

CONTENTS

S. No.	TITLE	Page No.
DRDO News		1-4
DRDO Technology News		1-4
1.	बॉर्डर पर दुश्मनों के छूटेंगे छक्के... 6 KM की दूरी पर ही तबाह कर देगा सबकुछ, देसी मिसाइल बनेगी सेना की ताकत	<i>News18</i> 1
2.	Portable Desi Air Defence Shield's User Trials to Begin soon	<i>The Times of India</i> 2
3.	DRDO Develops System for Real-time, Site-specific Weather Forecast in Mountains	<i>The Tribune</i> 3
4.	2448 KM/H स्पीड, 70 KM रेंज और 60 Kg हथियार ले जाने में सक्षम MR-SAM दुश्मन को करेगी नेस्तनाबूद, INS Vikrant पर हुई तैनात	<i>ए बी पी न्यूज</i> 4
Defence News		5-14
Defence Strategic: National/International		5-14
5.	Indian Naval Platforms Remain Mission Deployed in North/ Central Arabian Sea	<i>Press Information Bureau</i> 5
6.	Defence Capital Spending Set to Get a Boost, New Policy for Emerging Technology on the Cards	<i>Money Control</i> 5
7.	India to Deploy Desi Anti-drone System along Pakistan Border to Stop Smuggling	<i>The Economic Times</i> 7
8.	Indian Army Deploys Armado Light Vehicles Near LoC	<i>Janes</i> 8
9.	Safeguarding Maritime Security: Indian Navy's Vigilance in the Arabian Sea	<i>Financial Express</i> 8
10.	India-Tanzania Military Collaboration: Strengthening Defence Capabilities through Mechanized Infantry Partnership	<i>Financial Express</i> 9
11.	Pakistan to Go in for J-31 Chinese Stealth Fighters. What this could Mean for Balance of Air Power	<i>The Print</i> 10
12.	NATO to Buy 1,000 Patriot Missiles in Face of Russia Threat	<i>The Economic Times</i> 11
13.	US Extends \$250 Million Additional Military Support to Ukraine after Funding Dries up	<i>Financial Express</i> 12
14.	Fujian, China's Third Aircraft Carrier, Ready for Sea Trials	<i>Firstpost</i> 13
Science & Technology News		14-17
15.	India's Space Startups Report Success of In-orbit Experiments Onboard ISRO's POEM	<i>The Economic Times</i> 14
16.	Indian Air Force Pilots to Train at NASA for Mission to Space Station: Report	<i>India Today</i> 15
17.	IIT Kanpur Sets New Record in Innovation & Research: Files 122 IPRs in 2023	<i>The Times of India</i> 16



Thu, 04 Jan 2024

बॉर्डर पर दुश्मनों के छूटेंगे छक्के... 6 KM की दूरी पर ही तबाह कर देगा सबकुछ, देसी मिसाइल बनेगी सेना की ताकत

केंद्र सरकार लगातार सेना को ताकतवर बनाने के लिए अथक प्रयास कर रही है। इसी कड़ी में भारत जल्द ही खुद के ह्यूमन-पोर्टेबल एयर डिफेंस मिसाइल सिस्टम का परीक्षण करने की तैयारी कर रहा है, जो बहुत कम दूरी पर दुश्मनों के विमानों, ड्रोन व हेलिकॉप्टरों को नष्ट कर देगा। फिलहाल डिफेंस फोर्स ऐसी ही रूसी मिसाइलों का इस्तेमाल का इस्तेमाल कर रहा है। इस तरह की मिसाइलों के माध्यम से पूर्वी लद्दाख में चीन के साथ जारी सैन्य टकराव में परिचालन संबंधी कमियों को दूर करने की कोशिश की जा रही है।

टाइम्स ऑफ इंडिया ने एक अधिकारी के हवाले से लिखा, '6 किमी तक की दूरी पर कम ऊंचाई वाले हवाई खतरों को बेअसर करने के लिए डीआरडीओ द्वारा विकसित बहुत कम दूरी की एयर डिफेंस सिस्टम (VSHORADS) अप्रैल-मई तक सशस्त्र बलों के लिए टेस्टिंग के लिए पेश की जानी चाहिए।' उन्होंने कहा, "स्वदेश में विकसित चौथी पीढ़ी के VSHORADS भारतीय सशस्त्र बलों में मौजूदा MANPADS (मैन-पोर्टेबल एयर डिफेंस सिस्टम) से तकनीकी रूप से बेहतर है। क्योंकि इसमें अत्याधुनिक अनकूल्ड इमेजिंग इन्फ्रारेड सीकर है।"

केंद्रीय मंत्री राजनाथ सिंह के नेतृत्व वाली रक्षा अधिग्रहण परिषद ने पिछले साल जनवरी में 1,920 करोड़ रुपये की लागत से डीआरडीओ द्वारा डिजाइन और विकास के तहत इन्फ्रारेड होमिंग VSHORADS मिसाइलों की खरीद के लिए "आवश्यकता की स्वीकृति" दी थी। अधिकारी ने कहा, "एक बार जब VSHORADS उपयोगकर्ता-परीक्षण सफलतापूर्वक पूरा कर लेगा, जिसमें कुछ समय लगेगा, तो थोक उत्पादन किया जा सकता है।"

समानांतर रूप से, कुछ भारतीय कंपनियां "मेक-II" श्रेणी परियोजना के तहत "लेजर-बीम राइडिंग VSHORADS" के विकास पर काम कर रही हैं, जहां प्रोटोटाइप विकास को उद्योग द्वारा वित्त पोषित किया जाता है। VSHORADS एक कम लागत वाला विकल्प प्रदान करता है जिसे ऊबड़-खाबड़ ऊंचाई वाले क्षेत्रों के साथ-साथ समुद्री क्षेत्र में महत्वपूर्ण संपत्तियों की नजदीकी वायु रक्षा सुरक्षा के लिए तेजी से तैनात किया जा सकता है। एक अधिकारी ने कहा, "उन्होंने रूस-यूक्रेन युद्ध के दौरान अपनी परिचालन बहुमुखी प्रतिभा और उपयोगिता साबित की है।"

<https://hindi.news18.com/news/nation/vshorad-air-defense-missile-system-drdo-testing-indian-army-7953716.html>

Portable Desi Air Defence Shield's User Trials to Begin soon

India plans to soon begin 'user trials' of its own man-portable air defence missile system, designed to destroy hostile aircraft, drones and helicopters at very short ranges, even as the armed forces are inducting a limited number of similar Russian systems to plug operational gaps in the continuing military confrontation with China in eastern Ladakh.

