delhi: The Defence Research and Development Organisation (DRDO) had two tableaux at the Republic Day parade on Wednesday, showcasing indigenously developed warfare systems for the light combat aircraft (LCA) Tejas and air independent propulsion (AIP) systems for Indian submarines.

Twenty-five tableaux of different states, departments and armed forces were part of the parade.

The DRDO's first tableau displayed an indigenously-developed advanced electronically scanned array radar called 'Uttam' and five different aerial launched weapons and an electronic warfare (EW) jammer to enhance the capabilities of the fourth-generation LCA Tejas.

LCA Tejas fighter jet. (Photo | Ashishkrishna HP, EPS)

The second featured indigenously-developed AIP systems for propelling the Indian Navy's submarines underwater.

The AIP allows a submarine to be submerged for longer periods compared to conventional diesel-electric submarines and makes the sub-surface platform more efficient by making it quieter than even a nuclear submarine.

The AIP is powered by indigenously-developed fuel cells with a novel on board hydrogen generator.

Only about 5,000-8,000 people were allowed to attend this year's Republic Day parade due to the ongoing COVID-19 pandemic.

Before the pandemic, around 1.25 lakh people used to attend the parade.

https://www.newindianexpress.com/nation/2022/jan/26/republic-day-2022-drdos-tableaux-display-indigenous-weapons-for-tejas-propulsion-system-for-subs-2411546.html

नवभारत टाइम्स

Thu, 27 Jan 2022

डीआरडीओ की झांकी में तेजस के लिए स्वदेशी प्रणालियों का प्रदर्शन

नयी दिल्ली: रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) ने बुधवार को गणतंत्र दिवस परेड के दौरान रक्षा के क्षेत्र में देश की तकनीकी प्रगति को दर्शाने वाली दो झांकियां प्रदर्शित कीं।

इन झांकियों के जरिए हल्के लड़ाकू विमान (एलसीए) तेजस के लिए स्वदेशी रूप से विकसित सेंसर आयुध प्रणालियों और और भारतीय नौसेना की पनडुब्बियों के लिए विकसित वायु स्वतंत्र प्रणोदन प्रणाली (एआईपी) का प्रदर्शन किया गया।

परेड के दौरान विभिन्न राज्यों, विभागों और सशस्त्र बलों की 25 झांकियां दिखाई गईं।

डीआरडीओ की पहली झांकी में स्वदेश में विकसित इलेक्ट्रॉनिक रूप से स्कैन किए गए उन्नत ऐरे रडार 'उत्तम', हवा से हवा में मार करने वाले पांच अलग-अलग हथियार तथा चौथी पीढ़ी के एलसीए तेजस की क्षमताओं को और बढ़ाने वाले इलेक्ट्रॉनिक युद्ध जैमर को प्रदर्शित किया गया।

दूसरी झांकी में भारतीय नौसेना की पनडुब्बियों को पानी के भीतर चलाने के लिए स्वदेशी रूप से विकसित एआईपी प्रणाली को प्रदर्शित किया गया। एआईपी प्रणाली स्वदेशी रूप से विकसित ईंधन सेल द्वारा संचालित है जिसमें एक नवीन हाइड्रोजन जनरेटर है।

https://navbharattimes.indiatimes.com/india/indigenous-systems-for-tejas-displayed-in-drdo-tableau/articleshow/89133570.cms

ZEENEWS

Wed, 26 Jan 2022

भारत की अग्नि-5 मिसाइल साबित होगी गेमचेंजर, सामने टिक नहीं पाएगा चीन

नई दिल्ली: भारत अब पड़ोसी मुल्क की ओर से आने वाले खतरे को देखते हुए ज्यादा सतर्क हो गया है। यही वजह है कि अग्नि सीरीज को ज्यादा घातक और मारक क्षमता के साथ टेस्ट किया जा रहा है। देश की अग्नि-5 मिसाइल चीन के सुदूर उत्तरी इलाके तक टारगेट करने में सक्षम है, जिसकी मारक क्षमता 5 हजार किमी है।

चीन से अग्नि-5 का मुकाबला

भारत जमीन से जमीन पर मार करने वाली अग्नि-5 मिसाइल का सफल परीक्षण कर चुका है। इस मिसाइल की मारक क्षमता करीब 5 हजार किमी है और यह पूरी सटीकता के साथ निशाना साधने में सक्षम है। भारत के अग्नि-5 प्रोजक्ट का मुख्य मकसद चीन की न्यूक्लियर क्षमता को अप्रभावी बनाना और भारतीय सेना को ड्रैगन के खिलाफ सशक्त करना है। चीन के पास पहले ही डोंगफेंग-41 मिसाइल मौजूद है जिसकी मारक क्षमता 12 से 15 हजार किमी बताई गई है।

LAC पर तनाव के बीच टेस्ट

अग्नि-5 प्रोजेक्ट की शुरुआत करीब एक दशक पहले हुई थी और अब तक 7 बार इस मिसाइल का परीक्षण किया जा चुका है। अग्नि-5 मिसाइल अपनी मारक क्षमता से चीन के सुदूर उत्तरी हिस्से तक निशाना साध सकती है। डीआरडीओ ने LAC पर चीन के साथ चले आ रहे तनाव को देखते हुए इस मिसाइल का सफल टेस्ट किया था। इस मिसाइल की हाइट करीब 17 मीटर है और यह 1.5 टन युद्ध सामग्री ले जा सकती है।

पाकिस्तान से एक दशक आगे भारत

चीन ने अपनी दो हाइपरसोनिक मिसाइलों का टेस्ट किया था जिसके बाद भारत ने भी सफल परीक्षण को अंजाम दिया। हालांकि ड्रैगन ने इसे रुटीन टेस्ट बताया था। भारत ने पहली बार 1989 में अग्नि

मिसाइल का टेस्ट किया था, इसके करीब एक दशक बाद पाकिस्तान में मिसाइल का टेस्ट हुआ था। फिलहाल DRDO अग्नि-6 मिसाइल पर काम कर रहा है जिसकी मारक क्षमता करीब 6 हजार किमी है।

चीन की मिसाइल की रेंज 2 हजार किमी

यह मिसाइल 10 न्यूक्लियर हथियार ले जाने में सक्षम है और 8 से 10 हजार किमी तक टारगेट कर सकती है। साथ ही इसे सबमरीन से भी लॉन्च किया जा सकता है। अग्नि-5 का पहला टेस्ट अप्रैल 2012 में किया गया था और आखिरी टेस्ट करीब तीन साल पहले हुआ था। चीन ने अपनी मीडियम रेंज मिसाइल DF-17 से साल 2019 में पर्दा उठाया था। यह मिसाइल 2 हजार किमी तक टारगेट कर सकती है और हथियार ले जाने में सक्षम है।

भारत के मददगार ये देश

अग्नि सीरीज की मिसाइलों की रेंज 700 से लेकर 3500 किमी है और यह सभी तैयार हो चुकी हैं। लेकिन अब अग्नि-5 प्रोजेक्ट का मकसद इस क्षमता को आगे बढ़ाना है। साथ ही चीन के खिलाफ जवाबी हथियार तैयार करना है। भारत डिफेंस कॉपरेशन के लिए अब तक पश्चिमी देशों पर निर्भर था। क्वॉड देशों के साथ अमेरिका, जापान और ऑस्ट्रेलिया जैसे देश के प्रमुख साझेदार हैं। भारत ने रूस से S-400 मिसाइल डिफेंस सिस्टम खरीदा है। भारत ने अमेरिकी प्रतिबंधों की परवाह किए बैगर रूस के साथ ये बड़ा सैन्य करार किया है।

रूस और नॉर्थ कोरिया ने किए टेस्ट

भारत के अलावा हाल में रूस ने भी हाइपरसोनिक मिसाइल जिरकॉन का टेस्ट किया है। इसे सबमरीन से टारगेट किया गया था। इसके अलावा नॉर्थ कोरिया ने भी सबमरीन से नई तरह की बैलिस्टिक मिसाइल का लॉन्च टेस्ट किया था।

https://zeenews.india.com/hindi/india/photo-gallery-agni-5-vs-china-df-17-missile-indias-nuclear-capable-missile-is-a-gamechanger/1080208/china-unveiled-a-hypersonic-medium-range-missile-df-17-1080213

NEWS18

Thu, 27 Jan 2022

Tejas Light Combat Aircraft: Here are five things that make it a lethal fighter jet

The Republic Day 2022 parade at the Rajpath will see the largest flypast ever with the participation of 75 aircraft to mark the Azadi ka Amrut Mahotsav celebrations.

