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समाचार पत्रों से चयित अंश Newspapers Clippings

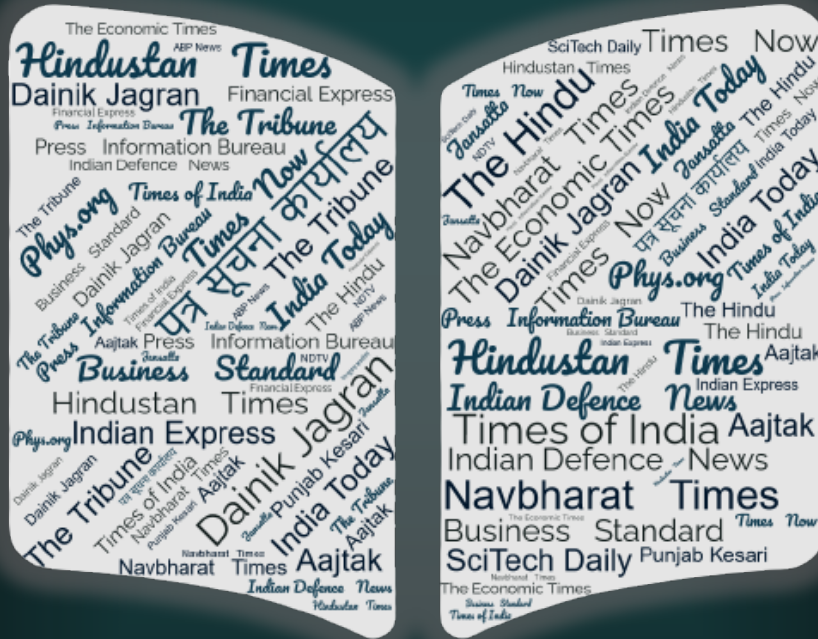
A Daily service to keep DRDO Fraternity abreast with DRDO
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अमर उजाला

गुरुवार, 08 दिसंबर 2022

डीआरडीओ ने किया अत्याधुनिक मानव रहित विमान का सफल परीक्षण, जानें तपस यूएवी की खास बातें

तपस अनमैन्ड एरियल व्हीकल (यूएवी) ने 18 घंटे का उड़ान परीक्षण सफलतापूर्वक पूरा कर लिया है। इसे डीआरडीओ के प्रमुख रिसर्च लेबोरेटरी एयरोनॉटिकल डेवलपमेंट इस्टैबलिशमेंट (एडीई) के द्वारा डिजाइन और विकसित किया गया है। डीआरडीओ ने एक बयान में बताया कि इस परीक्षण को बुधवार को चित्रदुर्ग (कर्नाटक) स्थित एयरोनॉटिकल टेस्ट रेंज में सफलतापूर्वक पूरा किया गया। यह एक मानव रहित विमान है। आने वाले समय में बिना पायलट के चलने वाले विमानों के विकास और आत्मनिर्भरता की दिशा में एक मील का पत्थर साबित हो सकता है। भारत अपनी सैन्य ताकत को लगातार बढ़ा रहा है। इसी कड़ी में उसने ड्रोन, मिसाइल समेत अत्याधुनिक प्रणाली को विकसित किया है। अब इसमें तपस का नाम भी शामिल हो गया है जो एक अत्याधुनिक मानव रहित विमान है। एडीई ने इसे अमेरिका के जनरल एटॉमिक्स एमक्यू-1 प्रीडेटर ड्रोन की तर्ज पर बनाया है। तपस-बीएच-201 ने साल 2016 को कर्नाट के चित्रदुर्ग जिले में बेंगलुरु से दो किमीटर दूर चलकरे में पहली उड़ान भरी थी।

यह ड्रोन 350 किलोग्राम के पेलोड के साथ उड़ान भर सकता है। तपस बीएच की लंबाई 9.5 मीटर और चौड़ाई 20.6 मीटर है। इसका वजन 1800 किलोग्राम है। तपस ड्रोन में डीआरडीओ के व्हीकल रिसर्च एंड डेवलपमेंट इस्टैबलिशमेंट के बनाए स्वदशी इंजन का इस्तेमाल किया जा रहा है। जिसमें प्रत्येक इंजन 130 किलोवॉट की ताकत दे सकता है। तपस बीएच 201 ड्रोन एक हजार किलोमीटर की रेंज में निगरानी और हमला कर सकता है। इसके अलावा यह 224 किमी प्रति घंटे की स्पीड से उड़ सकता है। यह ड्रोन 35 हजार फीट की ऊंचाई पर चौबीस घंटे टिका रह सकता है। तपस विदेशों से खरीदे गए ड्रोन से करीब आठ गुना सस्ता भी है।