The very short-range air defence system (VSHORADS), developed by DRDO to neutralize low-altitude aerial threats at ranges up to 6-km, "should be offered for user-trials to the armed forces by April-May", a senior defence official told TOI.

"The indigenously-developed 4th generation VSHORADS is technically superior to existing MANPADS (man-portable air defence systems) in the Indian armed forces because it has a state-of-the-art uncooled imaging infrared seeker," he said.

"The upper range of the VSHORADS has been proven through a series of developmental tests. A few more tests to prove it at ranges less than 1-km, where manoeuvring and controlling the missile becomes critical, are required," he added.

The Rajnath Singh-led defence acquisitions council in January last year had accorded "acceptance of necessity" for procurement of the infrared homing VSHORADS missiles under design and development by DRDO at a cost of Rs 1,920 crore. "Once the VSHORADS successfully completes the user-trials, which will take some time, bulk production can follow," the official said.

Parallely, some Indian companies are pursuing the development of "laser-beam riding VSHORADS" under a "Make-II" category project, where prototype development is funded by the industry.

The armed forces are keeping their fingers crossed. VSHORADS offer a low-cost option that can swiftly be deployed for close air defence protection of crucial assets in rugged high-altitude areas as well as in the maritime domain. "They have proved their sheer operational versatility and utility during the Russia-Ukraine war," an officer said.

A tri-Service case for procurement of 5,175 VSHORADS and associated equipment was initiated way back in June 2009, which eventually led to the Russian shoulder-fired Igla-S anti-aircraft missile system being selected over the French and Swedish systems in the fray.

But the major project, which was to include an initial off-the-shelf purchase followed by technology transfer to Bharat Dynamics for subsequent production, did not take off.

Consequently, the Army remains critically short of such advanced man-portable air defence missiles despite heightened tensions along the northern borders with China. As a stop-gap measure, the Army and IAF have inked some deals under emergency procurement provisions for a limited number of Igla-S MANPADS over the past three years.

The last such contract for 100 Igla-S missiles and 48 launchers was inked by the Army in May last year. While the Army and IAF have the old Igla-1M systems since 1989, the Igla-S is an improved variant with a longer interception range of up to 6-km.

<https://timesofindia.indiatimes.com/india/portable-desi-missile-shield-trial-to-begin-soon/articleshow/106525041.cms>

DRDO Develops System for Real-time, Site-specific Weather Forecast in Mountains

The Defence Research and Development Organisation (DRDO) has developed a new system for real-time and site-specific weather forecast over the north-western Himalayan region during winter months.

According to DRDO scientists, the system will be instrumental in the mitigation of natural hazards such as extreme temperature, heavy snowfall, avalanches, and landslides. This will not only assist in the movement and deployment of troops in mountain regions, but also be beneficial for the civil administration and the local population of such areas.

Real time weather forecast in remote and difficult terrain assumes significance in the backdrop of not only a high level of operational deployment, but also in the growing tourist influx and increasing socio-economic activities in areas such as Ladakh. Many road axis in this region, which are not only strategically important but also frequented by visitors, are prone to vagaries of nature such as heavy rain, snow, and avalanches.

Developed by the Defence Geo-informatics Research Establishment (DGRE) located at Chandigarh, the system functions as an independent weather forecast system and has undergone trials in high altitude snow-bound areas, sources said.

DGRE's mandate is to create a geospatial information system for operational planning and military intelligence, provide cutting edge engineering solutions for ensuring safe movement of troops in all kinds of terrain and build artificial intelligence-enabled solutions for deployment.

The system, called analog ensemble, uses meteorological observations of 20–30 previous winter seasons from observatories located in the Shamsawari Range, Pir Panjal Range, and the Great Himalayan Range to predict surface meteorological variables such as temperature, wind, and precipitation for up to 72 hours.

Several recent studies on high-altitude weather patterns, including those conducted by the DRDO have indicated a perceptible change in climate owing to global warming and anthropological activities. This has led to an increase in freak weather events, necessitating monitor and observation.

Studies have noted that the Himalayans have become warm in the last 25 years with significant climate change seen especially after 2000. The amount of snowfall has decreased whereas rainfall has increased, with the snow line in many areas also receding.

In fact, a recent report tabled in Parliament by the Departmentally Related Standing Committee on Water Resources observed that there is a severe shortage of meteorological and monitoring stations in the Indian Himalayan region. Presently DGRE has set up three Mountain Meteorological Centres for avalanche study and the Wadia Institute of Himalayan Geology has five meteorological and discharge stations located in the high-altitude regions. The Central Water Commission has set up 46 meteorological observation stations in the Himalayan region, out of which only 35 are telemetry-based stations.