Indian Air Force's (IAF) home-grown Tejas Light Combat Aircraft (LCA), although has not participated in any Republic Day flypast till now, is a promising aircraft. Last year, the central government approved the purchase of 73 Tejas LCA fighter jets and 10 trainer aircraft costing Rs 45,696 crore.

On Wednesday, the Republic Day parade at the Rajpath will see the largest flypast ever with the participation of 75 aircraft to mark the Azadi ka Amrut Mahotsav celebrations. The IAF announced that the flypast will conclude with seven jaguar fighter aircraft flying in the Amrit formation to commemorate the 75 years of being a Republic. Some of the notable aircraft that will enthral the audience at the parade are Rafale, Indian Navy's MiG29K, P-8I surveillance aircraft and Jaguar fighter jets.

- Although Tejas is not part of the contingent, we are here to tell you some interesting facts about this indigenously manufactured aircraft:
- Tejas is India's first self-made fighter jet. In February 2019, it received the final operational clearance as a fully-weaponised fighter jet for induction into the Indian Air Force.
- Designed by the Aeronautical Development Agency (ADA), the indigenously-developed aircraft has been manufactured at the Hindustan Aeronautics Limited (HAL) for the Indian Air Force and the Indian Navy.

Tejas is India's indigenous Light Combat Aircraft. (Image Source: IANS Photo)

- The Tejas Mk-1A Light Combat Aircraft is designed and manufactured in India. The aircraft is a fourth-generation fighter with critical operational capabilities that include an Active Electronically-Scanned Array (AESA) radar, an Electronic Warfare (EW) suite, and is capable of air-to-air refuelling (AAR).
- Tejas aircraft can carry the same array of modern weapons that can be loaded on bigger warplanes, for example - precision-guided and standoff weaponry to long-range beyond visual range missiles that can take down target planes from a safe distance.

The features of Tejas are air-to-air refuelling, air-to-ground weapons, and beyond Visual Range Missile capabilities. The aircraft is a fully-weaponised light fighter with a single-engine.

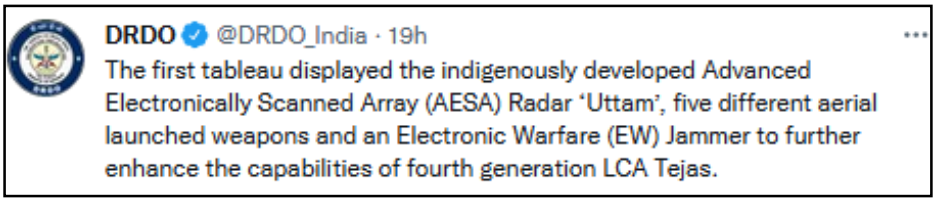
https://www.news18.com/news/auto/tejas-light-combat-aircraft-here-are-five-things-that-make-it-a-lethal-fighter-jet-4698272.html

DRDO on Twitter

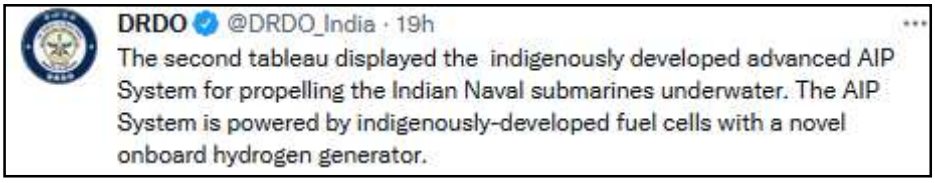
26 January 2022

26 January 2022

26 January 2022



26 January 2022



26 January 2022

Defence News

Defence Strategic: National/International

Thu, 27 Jan 2022

Export of BrahMos missile to Philippines boosts India's $5 billion defence export goal

This is likely one of the first times India has sold high-grade weapons, and the $374 million, 962 thousand dollar sale is a big step forward.

A massive surge in India's weaponry exports has been an underrated positive story of the Narendra Modi government. From 1,521 crore in 2016-17 to 8,434.84 crore in 2020-21, India's defense exports increased. In 2018-19, the number was Rs. 10,745 crore. Defense exports totaled Rs. 38,500.25 crore during the previous seven years. By 2025, the government has set an ambitious goal of exporting aerospace and defense items and services worth over 35,000 crores ($5 billion). Despite being second only to Saudi Arabia in terms of imports, India's defense exports for the previous year were among the top 25 in the world.

After striving to get specialized weapon locating radars (WLRs) from the United States and Israel in the 1990s, India is now exporting them to Armenia in a $40 million agreement. According to the most recent Stockholm International Peace Research Institute (SIPRI) research, three Indian

firms rank among the top 100 defense corporations in the world in 2020: Hindustan Aeronautics Limited (HAL), Ordnance Factory Board, and Bharat Electronics Ltd. (BEL). "Their combined arms sales of $6.5 billion in 2020 were 1.7 percent higher than in 2019 and contributed for 1.2 percent of the top 100 total," according to the study, which was issued last year in December.

Moreover, India is selling BrahMos cruise missiles to the Philippines, which were co-developed with Russia. The contract is expected to be signed on January 28 at the Philippines' National Defense Department headquarters in Quezon City. This $375 Million dollar deal is a game-changer since India isn't buying anything. Rather, India is selling high-end weapons produced in India to another country. This is likely one of the first times India has sold high-grade weapons, and the $374 million, 962 thousand dollar sale is a big step forward. It entails the purchase of two BrahMos missile launchers and a standard complement of missiles. Aakash air-defense missiles are being transferred to Vietnam as part of a similar agreement.

BrahMos missiles

Defense exports are an important component of the government's effort to achieve self-sufficiency in defense industry. Therefore, the government, led by Prime Minister Narendra Modi, has taken various steps to increase defense exports, including rescinding a section of the Special Chemicals, Organisms, Materials, Equipment, and Technologies (SCOMET) list that will allow for easier exports, opening an online portal for receiving and processing export authorization permission, and allowing the lawful export of parts and components of small arms and body armor for civil use after due consultation with the foreign ministry.

Last year, to support Prime Minister Narendra Modi's clarion call for 'Atmanirbhar Bharat,' the Union Ministry of Defense drafted a draught Defense Production and Export Promotion Policy 2020 in August as an overarching guiding document to provide a focused, structured, and significant thrust to the country's defense production capabilities for self-reliance and exports.

https://www.newsx.com/national/export-of-brahmos-missile-to-philippines-boosts-indias-5-billion-military-export-goal.html

Business Standard

Wed, 26 Jan 2022

Ladakh shows India needs a light tank to arm itself in high altitudes

Light tanks offer utility not just on the high-altitude Sino-Indian border, but on the mountain border with Pakistan in J&K as well

By Ajai Shukla

A key acquisition decision that has emerged during the 20-month-long, armed stand-off in Eastern Ladakh between the Chinese and Indian militaries is for the Indian Army to arm itself in high altitude terrain with indigenously built light tanks.

As the tension mounted in May 2020, both the Indian Army and China's People's Liberation Army (PLA) airlifted main battle tanks (MBTs) to the Line of Actual Control (LAC) between the two militaries to bolster their combat muscles.