<https://www.amarujala.com/india-news/drdo-successfully-tests-unmanned-aircraft-know-the-special-features-of-tapas-uav>

Made in India MALE UAV Completes Flight Test of 18 Hours

The TAPAS 201 Medium Altitude Long Endurance (MALE) UAV has achieved a significant milestone after undertaking a flight test lasting 18 hours at the Aeronautical Test Range in Chitradurga, Karnataka. TAPAS 201 has been designed and developed by the Bengaluru-based Aeronautical Development Establishment (ADE). HAL and BEL will be the production partners for the MALE UAV. Announcing the milestone, Defence Research and Development Organisation (DRDO) tweeted: India's TAPAS UAV, #designed & #developed by Aeronautical Development Establishment (ADE), Bengaluru for tri-services has successfully achieved #milestone flight test of 18 hours at Aeronautical Test Range, Chitradurga. TAPAS 201 is a multi-mission UAV being developed to carry out Intelligence, Surveillance and Reconnaissance roles for the three wings of the armed forces with endurance in the range of 24 to 30 hours.

Described as the Indian version of the US's Predator drones, TAPAS 201 is capable of carrying different combinations of payloads, like Medium Range Electro Optic, Long Range Electro Optic, Synthetic Aperture Radar, Electronic Intelligence, Communication Intelligence and Situational Awareness Payloads, to perform missions during day and night. The MALE UAV, which was earlier referred to as RUSTOM II, undertook its first flight in November 2016. Since then, it has undertaken many test flights. In 2019, the TAPAS 201 programme suffered a setback when the UAV crashed during an experimental flight near the Aeronautical Test Range in Chitradurga. Apart from the Indian army, air force and navy, internal security agencies like State Police Forces, BSF, CRPF, and the Coast Guard are also prospective users of the MALE UAV.

<https://www.thehindu.com/news/cities/bangalore/made-in-india-male-uav-clears-flight-test-of-18-hours/article66239096.ece>

Test Milk Adulterants in 10 Minutes!

In less than 10 minutes, adulteration in milk can be detected. Also, the milk's microbial safety can be checked. Thanks to a simple and portable device developed by the DRDO-Defence Food Research Laboratory (DFRL), Mysuru, this technology has been adopted in the Army and now has been transferred to industries for commercial production. This multiple strip test kit for testing the quality of milk is cost-effective, eco-friendly and easily disposable.

Called MATS – Milk Testing Kit Mark II, the test is rapid, user-friendly and light. A drop of milk is sufficient to test each adulterant. The detection limit is from 0.5 per cent level onwards, according to the DFRL scientists. The strip card is able to detect seven chemical adulterants – boric acid, detergent, hydrogen peroxide, neutraliser, soap, starch and urea. The test is based on

colour reactions and the test does not require any lab facility or skilled/trained manpower. “The kits have been extensively evaluated in the armed forces and are safe to use,” a note from DFRL said. DRDO-DFRL has developed biodegradable cutlery by using reinforcement of natural fibre (agro waste) into matrix resin which is a polymer of renewable resources and is formed by compression or injection process. The cutlery is available in the form of spoons, forks, soup spoons, ice-cream sticks, bowls, kulhad and plates.

Biodegradable films for packaging applications have also been developed. The biodegradable bags convert to biomass by enzymatic degradation within 180 days. It is made from environmentally friendly bio polymers. Each bag can carry a weight of 5 kg. The technology is mainly focused on making biodegradable carry bags, pouches, bags etc., which decompose in a specific environment such as water, soil, compost under a short period of time, the note said.