<https://www.tribuneindia.com/news/india/drdo-develops-system-for-real-time-site-specific-weather-forecast-in-mountains-577928>

2448 KM/H स्पीड, 70 KM रेंज और 60 Kg हथियार ले जाने में सक्षम MR-SAM दुश्मन को करेगी नेस्तनाबूद, INS Vikrant पर हुई तैनात

पहले स्वदेशी विमान वाहक आईएनएस विक्रान्त (INS Vikrant) पर समुद्र में खतरनाक मिसाइलें लगाकर भारतीय नौसेना दुश्मन की धड़कनें बढ़ा रही है. अब मीडियम रेंज की सरफेस-टू-एयर मिसाइल MR-SAM को INS Vikrant पर तैनात कर दिया गया है. इस मिसाइल की रफ्तार 2448 किलोमीटर प्रति घंटा है. मतलब पलक झपकते ही यह मिसाइल दुश्मन के परखच्चे उड़ा देगी. इसमें कमांड पोस्ट, मल्टी फंक्शन रडार और मोबाइल लॉन्चर सिस्टम लगा है. मिसाइल की तेज गति के कारण दुश्मन इसको ट्रेस नहीं कर पाता है और इसमें लगा रेडियो फ्रीक्वेंसी सीकर भी दुश्मन को मार गिराने में मदद करता है. अगर दुश्मन का यान चकमा देने के लिए रेडियो का इस्तेमाल कर रहा है तो भी यह मिसाइल उसे मार गिराएगी. दुश्मन के एयरक्राफ्ट, मिसाइल, ड्रोन का यह मिनटों में खात्मा कर सकती है. डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन (DRDO) ने इजारायली एयरोस्पेस इंडस्ट्रीज (IAI) के साथ मिलकर इस मिसाइल को तैयार किया है. इसको 'Abhra' नाम से भी जाना जाता है. आइए जानते हैं इसकी खासियत और यह सीमा पर कैसे ताकत बढ़ाएगी-

1. MR-SAM की रफ्तार 680 मीटर प्रति सेकेंड है यानी 2448 किलोमीटर प्रति घंटा है, जो इसको घातका बनाती है.
2. मिसाइल का वजन 275 किलोग्राम है, लंबाई 4.5 मीटर और व्यास 0.45 मीटर होता है.
3. जमीन से हवा में वार करने वाली MR-SAM मिसाइल की रेंज 70 किलोमीटर है यानी यह 70 किलोमीटर की रेंज तक दुश्मन मिसाइल को नेस्ता नाबुत करने में सक्षम है.
4. इस मिसाइल पर 60 किलोग्राम तक वॉरहेड यानी हथियार लोड किए जा सकते हैं.
5. MR-SAM दो स्टेज की मिसाइल है, जो लॉन्च होने पर धुआं कम छोड़ती है.
6. लॉन्च होने पर यह मिसाइल आसमान में सीधे 16 किलोमीटर तक दुश्मन को गिरा सकती है. मिसाइल की रेंज आधा किलोमीटर से 70 किलोमीटर तक है. अगर इस रेंज में दुश्मन का यान, विमान, मिसाइल या ड्रोन आता है तो यह उसको नेस्तनाबूद कर सकती है.
7. यह बराक-8 मिसाइल से लैस है.
8. इसमें कम्बैट मैनेजमेंट सिस्टम, मोबाइल लॉन्चर सिस्टम, एडवांस्ड लॉन्ग रेंज रडार मोबाइल पावर सिस्टम, रिलोडर व्हीकल और फील्ड सर्विस व्हीकल लगा है.

कितनी है लागत

टाइम्स ऑफ इंडिया की 2016 की एक रिपोर्ट में कहा गया कि साल 2005 में जब रक्षा की कैबिनेट कमेटी ने MR-SAM प्रोजेक्ट को मंजूरी दी थी तब इसकी लागत 2,606 करोड़ बताई गई और 2009 में आईएआई को 10,076 करोड़ रुपये में 9 स्कावडून बनाने का ठेका दिया गया था. हालांकि, अब एमआर-एसएम मिसाइल को 1,200 करोड़ की लागत में तैयार किया जा रहा है. दो साल पहले MR-SAM को राजस्थान के जैसलमेर में वायुसेना को सौंपा गया था.

<https://www.abplive.com/news/india/indian-navy-deployed-mr-sam-on-ins-vikrant-know-all-about-medium-range-surface-to-air-missile-features-2576811>



Press Information Bureau
Government of India

Ministry of Defence

Wed, 03 Jan 2024

Indian Naval Platforms Remain Mission Deployed in North/ Central Arabian Sea

Indian Navy continues to monitor maritime security situation in North/ Central Arabian Sea and Gulf of Aden. Indian Naval ships and aircraft remain mission deployed for maintaining enhanced surveillance and undertaking maritime security operations.

In the last one week, Indian Naval Task Groups deployed in the area have investigated large number of fishing vessel and boarded vessels of interest.

Indian Naval maritime Patrol Aircraft and RPAs are undertaking persistence surveillance over the area.

IMAC and IFC IOR have been closely monitoring white shipping, especially the Indian Flagged Merchant Vessels plying in the area. Indian Navy is also coordinating with Coast Guard for maintaining enhanced surveillance within the EEZ.

Indian Navy is closely monitoring overall situation in coordination with national maritime agencies and remains committed towards ensuring safety of merchant shipping and seafarers in the region.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1992835>



Wed, 03 Jan 2024

Defence Capital Spending Set to Get a Boost, New Policy for Emerging Technology on the Cards

India's private sector will benefit significantly from India's defence production plans. The government envisions defence production to cross ₹1.5 lakh crore in FY24, and exports to surpass ₹20,000 crore. The future focus of the Narendra Modi government is to encourage the development and production of emerging technologies, said Giridhar Aramane, India's Defence Secretary, exclusively to CNBC-TV18.

Here are the top takeaways from the interview:

Defence capital spending set to get a boost:

The Defence Secretary told CNBC-TV18 that the capital outlay for acquisitions and modernisation could increase by 5%-7.5% in the upcoming budget. The government had cleared acquisition proposals worth ₹3.5 lakh crore in 2023.

Aramane also said that there would be no shortfall in government spending on acquisitions or research and development (R&D), and the finance ministry is ready to support all the needs of the defence ministry, depending on the pace of manufacturing.

Boost to defence private sector companies:

India's defence production crossed ₹1 lakh crore in FY23, and exports crossed ₹16,000 crore. Aramane said that in FY24, he expects defence production to cross ₹1.5 lakh crore and may even reach the target of ₹1.75 lakh crore. Exports are on track to cross the ₹20,000 crore mark. Additionally, 45% of new orders are likely to go to the private sector.