However, the advantage rested with the PLA, whose armoured units in Tibet are equipped with the new ZTQ-15 (or Type 15) light tank. While the Indian armoured units laboured to move their heavy and underpowered, 42-tonne, Russian-origin T-72 MBTs across mountain passes as high as 17,500 feet, China's 33-tonne ZTQ-15 light tanks (36 tonnes with additional slap-on armour) were able to move through the 14,000 feet valleys with far greater ease.

With their 1,000 Horse Power (HP) Norinco engines, the ZTQ -15 tanks, also called the Black Panther, offered a power-to-weight ratio of more than 30 HP per tonne – enough to move tanks in that oxygen-depleted altitude.

In contrast, India's 42-tonne T-72s, with their 780 HP power packs, offer an inadequate power-to-weight ratio of just 18.5 HP per tonne. The T-72s are also significantly larger than the ZTQ-15, hindering their mobility over small bridges and narrow roads.

Given these operational disadvantages, Indian tank warfare planners have long discussed the need for a smaller, lighter tank for high-altitude warfare. This discussion gathered traction in 2017, when a heavy Chinese build-up in Doklam, Sikkim needed to be countered. The PLA's entry into Eastern Ladakh in 2020-21 galvanised the debate again.

Light tanks offer utility not just on the high altitude Sino-Indian border, but on the mountain border with Pakistan in J&K as well. They can also be used for counter insurgency tasks in jungle and urban terrain. Airlifting T-72s and T-90s is impossible from high altitude, 10,700 feet-high airfields such as Leh, but 25-30-tonne light tanks can be transported by the Indian Air Force's (IAF) strategic airlifters – namely the Ilyushin-76 and C-17 Globemaster III. Light tanks also lend themselves more easily to amphibious warfare.

With the Atmanirbhar Bharat (self-reliant India) motto guiding procurement and having built up experience on the Arjun tank project, the Combat Vehicles Research and Development Establishment (CVRDE) – A Chennai-based laboratory of the Defence R&D Organisation (DRDO) – was given the task.

It was calculated that Indian troops on the 3,488-km Sino-Indian border would need about 350-500 light tanks. There were already two T-72 armoured regiments (each with 45 tanks) defending the LAC. Over the years, the army had additionally raised two independent armoured brigades – one in Ladakh and the other in Sikkim and Arunachal Pradesh. Each of these brigades would field 175-200 light tanks.

Charged with building a 25-tonne, indigenous, light tank quickly, Indian planners presented two options. Both were based on customising the proven, 28-tonne, chassis, hull and engine of the K-9 Vajra – a heavy, tracked artillery gun that L&T has manufactured at Hazira, in Gujarat, for the artillery with technology transfer from South Korea's Hanwha Defence.

Both options involved putting a smaller, lighter turret in place of the K-9 Vajra's heavy, 155 mm artillery gun that shoots over-the-horizon to over 40 kilometres. One option involved fitting the light tank with a T-90 turret that mounts a heavy 125 mm tank gun. However, the 8-9 tonne T-90 tank turret, mounted on the 28-tonne chassis, would take the weight of the light tank to an unacceptable 36-37 tonnes.

The second option involves replacing the K-9 Vajra's artillery turret with a smaller turret that is fitted with a direct firing, high pressure, 105 mm gun. This turret would be procured, ready-built, from Belgian firm John Cockerill.

These options, however, took back seat as the army fell back onto its time-tested solution of buying Russian tanks. An Indian Army team inspected the 2S25 Sprut Russian armoured vehicle, but it soon became clear that the Sprut was not even a tank; it was a less mobile, anti-tank weapon, termed a "tank destroyer". Even the Russian Army had shrunk from inducting the Sprut into operational service – The Russian military bought only 24 Spruts.

Now Hanwha Defence, quick to see an opportunity, is preparing to offer the Indian Army its K21-105 light tank. This is a formidable platform, with a 105 mm turret that can achieve over 42 degrees of elevation – useful for firing at targets on higher slopes – and at a 10 degree depression angle.

However, the army, DRDO and Larsen & Toubro decided to pursue the project cooperatively, under the DRDO model of "Development cum Production Partner" (DCPP). In April 2021, the army issued a Request for Information (RFI), mandating an overall tank weight of under 25 tonnes and a power-to-weight ratio of at least 25 HP/tonne.

According to the RFI, "The light tank must have the versatility to execute operations in varying terrain conditions across diverse threat and equipment profile of the adversaries."

A DCPP agreement involves a firm that does the development work, while the DRDO provides advice, formulates specifications, contributes in design reviews and provides access to test facilities. The DCPP model was formalised in the modified version of theDRDO's "Policy and Procedures for Transfer of Technology," dated October 2019. Most development programmes are now being issued under this, so that the developed product is ready for production immediately after trials are concluded.

The cost of development, which the DRDO incurs in such projects, is not cheap. Nor is the cost negligible for the development partner, in this case L&T, which ends up paying for years of committing the talent and the team.

India has used light tanks in practically every operation since independence. Stuarts and Sherman tanks were used in the battle of Kohima in 1944. In 1948 these tanks were critical in pushing back Pakistani forces in Zojila. In 1962, French AMX-13 tanks were used in the battle of Gurung Hill and also deployed in Bomdila and Dirang. In 1971 AMX-13 and PT-76 tanks turned the tables on Pakistan in the battle of Garibpur in Bangladesh.

However, after the AMX 13 and PT 76 tanks were phased out, no replacements were inducted. The army's focus remained on building armour superiority on the Pakistan border and matching Pakistan, tank for tank, which required medium and heavy tanks. Today, India has over 4,000 medium tanks, but not a single light tank. It remains to be seen whether the Ladakh face-off with China galvanizes a change.

https://www.business-standard.com/article/current-affairs/ladakh-shows-india-needs-a-light-tank-to-arm-itself-in-high-altitudes-122012501856_1.html

THE TIMES OF INDIA

Wed, 26 Jan 2022

Army cranking up modernization drive with focus on high-volume firepower, surveillance & night-fighting

By Rajat Pandit

New Delhi: The 13-lakh Army is now cranking up its focus on longer-range weapons and night-fighting capabilities, multi-capacity drones and `disruptive technologies', early-detection and targeting systems, in its ongoing modernization drive amidst the 20-month-long military confrontation with China in eastern Ladakh.

Army plans to order another 200 K-9 'Vajra self-propelled tracked artillery guns after inducting 100 of them

The Army currently has 93 modernization projects in progress at various stages in the procurement process, with a total value of Rs 1.37 lakh crore ($18.4 billion), as per the latest figures.

With the overall thrust also being on indigenization, General M M Naravane recently said 19 of the 20 new "acceptance of necessities (AoNs)" approved for the Army by the defence ministry in the current financial year are in the "Buy Indian" category.

The Army has inked 121 capital procurement contracts worth Rs 93,463 crore over the last three-four years. The standoff with China, of course, propelled the entire modernization process on an upward trajectory.

Under emergency powers, for instance, 71 capital procurement contracts (worth Rs 6,918 crore) and 113 revenue procurement deals (Rs 9,000 crore) have been inked since June 2020, said sources.

"The aim was to make up for operational deficiencies, even as the re-balancing of additional forces to the northern borders and infrastructure upgrade was fast-tracked to counter the China threat," said a source.

The plans underway include a major induction of high-volume firepower, with a mix of artillery guns, enhanced Pinaka rocket regiments, longer-range BrahMos supersonic cruise missiles as well as loiter munition systems, runway-independent remotely piloted aircraft systems, and enhanced surveillance and weapon-locating capabilities, said sources.