<https://www.thehindu.com/news/national/karnataka/test-milk-adulterants-in-10-minutes/article66238609.ece>



Thu, 08 Dec 2022

‘Meals-Ready-to-Eat’ Cater to Troops in Combat Situation

Among the technologies that are on display at the exhibition organised by the DRDO-Defence Food Research Laboratory (DFRL), Mysuru at the ongoing national conference on “Futuristic strategies for the containment of troops in different terrains”, the Meals-Ready-to-Eat (MRE) ration technology draws attention as they are “terrain-specific” and suitable for use by troops in operational and combat situations as well as for various expeditions and missions undertaken on land and sea. The MRE has been developed for high altitude, jungle, desert, sailors, marine commandos, tank crew and submarine crew. An MRE box can take care of one day’s food needs of a person.

According to the DFRL, the Indian MRE compares very well with well-known international rations like MRE of USA and GP-24 of the United Kingdom in nutritional quality and shelf-life. The shelf-life of the ration is 12 months under ambient conditions. The total calorific value of the ration ranges from 2,600-4,600 kcal and meets the nutritional requirements as per the RDA. on display at an exhibition organised by the DRDO-DFRL in Mysuru. Among the technologies that are on display at the exhibition organised by the DRDO-Defence Food Research Laboratory (DFRL), Mysuru at the ongoing national conference on “Futuristic strategies for the containment of troops in different terrains”, the Meals-Ready-to-Eat (MRE) ration technology draws attention as they are “terrain-specific” and suitable for use by troops in operational and combat situations as well as for various expeditions and missions undertaken on land and sea.

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as per the RDA. Notably, the MREs are free from preservatives as the ration technology comprises retort pouch processed foods, shelf-stable chapatis/preserved and flavored chapatis and survival ration to meet the operational requirements of the armed forces, according to a note.

The chapatis do not require any cooking since the contents are thermally processed and can be consumed as such or with warming if required. The ready-to-eat foods are processed in a specially designed bulk sterilizer to ensure microbiological safety as well as commercial sterility, it said. The survival ration also contains energy-dense soft bar and delicious chikki from groundnut with jaggery/sugar to meet the immediate nutritional needs of armed forces during combat operations.

Another exhibit was the sea dye marker, a life-saving item used to locate and rescue air crew and other search vehicles during emergencies. The fluorescent green dye dissolves in water within 5 minutes, spreads over water surface and bright green pattern remains in sea water for more than 45 minutes and visible at a distance of 10 miles from an altitude of 3,000 feet.

Space foods

The foods developed by the DFRL for Gaganyaan space mission also attracted the visitors. Nearly 40 different varieties of foods have been developed for the astronauts and tests are undertaken on them. The foods include moong dal halwa, dal makhani, shahi paneer, vegetable biryani, chicken pulav. Pineapple juice, flavoured milk, tomato sauce, ready-to-drink black coffee, ready-to-drink tea, and lemon juice were among the foods developed for ISRO's manned mission to space. Potable water, ORS solution and saline solution are also developed for consumption in space.

<https://www.thehindu.com/news/national/karnataka/meals-ready-to-eat-cater-to-troops-in-combat-situation/article66238773.ece>

STAR OF MYSORE

Fri, 09 Dec 2022

‘Develop Innovative Foods that Help Reduce Stress’

A three-day national conference on ‘Futuristic strategies for sustainment of troops in different terrains,’ organised by Mysuru-based Defence Food Research Laboratory (DFRL), a Defence Research and Development Organisation (DRDO) laboratory, began at Hotel Southern Star in city last evening.

The conference is being organised to bring together researchers, tri-service (Army, Navy & Air Force) users, industry participants and academics on a common platform to debate the current challenges faced by all stakeholders and to develop concepts for technical solutions. It intends to create a common forum where experiences, difficulties and future course of action and strategies will be discussed. Inaugurating the conference, Dr. Upendra Kumar Singh, Director General (Life Sciences), DRDO, told the DFRL scientists to ensure that quality, hot and energy-boosting food products must be supplied to Defence Forces.

Effective R&D for innovation

“It is important for the DFRL to redefine its roles and collaborate with the industry in Research and Development (R&D) as this is crucial to become ‘Atmanirbhar’ in all productions. Nearly 25 percent of the funding for R&D now given to the industry other than the labs with the focus on bringing in innovation,” he said. New markets have been created over the years and the DFRL now is fulfilling the orders placed by organisations like the Indian Space Research Organisation (ISRO). There is tremendous demand for DFRL products in the other markets too and the time has come to explore those avenues, Singh added. “We must strive to provide food products as per the needs of the Defence services and they must be tailor-made to suit their requirements. Apart from being visually appealing, the food products must be tasty, hygienic and must, at the same time, be nutritious for the soldiers to withstand the hostile surroundings,” the DRDO DG said.