New defence schemes on the card:

The secretary said the government would soon come out with a new scheme aimed at the private sector. The purpose of this scheme would be to encourage the development of emerging technologies in the defence sector.

"Recent wars have shown how huge platforms like submarines, fighter jets, and warships can be neutralised by low-cost drones. This has highlighted the need to strengthen defence with the cheapest possible solutions. We need the private sector and new age companies to work on drones, UAVs, electronic warfare, improve air defence, and ground mobility," he said.

The secretary also said that defence forces would have been able to prevent the loss of lives in Jammu and Kashmir if there had been cutting-edge foliage-penetrating radar.

Privatisation of defence PSUs

The government will not rush into divestment of BEML. In 2016, the cabinet had cleared divestment of a 26% stake in government-owned BEML. "We are in talks with DIPAM and will wait for an opportune time for divestment. We will not rush into short-changing BEML, a family silver for short-term gains. We cannot give a timeline at this stage," said Aramane.

The secretary also highlighted that the government may consider divestment of shipbuilding PSUs to meet their future capital requirements for infrastructure.

Plan to export Tejas MK1A fighter aircraft:

The secretary confirmed that the Indian Air Force is set to receive the first Tejas Mk1A fighter jet by February this year. The government is also actively promoting the jet with friendly countries for exports.

The government is still holding talks with Nigeria to export the Tejas fighter jet. Aramane said that the India is willing to offer Tejas at a competitive price to friendly nations and tailor the equipment according to the needs of the prospective buyer nation.

Impact of two wars on India's security needs:

The Russia-Ukraine war and the war between Israel and Hamas have created a global insufficiency in the defence industry, as both Israel and Russia are major suppliers of defence equipment to all nations.

"The Make in India program has come in handy; we were preparing for this situation for the last ten years. We have managed to mitigate the shortfall in defence supplies with the help of our own domestic industry," said the Defence Secretary.

He further added that rather than going completely alone, India will follow a policy of mutual co-dependence and self-reliance. The government is working on several technologies and is considering collaboration with friendly countries.

GE-HAL deal and S400 air defence system:

The secretary said both GE and HAL will soon sign a manufacturing agreement, and the deal is very much on track. He also added that the government does not see any hurdles in the delivery of the S400 air defence system from Russia.

<https://www.moneycontrol.com/news/business/budget/cnbc-tv18-exclusive-defence-capital-spending-set-to-get-a-boost-new-policy-for-emerging-technology-on-the-cards-11994041.html>

THE ECONOMIC TIMES

Wed, 03 Jan 2024

India to Deploy Desi Anti-drone System along Pakistan Border to Stop Smuggling

An indigenous anti-drone system, developed to counter the use of drones by elements in Pakistan for smuggling arms and narcotics into India, will be deployed along the country's western border within six months. The system, currently undergoing trials, offers three options for implementation. A senior government official stated that the anti-drone system would be installed across the entire western border, and it may involve using one of the three systems or a combination of multiple technologies, a TOI report stated.

Regarding the eastern border, the official mentioned that the free movement regime (FMR) along the India-Myanmar border would soon be discontinued to prevent the influx of illegal migrants. The FMR allows visa-free travel for tribes residing on both sides of the India-Myanmar border, up to a distance of 16 km inside the neighboring country. However, due to the involvement of FMR in facilitating illegal immigration, trafficking of narcotics, and ethnic violence in Manipur, the government is planning to make visas mandatory for Myanmar nationals entering through the land border, as part of a reevaluation.

The infiltration of arms, ammunition, and narcotics from Pakistan into Punjab and Jammu and Kashmir through the use of drones or unmanned aerial vehicles (UAVs) has been a significant challenge for security agencies in recent years.

According to BSF DG Nitin Agrawal, the force has recovered a total of 90 drones between November 1, 2022, and October 31, 2023. Out of these, 81 were found in Punjab, while nine were recovered in Rajasthan.

BSF sources have reported an increase in drone sightings, ranging from 300 to 400 in the past year. However, with enhanced surveillance through handheld static and vehicle-mounted anti-drone systems, smugglers transporting drug consignments from Pakistan are facing difficulties in evading the BSF. As a result, they have been forced to modify their tactics, such as using alternative routes in Rajasthan due to increased surveillance in Punjab. However, their attempts were foiled after an intelligence leak led to the seizure of four drug consignments in Rajasthan.

In recent times, smugglers have been employing smaller drones with lighter payloads, typically around 750 grams. Most of these drones are of Chinese make, as they are easily accessible and more affordable compared to those from Turkey or Iran.

<https://economictimes.indiatimes.com/news/defence/india-to-deploy-desi-anti-drone-system-along-pakistan-border-to-stop-smuggling/printarticle/106509662.cms>



Wed, 03 Jan 2024

Indian Army Deploys Armado Light Vehicles Near LoC

The Indian Army has deployed an unknown number of 4×4 Light Specialist Vehicles (LSVs) known as Armado in the Rajouri-Poonch sector near the Line of Control (LoC) with Pakistan, Lieutenant Colonel Suneel Bartwal, the Indian Ministry of Defence's (MoD's) Public Relations Officer (PRO) for Jammu region, told Janes on 3 January.

“The vehicles have been inducted and deployed in the service [Indian Army] in the Rajouri-Poonch sector,” Lt Col Bartwal said.

However, Lt Col Bartwal did not specify the number of vehicles inducted and deployed, citing security issues.

The vehicles are manufactured by Indian company Mahindra Defence Systems Ltd (MDSL).

In June 2023 Colonel Manish Kumar (retd), MDSL head of sales and marketing for land systems, told Janes that the first batch will comprise 40 Armados.

The Indian Army signed a contract worth INR10.56 billion (USD126.78 million) with MDSL in March 2021 to procure 1,300 LSVs. The service plans to induct all vehicles by 2025.