Towards this end, the Army plans to order another 200 K-9 `Vajra' self-propelled tracked artillery guns after inducting 100 of them under a Rs 4,366 joint project of L&T and South Korean Hanwha Defence. With a strike range of 28-38 km, the Army has deployed some of these 155mm/52-caliber guns in Ladakh, as was reported by TOI earlier.

Around 110 of the 145 M-777 ultra-light howitzers ordered from the US for over Rs 5,000 crore have already been inducted, with the rest to follow over the next five months. The Army has also equipped two regiments with the `Sharang' artillery systems, which is the upgraded version of the old Soviet-origin 130mm guns, with a third on the way.

Progress, however, is slow in trials of the indigenous 155mm/52 caliber advanced towed artillery gun systems (ATAGS), which the DRDO contends is the best in its class in the world with a 48-km strike range. The Army needs as many as 1,580 such guns.

Another focus area for the Army is "future-ready mechanized platforms", with advanced weapons, enhanced night-fighting and cross-country capabilities from deserts to mountainous terrains.

Two "Make in India" projects are envisaged for this. One for 1,750 futuristic infantry combat vehicles (FICVs) and the other for 1,770 advanced main-battle tanks or future ready combat vehicles (FRCVs).

https://timesofindia.indiatimes.com/india/army-cranking-up-modernisation-drive/articleshow/89125603.cms

Business Standard

Thu, 27 Jan 2022

New guidelines for procuring anti-drone technology soon: Govt

There have been roughly 60 sightings of drones along the northern border in Jammu and Kashmir and on the western border in Punjab

Amid rising number of cases of drones being used for smuggling in arms, explosives and drugs from across the border, the Union government will soon issue guidelines for the procurement of anti-drone technology and systems.

Representative image

Though the Border Security Force (BSF), the National Security Guard (NSG) along with the Defence Research Development Organisation (DRDO) have been working on counter-drone technology, things are at a nascent stage and it will take time to come up with an effective counter-drone technology, sources in the security set up said.

The Union Home Ministry has taken feedback from the central security forces to formulate the standard guidelines for the procurement of counter-drone technology and it is learnt that the possible technology has been identified by the government and soon the procurement guidelines will be issued, officials said.

They also said that draft qualitative requirements (QRS) have been sent by the BSF and the expression of interest (EoI) has been sought from the manufacturers and possible vendors to supply the unmanned aerial vehicles (UAVs) or drones.

The BSF is looking for a handheld gun to shoot down drones or a group of UAVs (Swarm attack) from a considerable distance of 1000m to 2500m.

The BSF has sought the technology of anti-drone guns which should be portable, lightweight, capable of working both in day and night and must have jamming technology of the radio signal, the sources in the security set up said.

"The system should be capable of jamming the radio signal between the visible drone and the remote-control centre. As far as the operational capability is concerned, technology must accompany the guns that are capable of neutralising the flying objects across the border," a BSF official said on condition of anonymity.

The officials also said that the technology must have the capability to shoot UAVs within 10 to 15 seconds of their detection. There have been roughly 60 sightings of drones along the northern border in Jammu and Kashmir and on the western border in Punjab.

Recently, drone strikes in Abu Dhabi have demonstrated the threats they possess. There is a constant threat to the vital installations near the border areas that are under constant review, said a senior official in CISF.

On January 17, Houthi rebels from Yemen targeted the Abu Dhabi international airport and civilian infrastructure by using drones wherein six persons, including two Indians, were killed.

In June 2021, IEDs were dropped at the Air Force station in Jammu using drones, which were sent from across the border.

https://www.business-standard.com/article/current-affairs/new-guidelines-for-procuring-anti-drone-technology-soon-govt-122012601216_1.html

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Wed, 26 Jan 2022

Beating Retreat and demonstration of drone power

By Sanur Sharma

India has announced that a novel "Drone Show" comprising 1,000 swarm drones will light up the sky for about 10 minutes during the Beating Retreat Ceremony on 29 January 2022. It has been designed, conceptualised and produced indigenously under the "Make in India" initiative by Botlab Dynamics, and has been sponsored by the Indian Institute of Technology (IIT) Delhi and the Department of Science & Technology (DST), Ministry of Electronics and Information Technology (MeitY).[1] With a display of 1,000 indigenously produced swarm drones, India would become the fourth nation to achieve such a feat, making it a front row actor with a strong foothold in the field of drone technology.

The US, Russia and China have carried out such swarm drone displays in the past. In 2020, China tested its swarm drone technology and demonstrated rapid deployment with intensive launching, hovering, precise formation, inspection and precision strike.[2] In May 2021, the Chinese People's Liberation Army (PLA) showcased various drones like WZ-7 and WZ-8 (Chinese version of US R.Q. 4 "Global Hawk") at the International Aviation and Aerospace Exhibition, also known as the Airshow China, signalling the increased importance of drones in its military strategy. According to the Chinese media reports and experts, these surveillance drones are likely to be used over parts of South and East China seas and on the borders with India and Afghanistan.[3] At another PLA drill in May 2021, China showcased drone swarms and robots leading to speculations about their possible use during conflicts in the Taiwan Strait.[4] The US also, in the past, has conducted various demonstrations of their drone technologies. The US Navy displayed its offensive swarm operations with its LOCUST (Low-Cost

Unmanned Aerial Vehicle Swarming Technology) Drone Swarm that has the capabilities of firing small UAVs from the tube-based launcher.[5] In June 2019, the US Defense Advanced Research Projects Agency (DARPA) demonstrated a swarm of autonomous drones to analyse, surround and secure a mock city building. The demonstration was part of DARPA's Offensive Swarm-Enabled Tactics (OFFSET) programme, which has about 250 drones to accompany smaller infantry units to carry missions in dense urban environments.[6]

On 15 January 2021, the Indian Army had demonstrated its drone power with a display of Kamikaze mock attacks and first-aid delivery during the Army Day Parade. The 75 indigenously developed drones had displayed the swarming capabilities through an array of Artificial Intelligence enabled offensive missions.[7] This display contributed 13 targets at hostile armour mortar positions with troop concentrations, terror hideouts, radar sites and helipads that were brought down. The drones were synchronised with satellite feeds and area correlation technologies.[8] The remarkable thing about these swarm drones was that they were a heterogeneous swarm equipped with a quadcopter, a six-rotor mothership drone and small quadcopters with explosives.[9]

Unlike the US' homogenous swarms like Perdix Swarm and DARPA's Gremlins Swarm, India's drone swarm seems to be an efficient solution that gives a viable option to the military to construct its variable strategic defence mechanisms as per its requirements. India is also developing drone swarms that can be deployed from fast jets. The drones called Air Launched Flexible Asset–Swarm (ALFA–S), developed by Hindustan Aeronautics Limited (HAL) and Newspace Research & Technologies (NRT) Private Limited, are fully networked through electronic data links and are capable of detecting surface to air missile units, enemy radars and aircraft on the ground.[10] This project was pushed considering China's deployment of surface to air missiles at the Ladakh border.[11]

Another demonstration of a fully operational decentralised swarm of 25 drones was carried out by the Defence Research and Development Organisation (DRDO) at a three-day defence function in Jhansi in November 2021 to mark the 75th year of Indian Independence. Defence Minister Rajnath Singh highlighted the government's focus on achieving self-reliant, indigenous solutions in the defence sector. Prime Minister Narendra Modi, on 19 November 2021, handed over the indigenously developed military hardware, including the light combat helicopter, drones and electronic warfare systems to the armed forces.[12]

Though India is a relatively new entrant into this field, compared to Western powers, it appears set to make rapid progress in developing indigenous drone capabilities. However, the first procurement of drones by the Indian Army dates to the 1990s when it acquired UAVs from Israel. It was first used during the Kargil War in 1999 for photo-reconnaissance.[13] The DRDO has also been actively working in the development of drones, and the first fully functional unmanned drone system, Rustom-1, took flight in 2009. Recently, India has further extended its drone capabilities in collaboration with the US via the Defence Technology and Trade Initiative (DTTI), and in 2021, it signed a $3 billion deal for procurement of 30 Predator/ MQ 9 drones that have the ability to carry out long-range precision airstrikes.[14]