The Indian Army has been facing several militant attacks in the Rajouri-Poonch sector, claiming the lives of 41 soldiers – nine in 2021, six in 2022, and 26 in 2023 – since 2021, according to Janes data. On 22 December 2023 the Indian Army suffered four casualties in a militant attack on two army vehicles, raising a question about the safety standards of troop carrier vehicles in service with the army.

<https://www.janes.com/defence-news/news-detail/indian-army-deploys-armado-light-vehicles-near-loc>



Wed, 03 Jan 2024

Safeguarding Maritime Security: Indian Navy's Vigilance in the Arabian Sea

The Indian Navy is actively engaged in safeguarding maritime security in the North and Central Arabian Sea, along with the Gulf of Aden. To achieve this, Indian Naval ships and aircraft are consistently deployed on missions to enhance surveillance and conduct vital maritime security

operations. Over the past week, task groups from the Indian Navy in the region have carried out thorough investigations on a significant number of fishing vessels and boarded vessels of interest. This proactive approach is essential in maintaining a secure maritime environment.

Adding another layer to their efforts, Indian Naval Maritime Patrol Aircraft and Remotely Piloted Aircraft (RPAs) are conducting persistent surveillance over the area. This continuous monitoring ensures a rapid response to any potential threats that may arise.

According to the Indian Navy, the Information Management and Analysis Centre (IMAC) and Information Fusion Centre for the Indian Ocean Region (IFC IOR) play crucial roles in closely monitoring white shipping, with a particular focus on Indian-flagged merchant vessels navigating in the area. This collaborative effort contributes to the overall safety and security of maritime activities.

Furthermore, the Indian Navy is in constant coordination with the Coast Guard to maintain heightened surveillance within the Exclusive Economic Zone (EEZ). This collaborative effort showcases a united front in securing the vast maritime territories.

As part of its commitment to maritime safety, the Indian Navy is diligently monitoring the overall situation in close collaboration with national maritime agencies. The primary objective remains ensuring the safety of merchant shipping and seafarers operating in the region.

With a focus on collaboration and vigilance, the Indian Navy stands as a beacon of maritime safety in the region, ensuring the smooth flow of commerce and safeguarding the interests of all stakeholders.

<https://www.financialexpress.com/business/defence-safeguarding-maritime-security-indian-navys-vigilance-in-the-arabian-sea-3354577/>



Thu, 04 Jan 2024

India-Tanzania Military Collaboration: Strengthening Defence Capabilities through Mechanized Infantry Partnership

India is actively contributing to Tanzania's military capabilities by assisting in the establishment of a mechanized infantry battalion, a pivotal step in their expanding military cooperation. General Jacob John Mkunda, Chief of Defence Forces for Tanzania, visited India last month, marking a significant development in the strengthening ties between the two nations.

During his visit, General Mkunda and a 15-member delegation had toured the Mechanised Infantry Centre and School in Ahmednagar. The purpose behind the tour was to gain insights into various aspects of mechanized infantry warfare. Live demonstrations showcased the firepower and mobility of infantry combat vehicles, emphasizing combat tactics and weapons handling.

Mechanized Infantry Regiment

The Mechanized Infantry Regiment of the Indian Army, with its equipped armoured vehicles, seamlessly integrates infantry mobility with potent firepower and mechanized forces' protection. This capability allows for swift troop deployment across the battlefield, underscoring its critical role in contemporary military operations.

Before arriving in Ahmednagar, General Mkunda engaged in discussions in Delhi with Indian Army Chief Manoj Pande and other high-ranking officials. This visit follows a series of strategic engagements, including Tanzanian President Samia Suluhu Hassan's visit to India in October, the visit of Tanzania's defence minister to India in August 2022 and February 2023, and the Indian Army chief's visit to Tanzania in October 2023.

Defence Cooperation between India and Tanzania

Military ties between India and Tanzania have been further solidified through the exchange of training opportunities. Tanzanian forces consistently participate in India's UN Peacekeeping training, demonstrating their commitment to enhancing peacekeeping skills. Since 2017, an Indian Army Training Team has been stationed at Tanzania's Command and Staff College in Duluti.

It has been reported previously that Tanzanian delegations have actively participated in major military events in India, including Aero India 23, Indo Africa Army Chiefs Conclave-23, and AFINDEX-23. The India-Africa Defence Dialogue, held biennially, is gaining momentum, with the third edition expected later this year.

Defence Cooperation with Africa

India's commitment to fostering defence collaboration and capacity building in Africa is evident through initiatives like the India-Africa Defence Dialogue (IADD). The inaugural India-Africa Defence Ministers Conclave in Lucknow in February 2020 resulted in the 'Lucknow Declaration,' outlining collaboration areas such as capacity building, training, cybersecurity, maritime security, and counter-terrorism. This dialogue, held on the sidelines of DefExpo, has witnessed active participation from several defence ministers, further solidifying India's outreach to Africa in the realm of defence.

<https://www.financialexpress.com/business/defence-india-tanzania-military-collaboration-strengthening-defence-capabilities-through-mechanized-infantry-partnership-3354870/>

ThePrint

Thu, 04 Jan 2024

Pakistan to Go in for J-31 Chinese Stealth Fighters. What this could Mean for Balance of Air Power

Pakistan is in the process of acquiring Chinese-made J-31 stealth fighters, which are a copy of American F-35 and F-22 aircraft, in a move that could possibly alter the balance of air power in the region.

Once acquired, the new fighters could replace early versions of the American F-16 aircraft in Pakistan's fleet, sources in the defence and security establishment told ThePrint.

Earlier this week, Pakistan-based media outlets quoted Pakistan Air Force (PAF) chief Air Chief Marshal Zaheer Ahmed Babar as saying that talks are ongoing with China in this regard. "The foundation for acquiring the J-31 stealth fighter aircraft has already been laid which is all set to become part of the PAF's fleet in the near future," he said.

The PAF is already operating two types of Chinese-made aircraft, one of which — JF-17 'Thunder' — is being jointly manufactured in Pakistan and was also acquired by Nigeria in 2021. Besides the 150 odd JF-17s in its fleet, PAF also acquired 25 J-10C 'Vigorous Dragon' fighters in 2022 in what was seen as a counter to India's acquisition of 36 French-made Rafale fighter jets.

The acquisition of the J-31, however, may come as a shot in the arm for Pakistan since India does not operate a stealth fighter. Though India is currently working on an indigenous stealth fighter, Advanced Medium Combat Aircraft (AMCA), it is unlikely to be inducted before 2030.

Air Marshal Anil Chopra (Retd), Director-General of IAF's think tank Centre for Air Power Studies (CAPS), told ThePrint that the J-31 is still in the development stage, unlike the bigger stealth aircraft J-20 of which China has produced about 150 units.

The J-31, he said, is a smaller aircraft and mainly being looked at by China as the naval version that can be operated from aircraft carriers. "The J-31 is still not inducted into the Chinese air force. Let it be developed first," he added.

Air Marshal Diptendu Choudhury (Retd) told ThePrint, "While the US may upgrade the F-16s to a limited point, the Pakistanis are unlikely to get any kind of next-generation (aircraft)."

The former fighter pilot noted that though issues have been reported with Chinese-made aircraft in the past, Beijing continues to push them out, unlike others who will come out with the best possible version, since it puts the US on the spot and also helps build an aura of superior Chinese aviation capabilities. Asked if the acquisition of J-31s could alter the balance of air power between India and Pakistan, he said, "Pakistan is thinking long term."

"Unlike in the past, they (Pakistan) are not sure if help from the US will continue to be forthcoming. The dynamics do not really change to a large extent. Just getting one set of good fighters will not change (the power dynamics) but it definitely adds quality to their (PAF's) air power. Quantity-wise, the ratio of newer generation jets matters," he added.

By some estimates, about 60-70 percent of the fleet of the People's Liberation Army Air Force is made up of 4th- and 5th-generation fighters. "This is exactly what the Indian Air Force is also trying to do. The process has to be sped up," said Choudhury.

According to a report by Military-Today.com, China in 2007 managed to obtain blueprints of and other classified information on the F-35 Joint Strike Fighter and the F-22 Raptor.

Reports suggest the Shenyang Aircraft Corporation (SAC) relied on this data to develop the J-31 or FC-31 stealth aircraft. While earlier versions of the J-31 looked like near-clones of the F-35, pictures that surfaced later hint at a more elongated shape with larger tail surfaces — more suggestive of the F-22.

<https://theprint.in/defence/pakistan-to-fly-j-31-chinese-stealth-fighters-what-this-could-mean-for-balance-of-air-power/1909635/>

THE ECONOMIC TIMES

Wed, 03 Jan 2024

NATO to Buy 1,000 Patriot Missiles in Face of Russia Threat

NATO members in Europe have signed a contract for up to 1,000 Patriot missiles to bolster air defences in the face of the threat from Russia, the alliance said Wednesday.

The announcement of the contract, estimated to be worth \$5.5 billion, comes as Moscow has unleashed repeated barrages of deadly missile and drone strikes against Ukraine in recent days.

NATO's procurement agency said the deal agreed by an initial group of countries including Germany, the Netherlands, Romania and Spain would see Patriot missile production stepped up in Europe.

Alliance chief Jens Stoltenberg welcomed the "timely announcement to invest in up to 1,000 new Patriot air defence missiles to bolster the alliance's security".

"Russian missile and drone attacks on Ukrainian civilians, cities and towns show how important modern air defences are. Scaling-up ammunition production is key for Ukraine's security and for ours," Stoltenberg said in a statement.

NATO allies including the United States and Germany have sent US-made Patriot systems to Ukraine where they have been used to shoot down attacks by Russia's hypersonic missiles.

But the deliveries of the missiles to Kyiv have sapped Western stocks and forced Washington to turn to allies such as Japan to help replenish inventories.

The NATO Support and Procurement Agency said the new contract would see a missile production facility set up in Germany by a joint venture between Germany's MBDA and Raytheon, part of the US group RTX.

"Europe will produce 1,000 Patriot air defence missiles itself. This shows that European cooperation ensures concrete successes," Dutch Defence Minister Kaja Ollongren wrote on social media.

Patriot missiles are estimated to cost around \$4 million each and NATO said the deal also includes other elements including test equipment and spare parts for future maintenance.

<https://economictimes.indiatimes.com/news/defence/nato-to-buy-1000-patriot-missiles-in-face-of-russia-threat/articleshow/106522201.cms>



Wed, 03 Jan 2024

US Extends \$250 Million Additional Military Support to Ukraine after Funding Dries up

The United States administration has announced a financial package of weapons and equipment for Ukraine to support their war efforts against Russia. A release from Secretary of State Antony Blinken's office stated that this package provides up to \$250 million of arms and equipment under previously directed drawdowns for Ukraine.

According to the release, the package would provide air defence munitions, other air defence system components, additional ammunition for high mobility artillery rocket systems, 155mm and 105mm artillery ammunition, anti-armour munitions and over 15 million rounds of ammunition.

Earlier in December, a release from the Bureau of Political-Military Affairs stated that the United States has provided \$44.2 billion approximately in military assistance to Ukraine since the full-scale war began between Ukraine and Russia on February 24, 2022.

Military equipment provided to Ukraine

The release from the U.S. Department of State listed the items categorically in detail, provided by the United States to Ukraine. The list included 12 National Advanced Surface-to-Air Missile Systems (NASAMS) and munitions, HAWK air defence systems and munitions, 20 Mi-17 helicopters, Switchblade Unmanned Aerial Systems (UAS), Phoenix Ghost UAS, CyberLux K8 UAS, Altius-600 UAS AIM-7, RIM-7, and AIM-9M missiles for air defence, more than 2,000

Stinger anti-aircraft missiles, 21 air surveillance radars, 39 High Mobility Artillery Rocket Systems and ammunition, 98 155mm Howitzers and more than 2,000,000 155mm artillery rounds, 31 Abrams tanks, 45 T-72B tanks, 186 Bradley Infantry Fighting Vehicles, among others.