In addition, India has signed a pact of 100 explosive-laden drones with Israel's Elbit Security Systems and Bengaluru-based Alpha Design-led joint venture. These Sky Striker Drones are loitering munition with long-range capabilities of 100 km range loaded with 5 kg warhead. They are GPS enabled and capable of carrying out covert operations at low altitudes. The Indian armed forces have procured these drones to permanently enhance their operational capabilities, making it a force multiplier in futuristic warfare.[15]

Indian start-ups are expected to play a significant role towards developing indigenous solutions for drone swarms. Many Indian start-ups like Botlab Dynamics and Alpha Design are developing smart indigenous solutions driven by the latest technologies like AI and edge computing. In the commercial sector, India has already come up with a drone policy. The Ministry of Civil Aviation (MoCA) published the Unmanned Aircraft Systems Rules (UAS) in 2021 and updated rules were published on 13 January 2022. Union Civil Aviation Minister Jyotiraditya Scindia stated that by

2030, India has the potential to be a global drone hub through its policy structure, funding incentive and demand structure.[16] The drone policy rules do not apply to the armed forces at this point. However, there have been discussions in the military circles about the need for policy implementations to regulate drone use in the defence sector. In consideration of these advancements, the DRDO, the Indian defence industry, and the Indian government need to constructively strengthen the Indian start-up ecosystem in the drone sector by establishing policy implementations, creating funding initiatives, and building a demand structure.

Globally, the demonstration of military capabilities through ceremonial parades and drills signifies the strategic positioning of countries and their military strength and readiness. In the past, India has avoided displaying its nuclear strength due to geopolitical reasons. However, with the changing dynamics of the battlefield and the nature of warfare, India has realised the imperative of strategic positioning in the global military space and therefore the need to demonstrate power. It also indicates the country's readiness to use these technology-driven warfare mechanisms when required.

Views expressed are of the author and do not necessarily reflect the views of the Manohar Parrrikar IDSA or of the Government of India.

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Hindustan Times

Wed, 26 Jan 2022

Key appointments in Army soon: Officials

Army chief General Manoj Mukund Naravane, seen by many as the frontrunner for the CDS's post, is due to retire on April 30.

New Delhi: Some top-level appointments are expected in the Indian Army by the end of January to fill vacancies created by the upcoming retirement of the vice chief and the Northern Army commander, even as the Centre is yet to decide on the appointment the next chief of defence staff (CDS) following the passing of General Bipin Rawat in a helicopter crash last December, officials familiar with the development said on Tuesday.

Centre is yet to decide on the appointment the next chief of defence staff (CDS) following the passing of General Bipin Rawat in a helicopter crash last December.(File Photo)

While the current Eastern Army commander Lieutenant General Manoj Pande is set to take over as the next vice chief after Lieutenant General CP Mohanty retires on January 31, Pande is expected to be succeeded by Lieutenant General Rana Pratap Kalita at the Kolkata-based Eastern Command, one of the officials said, requesting anonymity. Kalita is currently serving as a deputy chief in the Army Headquarters.

Another position falling vacant on January 31 is that of the Northern Army commander as Lieutenant General YK Joshi is retiring that day. Joshi is expected to be replaced by Lieutenant General Upendra Dwivedi, said a second official. Dwivedi is also serving as a deputy chief in the army headquarters.

Army chief General Manoj Mukund Naravane, seen by many as the frontrunner for the CDS's post, is due to retire on April 30. Pande will be the top contender for the army chief's post.

Indian Air Force chief Air Chief Marshal Vivek Ram Chaudhari and navy chief Admiral R Hari Kumar are both around two years junior to him. There is a strong possibility of Naravane being named as the next CDS if the government follows the seniority principle, as previously reported.

https://www.hindustantimes.com/india-news/key-appointments-in-army-soon-officials-101643149904205.html

DAILYEXCELSIOR.COM

Wed, 26 Jan 2022

Atmanirbhar Bharat in Defence

By Harsha Kakar Major General (Retd)

India is possibly the only nation on the globe which has land disputes with nuclear powered adversaries on both fronts. Both, China and Pak operate in unison. As a nation, India cannot let its guard down even for a moment. Its armed forces need to possess capabilities to thwart misadventures from both adversaries. These capabilities, till recently, were largely acquired through imports. In 1965, 71 and post the Pokhran nuclear test many nations placed restrictions on supply of spares and weapon systems to India. Yet we refused to learn and improve our own defence research and manufacturing capabilities.

The SIPRI reportof 2021 listed India as the worlds second largest arms importer, with a 9.5% share of the global arms import market. India had survived over the years on technology transfer from Russia or import of weaponry. The MIG 21, SU 30 and T 90 tanks were all technology transfer. India's own share was dismal. The basic cause was the Indian policy of 1956 which

placed all defence production in the hands of the Ordnance Factory Board (OFB) and Public Sector Undertakings (PSUs), keeping private sector away.

Vital foreign exchange was spent on arms imports and India remained at the mercy of arms exporters for maintenance and spare parts. To curb this, in 2001, the government for the first time introduced FDI cap in defence industries. The figure was 26% and there were no takers. It was raised to 49% in 2014 and 74% in 2020. Currently, the government has displayed its intent in local production or global companies manufacturing in India, rather than import.

For a change, even in domestic production, the emphasis appears to be the private sector rather than government undertakings. The issuance of orders for 40 C 295 aircraft to Tata concerns for implementing Transfer of Technology production, rather than HAL, is a turning point. The government intent of pushing Atmanirbhar was evident from Aug 2020. It began issuing list of items on which there would be a ban of imports from specific dates. The first list comprised of 101 items followed by multiple other lists with increased numbers. Rajnath Singh even stated that the numbers will increase exponentially with time.

Simultaneously, the capital share of the defence budget (meant for procurement) began being divided between domestic and foreign procurements, with greater emphasis on domestic. Rajnath Singh had stated in Feb 2021 that 63% of the defence procurement budget was earmarked for domestic procurement. However, what is being missed is the funds spent by government companies to import parts from abroad to meet their production requirements. As an example, engines for the Tejas aircraft remain imported but would be considered under domestic. This implies that the DRDO and private sector must concentrate on specific technologies. To strengthen its message on domestic procurement, the government recently cancelled plans of the Coast Guard to procure short range surface to air missiles and 14 helicopters from abroad, insisting they be domestically produced. A number of other procurement demands are also under the scanner. It was reported that in a meeting with the PM,in early December, it was decided that strong measures need to be taken to push the armed forces into domestic procurement.The government has also been attempting to bring in global defence manufacturers to establish facilities in India.

This attempt has not been very successful thus far. Most joint ventures in the country are assembly plants for companies which have won defence contracts in India. The K 9 Thunder factory in Gujrat is an example. Addressing a seminar of Society of Indian Defence Manufacturers, in December 2021, Rajnath Singh stated, ‘We have an estimated Rs 85,000 crore industry of aerospace and defence. The contribution of the private sector in this has increased to Rs 18,000 crore.’

Rajnath Singh added, ‘defence exports from India during the last seven years have been more than Rs 38,000 crore.’ The recent sale of the BrahMos to Philippines for an estimated amount of USD 375 Million is a major achievement. As per official data, India’s global exports in 2018-19 stood at a paltry USD 1.5 Billion, placing India in the list of the top twenty-five (23rd) defence exporters. The government has set an export target of Rs 35,000 crore (USD 5 Billion) by 2024-25. To boost exports the government is empowering its defence attaches posted in Indian missions. They attend an annual conference where they are apprised of Indian defence manufacturing. The recent India-Russia and India-Central Asian nations summits resulted in agreements in which India and Russia would participate in joint defence ventures in Central Asian nations. In addition, India would supply spares for Russian equipment, manufactured under license in India to these countries, which continue operating Russian equipment. These are small steps but unless taken, Indian exports would remain stalled.