Presidential Drawdown Authority

The release also stated that the Biden administration used the Presidential Drawdown Authority (PDA) on 44 occasions since August 2021 to provide military assistance to Ukraine amounting to \$23.8 billion approximately.

The United States government defines Presidential Drawdown Authority as “It allows for the speedy delivery of defence articles and services from Department of Defense stocks to foreign countries and international organizations to respond to unforeseen emergencies. Such assistance can begin arriving within days—or even hours—of approval.”

<https://www.financialexpress.com/world-news/us-extends-250-million-additional-military-support-to-ukraine-after-funding-dries-up/3354374/>



Wed, 03 Jan 2024

Fujian, China's Third Aircraft Carrier, Ready for Sea Trials

The heaviest and most sophisticated of China's two prior warships, the third aircraft carrier Fujian, is preparing for sea trials, according to a report released by official media on Wednesday.

The three electromagnetic catapult tracks found on the ship were visible in the most recent footage of the domestically built aircraft carrier that China Central Television showed during its news program.

According to Yin Hongxin, an officer on board, the People's Liberation Army Navy (PLAN) will proceed with the mooring trials of CNS Fujian, China's second aircraft carrier built domestically, as planned in the new year, as reported by official China Daily.

China's official media often creates buzz about the progress of new defence equipment like new ships, fighter jets and missiles, displaying their photos to generate public interest.

China launched Fujian in June 2022 with a lot of fanfare with claims that it could match the US aircraft carriers in terms of technology as Beijing is increasingly coming under pressure from Washington's Indo-Pacific strategy especially in the disputed South China Sea and Taiwan, which it claims as part of its territory.

China claims most of the South China Sea while Vietnam, the Philippines, Malaysia, Brunei and Taiwan have counterclaims.

China's first aircraft carrier, the Liaoning, was a refit of the Soviet-era ship commissioned in 2012 followed by the indigenously built 2nd aircraft carrier Shandong in 2019.

With 80,000 tonnes displacement, 20,000 tonnes more than the first and second aircraft carriers, the Fujian was expected to venture out to far off seas like the Indian Ocean, India's backyard where the Indian Navy has a robust presence.

China has already expanded its naval base at Djibouti in the Horn of Africa to berth aircraft carriers. China has also acquired the Hambantota port in Sri Lanka as a debt swap for 99 years. It is also modernising Pakistan's Gwadar port in the Arabian Sea.

China plans to have around five aircraft carriers, according to the official media. The next aircraft carrier China plans to build is expected to be nuclear-powered.

Naval experts say Fujian may take some time for operationalisation. Perhaps PLAN may begin sending aircraft carriers to the Indian Ocean by 2025.

The Fujian, which is the “first fully domestically developed and constructed” aircraft carrier with an electromagnetic aircraft launch system (EMALS), has a flat, straight flight deck and arresting device.

EMALS was regarded by naval experts as a major leap forward by the Chinese navy as currently, only the US has such an advanced one. It is more energy-efficient and reduces maintenance. It is used also on the US Navy’s Gerald R. Ford-class carriers.

While China’s other two aircraft carriers are equipped with ski-jump take-off ramps, the Fujian features a flat-top flight deck.

The J-15 fighter jet which China currently operates from its aircraft carriers were regarded as a major problem as each plane weighed about 18 tonnes, too heavy for carriers in the long run. The planes were considered to be a big drag.

In a major rejig of its military doctrine, China since 2013 stepped up the development of the navy with a massive budget while cutting down the number of army troops.

The modernisation included building several aircraft carriers besides submarines, frigates and assault ships as part of its efforts to expand its global influence.

Besides speeding up the naval shipbuilding, China is also helping Pakistan to modernise its navy by providing its latest naval frigates to operate with its navy in the Indian Ocean and the Arabian Sea.

<https://www.firstpost.com/world/fujian-chinas-third-aircraft-carrier-ready-for-sea-trials-13572472.html>

Science & Technology News

THE ECONOMIC TIMES

Wed, 03 Jan 2024

India's Space Startups Report Success of In-orbit Experiments Onboard ISRO's POEM

Indian space startups Dhruva Space and Bellatrix Aerospace have successfully tested their P30 Satellite Platform and high performance green propulsion systems respectively onboard ISRO's POEM initiative. Hyderabad-based Dhruva Space, in a statement, said the successful testing of 'Launching Expeditions for Aspiring Payloads - Technology Demonstrator' (LEAP-TD) will help embark on its satellite mission.

The statement said Dhruva Space has validated the P-30 platform and its various subsystems in-orbit and the results were confirmed by reception of telemetry and beacon data at the ground station of the Thiruvananthapuram-based Indian Institute of Space Science and Technology (IIST).

"These subsystems include On-Board Computer, Ultra High Frequency (UHF) TT&C Module, Beacon in UHF, Attitude Control System with a Reaction Wheel from Comat, and Power Distribution Board," the Dhruva Space statement read.

ISRO's PSLV Orbital Experimental Module (POEM) enables in-orbit scientific experiments using the spent PS4 stage as an orbital platform.

The Defence Research and Development Organization (DRDO) announced the successful testing of India's first high performance green propulsion system for small satellites developed by Bellatrix Aerospace, which was supported by the Technology Development Fund of the DRDO.

"The developed technology is environmentally safe, reducing cost of satellites and will be key technology boosting Indian space capabilities," the DRDO said on X.

The qualification of the LEAP-TD has now paved the way for hosted payload solutions for space missions, that allows persons other than the satellite's primary operator to own a portion of the spacecraft such as a sensor, an instrument or a set of transponders.