Currently, India is compelled to ignore CAATSA as almost 65% of its military equipment is of Russian origin. In case India acts against Russian interests, its defence capabilities could be impacted. As the Indian foreign secretary mentioned thatwithout Russian spare parts and maintenance help, ‘our ships won’t sail, our planes won’t fly.’ With the growth of the domestic defence sector this would be offset, however would be decades before that happens, as equipment once inducted continues in service for a prolonged duration.

To create a level playing field and send a strong message to government undertakings, the government split factories under the OFB into seven entities. These would now compete on a common platform with the private sector. It is hoped that with this there would be a change in their culture and work ethics. The first battle between these entities and the private sector is on the contract for the new army unform. The army is keen on public tenders including private companies whereas government owned factories desire it be given to them. In all probability, the contract would be by open tendering.

India is slowly moving forward on Atmanirbhar Bharat. However, unless it invests in key technologies, the expenditure may be under the domestic head but utilized for imports. Further, India needs to concentrate on displaying Indian equipment in global defence exhibitions to enhance its export market. Finally, if we are to remain a global military power, the domestic manufacturing and R and D has to grow manifold, supported by central funding.

https://www.dailyexcelsior.com/atmanirbhar-bharat-in-defence/

THE WEEK

Thu, 27 Jan 2022

UAE could buy missile developed by Israel, India to counter Houthi attacks?

Weapons from Israel could serve as an interim solution for Abu Dhabi

Amid rising number of cases of drones being used for smuggling in arms, explosives and drugs from across the border, the Union government will soon issue guidelines for the procurement of anti-drone technology and systems.

(File) A Barak-8 missile being test-fired from an Israeli warship | Twitter handle of Avigdor Liberman

The missile and drone attacks on the UAE by Houthi rebels over the past two weeks have been considered a watershed moment in the region's geopolitics.

While the attacks marked a significant escalation of the threat posed by the Houthis to the Gulf states, the strikes may have pushed the UAE to seek help from an unlikely partner: Israel.

US news site *Breaking Defense* reported on Tuesday that the UAE had "quietly and unofficially asked Israel about acquiring missile defense systems to help protect it from Houthi missile attacks".

Breaking Defense reported that weapons from Israel could serve as an interim solution for the UAE before it takes delivery of a South Korean surface-to-air missile system by 2024. "An Israeli source told *Breaking Defense* that three operational systems, or a combination of the three, could be a partial answer until the South Korean system comes online: Israeli Aerospace Industry's Barak 8 or Barak ER, or the Rafael Spyder," *Breaking Defense* reported.

Interestingly, the Barak-8 was jointly developed by Israel's Ministry of Defence and the DRDO and is in service with the militaries of India and Israel. The Barak-8 has a range of around 70km and can intercept aircraft, low-flying anti-ship and cruise missiles and stealthy targets. It exists in both sea-launched and land-based configurations.

The Barak ER (extended range) is a variant of the Barak-8 that is larger as it has an additional rocket booster, giving it a range of 150km. In addition to dealing with cruise missiles and aircraft, the Barak ER is capable of intercepting tactical ballistic missiles, which typically have ranges of less than 500km.

The Barak-8 was exported by Israel to Azerbaijan, which, reportedly, used the weapon in its conflict with Armenia in 2020 to shoot down a Russian-made ballistic missile fired by Armenia.

The SPYDER is a weapon system that combines in a surface-launched configuration two Israeli-developed missiles, the Python-5 and Derby, that were originally designed for air-to-air combat. While the Python-5 is a short-range heat-seeking missile, the Derby is a medium-range radar-guided missile. The Indian Air Force already operates the SPYDER system, which can shoot down a range of threats such as aircraft, cruise missiles, UAVs and even bombs launched by aircraft.

The UAE is not the first country to eye Israeli weaponry to deal with the Houthi threat. Last year, *Breaking Defense* reported Saudi Arabia was considering buying either the Barak ER or Iron Dome missiles to counter Houthi UAVs and cruise missiles.

Earlier this month, *The Jerusalem Post*, an Israeli media outlet, reported Morocco was in talks to buy the Barak-8 missile.

https://www.theweek.in/news/world/2022/01/26/uae-could-buy-missile-developed-by-israel-india-to-counter-houthi-attacks.html

Press Information Bureau
Government of India

Ministry of Defence

Wed, 26 Jan 2022 6:29PM

Western Naval Command conducts joint maritime exercise: Paschim Lehar (XPL-2022)

A joint maritime exercise Paschim Lehar (XPL-2022) conducted by the Indian Navy off the West Coast was concluded on 25 January 2022.

The exercise was conducted over a duration of 20 days with an objective to validate operational plans of the Western Naval Command and enhance Inter-Service synergy among the Indian Navy, IAF, Indian Army and Coast Guard.

The exercise was conducted under the aegis of FOC-in-C, Western Naval Command.

The intra-theatre exercise included mobilisation and participation of over 40 ships and submarines of the Indian Navy.

In addition, the IAF deployed SU 30 MKI & Jaguar maritime strike aircraft, Flight Refuelling Aircraft and AWACs, alongside the Indian Navy's maritime reconnaissance aircraft P8i, Dorniers, IL 38 SD, unmanned aerial systems and MiG 29K strike aircraft. Various elements of the Indian Army including Air Defence batteries were also mobilised for the exercise. After a long gap, many OPVs, FPVs and Air Cushion Vessels of the Coast Guard also participated in exercise Paschim Lehar.

A variety of weapon firings in a realistic tactical scenario, besides validation of operational missions and tasks under varying settings, were undertaken during the exercise.

The exercise provided all participating forces an opportunity to operate together under realistic conditions, in responding to contemporary maritime challenges, across the areas of the Command's responsibility.

https://pib.gov.in/PressReleasePage.aspx?PRID=1792843

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Wed, 26 Jan 2022 6:29PM

पश्चिमी नौसेना कमान ने संयुक्त समुद्री अभ्यास 'पश्चिम लहर (एक्सपीएल-2022)' का आयोजन किया

भारतीय नौसेना द्वारा पश्चिमी तट पर आयोजित एक संयुक्त समुद्री अभ्यास 'पश्चिम लहर (एक्सपीएल-2022)' 25 जनवरी, 2022 को संपन्न हुआ।

यह अभ्यास 20 दिनों की अवधि तक चला और इसका आयोजन पश्चिमी नौसेना कमान की परिचालन संबंधी योजनाओं को सुदृढ़ करने और भारतीय नौसेना, भारतीय वायुसेना, भारतीय थल सेना एवं तटरक्षक बल के बीच अंतर-सेवा तालमेल बढ़ाने के उद्देश्य से किया गया था।

यह अभ्यास पश्चिमी नौसेना कमान के एफओसी-इन-सी के तत्वावधान में आयोजित किया गया था।

इस इंट्रा-थिएटर अभ्यास में भारतीय नौसेना के 40 से अधिक जहाजों और पनडुब्बियों की संलग्नता और भागीदारी हुई। इसके अलावा, भारतीय नौसेना के समुद्री टोही विमान पी8आई, डोर्नियर्स, आईएल 38 एसडी, मानव रहित हवाई प्रणाली और मिग-29के युद्धक विमान (स्ट्राइक एयरक्राफ्ट) के साथ - साथ भारतीय वायुसेना ने एसयू 30 एमकेआई एवं जगुआर समुद्री युद्धक विमान (मेरीटाइम स्ट्राइक एयरक्राफ्ट), हवा में ईंधन भरने वाले विमान (फ्लाइट रिफ्यूलिंग एयरक्राफ्ट) और अवाक्स को तैनात किया। इस अभ्यास में एयर डिफेन्स बैटरी सहित भारतीय थल सेना के विभिन्न अंगों को भी शामिल किया गया था। एक लंबे अंतराल के बाद, तटरक्षक बल के कई ओपीवी, एफपीवी और एयर कुशन वेसल्स ने भी अभ्यास 'पश्चिम लहर' में भाग लिया।

विभिन्न सेटिंग्स के तहत परिचालन संबंधी मिशनों एवं दायित्वों के सत्यापन के अलावा, इस अभ्यास के दौरान एक यथार्थवादी सामरिक परिदृश्य में विभिन्न प्रकार के हथियारों से फायरिंग की गई। इस अभ्यास ने भाग लेने वाले सभी बलों को इस कमान के दायित्व वाले क्षेत्रों में समसामयिक समुद्री चुनौतियों का जवाब देने के लिए यथार्थवादी परिस्थितियों में एक साथ मिलकर काम करने का अवसर प्रदान किया।

https://pib.gov.in/PressReleasePage.aspx?PRID=1792867

The EurAsian Times

Thu, 27 Jan 2022

Australia accelerates hypersonic weapons development amid growing China concerns; Opens new research center in Brisbane

Australia has opened a new research center at Eagle Farm in Brisbane to support the research and development of hypersonic weapons.

The Australian Hypersonic Research Precinct, which was unveiled by the country's Defense Minister on January 25, will boost collaboration between the military, industry, universities, and foreign partners to advance the development of hypersonic technology.

The R&D efforts will focus on high-speed and hypersonic flight research and technologies, with the goal of improving technical understanding and application through flight test vehicles. The $14-million center, according to a press release, can house more than 60 employees. The University of Queensland is a key player in hypersonic research in Australia.

"It's a complex technological challenge to build vehicles capable of flying at five times the speed of sound, that skim the stratosphere, to target any location on the planet," Minister for Defence Peter Dutton said.

He further stated that the "technology produced here will help us better protect against the malicious use of hypersonic technology and will enable us to strike any prospective adversaries from afar, deterring aggression against Australia's national interests".

File Image: Hypersonic Weapon

Late last year, Dutton talked about a "highly successful defense flight trial" as part of a classified effort to "counter hypersonic threats", without revealing further details.

Reacting to this development, defense contractor Thales Australia said, "Thales Australia is proud to be actively supporting the government's innovation and national security objectives through our Collaborative Research and Development Program delivering Advanced Rocket Motor Technology."

Thales will work with a range of SMEs including Southern Launch, Airspeed, Mincham and Mackay Defence, that will provide tooling and precision engineering, specialized insulation, composite cases, and design and launch services.

By American standards, Australia's investment in the facility is not very large. However, reports indicated that the investment in hypersonic R&D may substantially increase as part of the AUKUS pact, which includes hypersonics as a vital element.

The report further stated that classified research and development forms a major part of AUKUS (Australia-UK-US) deal.

"Today we face, I believe, the most profound change in our strategic environment since the Second World War," Dutton said of geopolitical strategic worries, which include hypersonic technology. He explained that the test flight is vital not only for offensive capabilities but also for study into ways to strengthen Australia's defenses.

Australia's Interest in Hypersonic Weapons

In recent years, Australia has increased its defense capabilities in response to mounting threats from China and Russia. China and Russia have already demonstrated their hypersonic weapon capabilities, while the United States is slowly catching up.

In 2020, Australia and the US announced the development of a new hypersonic cruise missile. The development of prototypes under what's called the Southern Cross Integrated Flight Research Experiment (SCIFiRE) is part of a larger Australian effort to create a variety of precision strike weapons in response to China and Russia's aggressive development of hypersonic weapons.

Australia's then-Defence Minister Linda Reynolds said the trial would end with flight tests to assess how the weapon performed in real-world situations.

Former US Under Secretary of Defense, Michael Kratsios, said the project builds on 15 years of collaboration between the American and Australian militaries. "This initiative will be essential to the future of hypersonic research and development, ensuring the US and our allies lead the world in the advancement of this transformational warfighting capability," he said in a statement.

The two countries are developing a hypersonic cruise missile with an air-breathing scramjet engine that will be carried by Australia's F-18 and F-35A fighter jets, as well as the P-8A surveillance plane. Moreover, local defense industries will be enlisted to help with the project, which is expected to take between five and ten years to complete.

https://eurasiantimes.com/australia-hypersonic-weapons-opens-new-research-center-in-brisbane/

The New York Times

Wed, 26 Jan 2022

Why is North Korea suddenly launching so many missiles?

Experience has shown Kim Jong-un that saber-rattling is the best way to get Washington's attention, especially when global affairs are already in a precarious state.

By Choe Sang-Hun

Seoul: North Korea began the new year by convening a meeting for the ruling Workers' Party during which very little was said about the United States. That ominous silence didn't last long.

Kim Jong-un, the country's ruler, has launched six ballistic missiles in four weapons tests since Jan. 5, almost as many missiles in one month as North Korea launched in all of last year. On Tuesday, the South Korean military confirmed that the North had fired two cruise missiles in its fifth test of 2022.

The message was clear: The North Korean leader feels he is being ignored and wants to push the Biden administration to re-engage and pay attention to his economically ailing nation.

Individually, the tests may not amount to much — they involved missiles that have already been tested or weapons that are still under development. But taken together, they signal that Mr. Kim plans to use 2022 to jolt the Biden administration out of its diplomatic slumber.

Mr. Kim needs Washington to engage with him on economic concessions so that he can fix his country's devastated economy. Over the years, he has learned that the best way to grab the attention of an American president is with weapons. And that the best time to do it is when the world can least afford the instability.

According to that playbook, 2022 looks like a promising year.

China is busy preparing for the Beijing Olympics next month. South Korea elects a new president in March. Russia has hinted at a potential invasion of Ukraine, keeping the Biden administration on tenterhooks.

During a Politburo meeting last Wednesday, Mr. Kim suggested that his government might once again begin testing long-range missiles and nuclear devices after suspending such tests before his 2018 summit meeting with President Donald J. Trump.

"2022 calls for continued saber-rattling, punctuated by some major missile tests," said Lee Sung-yoon, a North Korea expert at the Fletcher School at Tufts University. "Kim's goal is to routinize short-range ballistic missile flights as a fact of life without any repercussions, after which he will move on to bigger provocations by resuming intermediate- and long-range missile tests punctuated by a nuclear test, as he did in 2017."

That year, North Korea tested what it called a hydrogen bomb and also launched three intercontinental ballistic missiles. It was also the year Mr. Trump took office after a vicious campaign in the United States. South Korea had just impeached its president.

Wednesday was the second time Mr. Kim threatened to lift the moratorium on long-range missile and nuclear tests. After his diplomacy with Mr. Trump ended without an agreement in 2019, he said he no longer felt bound by the commitment. But he did not follow through with any such tests, and his country was soon plunged into the chaos of the coronavirus pandemic.

This year also marks the beginning of Mr. Kim's second decade in power, and a chance for him to reassert his authority.

Ever since taking over, he has focused on building the country's arsenal to validate his family's dynastic rule, calling his nuclear weapons a "treasured sword" that protects North Korea against foreign invasion.

During the meeting on Wednesday, he urged North Koreans to celebrate the 80th anniversary of the birth of his father and predecessor, Kim Jong-il, in February, as well as the 110th birthday of his grandfather, Kim Il-sung, in April.

Under his father and grandfather, North Korea had seemed open to shelving its nuclear ambitions. But those hopes have dissipated under Mr. Kim, who has rapidly expanded the country's nuclear program, even as the United Nations piled on sanctions.