"The first LEAP satellite mission (LEAP-1) has already been conceived and is slated to be launched soon," the start-up said.

The hosted portion of the satellite operates independently of the main spacecraft, but shares the satellite's power supply, transponders, and in some cases, ground systems.

"Dhruva Space's hosted payload offering enables reduced timelines and rapid access to Space; shared operations, development and launch; significant cost savings; considerable risk reduction; and various levels of payload command and control through Dhruva Space's Telemetry, Tracking and Command (TT&C) ground facilities," Sanjay Nekkanti, Chief Executive Officer, Dhruva Space, said. The POEM platform of ISRO allows space startups, university students and research institutes to carry out in-orbit tests of their experiments.

The platform is hosted on the stage four of the PSLV rocket, which otherwise would have remained in orbit for some time before crashing into the sea, after placing the satellite in desired orbit.

POEM has standard interfaces and packages for power generation, telemetry, tele-command, stabilisation, orbit keeping and orbit manoeuvring and hence can be used to design, develop and validate experimental payloads.

ISRO's PSLV-C58 rocket was placed into orbit XPoSAT -- developed by the Bengaluru-based Raman Research Institute -- on January 1.

<https://economictimes.indiatimes.com/tech/startups/indias-space-startups-report-success-of-in-orbit-experiments-onboard-isros-poem/articleshow/106524530.cms>



Wed, 03 Jan 2024

Indian Air Force Pilots to Train at NASA for Mission to Space Station: Report

Indian Air Force pilots are slated to undergo advanced training at Nasa's Johnson Space Center in Houston, Texas for a mission to fly to the Space Station. This move comes as part of a collaborative effort between Nasa and the Indian Space Research Organisation (Isro) following a

deal to send an Indian astronaut to the International Space Station (ISS) by the end of 2024, according to a report in WION.

The training at Nasa's premier facility marks a historic moment for India's space endeavors, occurring four decades after Wing Commander Rakesh Sharma became the first Indian citizen to travel to space in 1984.

The upcoming mission aims to provide practical experience for Indian astronauts and act as a stepping stone towards India's ambitious Gaganyaan mission, which seeks to send astronauts into space and return them safely to Earth.

While the identities of the Indian astronaut candidates have not been disclosed, they have already completed initial training at the Gagarin Cosmonaut Training Centre in Russia and undergone theoretical and practical sessions at Isro centers in India.

They are also involved in assisting Isro with the design and development of the crew-carrying capsule for the Gaganyaan mission.

Dr. S Somanath, chief of Isro, has expressed that the collaboration with Nasa will leverage the changed landscape of US human spaceflight, which now involves private firms carrying out launches to the ISS.

The Indian astronaut will receive training at Nasa's facility before embarking on the journey to the ISS aboard a privately launched spacecraft.

As part of the preparations for the Gaganyaan mission, Isro plans to conduct two unmanned missions in 2024, using a humanoid robot named 'Vyommitra' to simulate conditions within the crew-carrying capsule.

Additionally, Isro is set to perform various tests, including Crew Escape System trials and helicopter-drop tests, to ensure the safety and reliability of the mission.

<https://www.indiatoday.in/science/story/indian-air-force-pilots-to-train-at-nasa-for-mission-to-space-station-report-2483805-2024-01-03>

THE TIMES OF INDIA

Wed, 03 Jan 2024

IIT Kanpur Sets New Record in Innovation & Research: Files 122 IPRs in 2023

In 2023, the Indian Institute of Technology Kanpur (IITK) achieved a significant milestone by submitting 122 Intellectual Property Rights (IPRs) and achieving an outstanding licensing rate of approximately 14% with industry partners.

According to a statement from IIT Kanpur, this achievement reinforces the institute's prowess in cutting-edge research and innovation, as it marks the institute's third consecutive year with the highest number of IPRs in its history. This brings the total number of IPRs to 1,039 so far.

In 2023, 122 IPRs were filed, including 108 patents, four design registrations, three copyrights, and one trademark application. There are also four US patents and two Chinese patents. According to IIT Kanpur, 167 IPRs were granted and 15 technologies were licensed during the same year.

Prof. S Ganesh, Director of IIT Kanpur, conveyed his excitement, saying, "We take pride in sustaining the momentum with 122 IPRs filed, setting a record of over 100 filings in our institute

for the third consecutive year. The institute's dedication to advancing the frontiers of research and technology has led to this unprecedented number of IPRs, establishing the institute as a frontrunner in fostering positive change through intellectual contributions. The collaborative ethos among our researchers and the backing from diverse stakeholders have been instrumental in achieving this milestone."

These patents cover a wide range of technologies, including MedTech and Nano Technology, and include innovative healthcare solutions such as a portable medical suction device and a continuous lung health monitoring system. Notable patents also include solid-state sodium-ion batteries and a low-cost Braille learning device for the blind and visually impaired.

During the calendar year, the institute saw a significant increase in the number of IPRs granted. A gas sensor for detecting ammonia at room temperature, a method and apparatus for treating industrial wastewater, a tactile watch designed for the visually impaired, and a lateral flow immunoassay strip for detecting mastitis in bovines are among the 167 patents. The IP and Technology Transfer Office at IIT Kanpur, according to the institute's statement, plays a critical role in disseminating technologies from academia and research to the commercial sector.

The IIT Kanpur notice on New Milestones in Research & Innovation stated, "The IP and Technology Transfer Office at IIT Kanpur plays a pivotal role in disseminating technologies from academia and research to the commercial sector. The Office, in addition to filing the highest number of IPRs also facilitates increased technology transfer transactions. The institute's unwavering commitment to enhancing the nation's research and development landscape and a focus on delivering impactful inventions at the grassroots level have been key contributors to the overall increase in IPR filings for IIT Kanpur."

<https://timesofindia.indiatimes.com/education/news/iit-kanpur-sets-new-record-in-innovation-research-files-122-iprs-in-2023/articleshow/106510264.cms>