Though Mr. Kim has often been depicted abroad as a leader potentially capable of opening up his isolated country for the sake of economic development, his nuclear weapons are, as North Korea has put it, "not a bargaining chip."

Rather, the country sees them as tools to bring Washington to the negotiating table. And by that logic, the more powerful the arsenal, the more leverage Mr. Kim has.

Even when he vowed to focus on economic development in 2013, Mr. Kim stuck to his "parallel" goal of strengthening his nuclear force. The country has conducted more than 130 missile tests under him, compared with a total of 16 tests under his father and 15 under his grandfather. The last four of the North's six nuclear tests all took place under his watch.

"By advancing its nuclear capabilities and weapons systems, North Korea is showing the United States and South Korea that the more time passes, the bigger the price will become that they have to pay," Choi Yong-hwan, an analyst at the Institute for National Security Strategy in Seoul, wrote in a recent policy paper.

Yet try as it may to flex its power, North Korea appears to be low on the Biden administration's list of international priorities.

Washington has taken no steps to entice Mr. Kim, except to propose talks "without preconditions," a lukewarm entreaty that North Korea has rebuffed.

But it has not resumed tests of intercontinental ballistic missiles. Instead, North Korea has focused on testing missiles that can carry what it calls "smaller, lighter and tactical" nuclear weapons. These kinds of weapons do not pose a direct threat to the United States, but they could boost Mr. Kim's leverage with Washington by placing American allies such as South Korea and Japan under nuclear threat.

In North Korea's first two tests this month, the country launched short-range ballistic missiles with what it called "hypersonic gliding vehicles," detachable warheads that make the weapons harder to intercept because they not only fly extremely fast but also change course during flight.

In a test on Jan. 13, North Korea launched the KN-23, one of three new solid-fuel ballistic missiles the North has been testing since 2019.

Solid-fuel missiles are easier to transport and launch. The KN-23 can perform low-altitude maneuvers, making them harder to intercept. North Korea has also begun launching KN-23 variants from a submarine, as it did in October, and from trains, as it did in September and again this month.

In its most recent test, North Korea fired a pair of solid-fuel missiles from a mobile launcher vehicle. When the North first launched such a pair in 2019, there was a 16-minute interval between the two missiles fired.

That gap was reduced to four minutes in the recent test, indicating that the military has improved its ability to fire multiple missiles and hide them from counterattacks by the United States and South Korea.

"North Korea hopes that if it continues to demonstrate its nuclear capabilities but confines them to the Korean Peninsula, it will not aggravate public opinion in the United States and will strengthen voices there calling for a compromise," Cha Du-hyeogn, a principal fellow at the Seoul-based Asan Institute for Policy Studies, wrote in a recent paper.

For that strategy to work, Mr. Kim will need continued help from China in resisting any new international sanctions. North Korea's economic challenges were deepened two years ago when it

shut its border with China to fight the pandemic. This month, Beijing confirmed that "through friendly consultations," China and North Korea reopened their border for freight trains.

"This timing suggests Beijing is more than complicit with Pyongyang's provocations," said Leif-Eric Easley, a professor of international studies at Ewha Womans University in Seoul. "China is supporting North Korea economically and coordinating with it militarily."

https://www.nytimes.com/2022/01/25/world/asia/north-korea-launches-missiles-kim.html

Science & Technology News

THE TIMES OF INDIA

Wed, 26 Jan 2022

Stalled by Covid curbs, ISRO now goes on fast-track, to launch 5 satellites in 3 months

By Surendra Singh

New Delhi: Indian Space Research Organisation (Isro), under its new chairman S Somanath, is gearing up to accelerate space activities, which were till now paralysed for several months due to Covid-triggered restrictions.In the next three months, Isro is targeting to launch five satellite missions involving three rocket launches, which also include the maiden launch of India's first newly-developed small satellite launch vehicle (SSLV or mini-PSLV) targeted at scaling up launches of small-sized commercial satellites.

New ISRO chairman S Somanath updates space minister Jitendra Singh on missions to be launched this year, in New Delhi on Tuesday

While giving the timelines of the new launches to space minister Jitendra Singh in Delhi on Tuesday, the Isro chairman mentioned a RISAT-1A satellite launch with PSLV C5-2 rocket scheduled for February, OCEANSAT-3, INS2B and ANAND satellite launches by PSLV C-53 in March and SSLV-D1 launching a microSAT in April.

This year, Isro also has the distinction of launching Gsat-21, the first fully-funded satellite of New Space India Ltd (NSIL) that will be owned and operated by the public sector undertaking. This communication satellite will meet direct to home (DTH) application needs of the country.

While Risat-1A is a remote sensing satellite that will boost the country's border security, Oceansat-3 is a ocean-observation satellite and INS2B is a satellite belonging to Bhutan developed by a group of Bhutanese engineers trained by Isro.

ANAND satellite is the first satellite of Indian startup Pixxel and will become part of Pixxel's Firefly fleet of earth observation satellites, which will help detect, monitor and predict global phenomena in real-time. MicroSAT to be launched by India's first SSLV will be an experimental imaging satellite.

Somanath also updated Jitendra Singh about the status of the Gaganyaan programme and said there had been a delay in timeline because of Covid and other constraints "but now things have again fallen back on track and all the systems needed for the first unmanned mission are getting realised", a statement from the Department of Space said. Before the final manned mission in 2023, Isro is planning to launch two unmanned missions, the second one will carry a 'vyommitra (humanoid)', before the final mission involving two or three gagannauts to space for seven days.

The minister was also informed that gagannauts have successfully undergone generic space flight training in Russia and now a dedicated ad-hoc centre has also been established at Bengaluru

for a specific training for the mission. The preparations for the human mission, said the Isro chairman, involve in-flight demonstration of the crew escape system functioning in lower atmosphere (less than 10km). The exercise recovery of the crew module after impacting in the sea is also being worked out.

https://timesofindia.indiatimes.com/india/isro-set-to-launch-5-satellite-missions-in-3-months/articleshow/89126444.cms

THE TIMES OF INDIA

Wed, 26 Jan 2022

ISRO announces opportunities for proposals for 12th cycle of Astrosat observations

By Chethan Kumar

Bengaluru: The Indian Space Research Organisation (Isro) is soliciting proposals for the twelfth cycle of observations to be made by Astrosat, India's first space-based telescope, through its latest Announcement of Opportunities (AO).

This announcement is open to Indian scientists and researchers residing and working at institutes, universities, colleges in India for 55% of time and to Non-Indian scientists and researchers, NRIs, working at space agencies, institutes, universities, colleges around the globe for 20% time, who are involved in research in the area of astronomy and are equipped to submit proposals as Principal Investigators (PIs).

The applicants must be equipped to submit proposals as PIs for specific target observations with necessary scientific and technical justification and can analyse the data, if the target is observed based on approvals, Isro said, adding that in the twelfth cycle, "55% of observing time is available for Indian proposals and 20% of observing time is for International proposals" and that the rest of the time in this cycle is allotted for calibration, targets of opportunity and the "AstroSat long term key proposals (ALTKP).

AstroSat is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray and UV spectral bands simultaneously. The satellite is at 650km near-equatorial orbit with six-degree orbital inclination.

AstroSat completed six years in orbit at the end of September 2021 and currently the eleventh cycle proposals are being executed. And, observations for the twelfth cycle will be carried out between October, 2022 to September 2023.

"A significant amount of AstroSat's observing time is made available to PIs of proposals, both Indian and International. The observations will be planned as per mission scheduling. The PI will be informed, after the completion of successful observation for the downloading of processed Level-1 data," Isro said.

The space agency added that after the 12-month proprietary period, the archived data will be open to registered users and will be publicly available.

https://timesofindia.indiatimes.com/india/isro-announces-opportunities-for-proposals-for-12th-cycle-of-astrosat-observations/articleshow/89114917.cms