Complementing the DFRL for coming to the rescue of people who are hit by natural disasters, Singh said that DFRL can now think beyond and come up with innovative foods that help reduce stress, developing foods with special ingredients. “The institution must partner with industry and academia to bring about the change in this competitive world. Make use of the grants provided by the Centre to innovate,” he added. Dr. R. Umamaheswaran, Director of Human Space Flight Centre (HSFC), ISRO, Bengaluru, too spoke about how DRDO could pursue innovation while it excelled in providing food products for all-terrain and all weather conditions. He recalled how DFRL was able to develop speciality foods for the astronauts. Dr. Anil Dutt Semwal, Director, DFRL, outlined DFRL’s contributions since its inception and the way forward. Commodore Manoj Sharma, Principal Director, C and V, Naval HQ, also spoke on the occasion. Dr. Samir V Kamat, Secretary, DDR&D (Department of Defence R&D) and Chairman, DRDO, Sanjeev Kumar and R. Kumar, Scientists, were present.



DFRL products on display, sale

On the occasion, new technologies developed by the DFRL were released by the dignitaries. An exhibition was organised to display the DFRL products including biodegradable cutlery, milk testing kit (Mark II), biscuits and snacks that can be kept for over a year, multilayer degradable food packaging materials and biodegradable films for packaging applications. A DFRL statement said that the institution is involved in a research and development project to build a technology

platform by utilising cutting-edge food processing technologies. The conference will debate dietary needs of the soldiers, nutritional delivery, sustainable food packaging, hybrid technology for food processing, modern methods and strategies for evaluating the safety and quality of food. It will design food processing and packaging systems with artificial intelligence assistance and discuss the R&D for 3-D printing technology to create culinary products.

<https://starofmysore.com/develop-innovative-foods-that-help-reduce-stress/>

STAR OF MYSORE

Fri, 09 Dec 2022

Potato Paratha, Moong Dal Halwa for Gaganyaan-1 Astronauts

Mysuru-based Defence Research Development Organisation (DRDO) has developed a wide range of foods to be consumed by astronauts going to space in the Gaganyaan-1 Mission, India's much-awaited maiden manned space mission. The institution has developed commonly consumed foods that will be relished by astronauts including vegetable biryani, potato paratha, vegetable pulao, moong dal halwa and dal khichdi. In addition, a variety of ready-to-eat cuisines have been developed for the mission. The DFRL has been in touch with the astronauts identified for the mission as they will have to get acclimatised to foods they eat while being in space.

Gaganyaan-1 is likely to be scheduled in 2024 and the Indian Space Research Organisation (ISRO) has developed a spacecraft for the Mission. A series of tests will be undertaken with the test vehicle already developed for a couple of unmanned missions before the manned mission takes off.

<https://starofmysore.com/potato-paratha-moong-dal-halwa-for-gaganyaan-1-astronauts/>

Firstpost.

Thu, 08 Dec 2022

Project Zorawar: Indian Army to Acquire 354 Light Tanks to Take on China, Pakistan in the Himalayas

The Indian Army's ability to take on China and Pakistan high in the Himalayas is set to get a massive boost with the Indian government about to kick-start an indigenous project for the acquisition of 354 light tanks under 'Project Zorawar'. The mega project was stuck in a bottleneck due to differences between the Indian Army and the Defence Research and Development Organisation (DRDO). A TOI report quoted officials as saying that the defence ministry has managed to resolve the issue between the Indian Army and the DRDO, clearing the way for 'Project Zorawar' to take wings. The Defence Acquisitions Council will take up the grant of AoN (acceptance of necessity) under Project Zorawar, at an estimated cost of Rs 17,500 crore. Tussle between Indian Army, DRDO Although the Combat Vehicles Research and

Development Establishment (CVRDE) of the DRDO was already working to develop a light tank prototype in collaboration with private sector heavyweight Larsen & Toubro, the Indian Army wanted all 354 tanks to be manufactured by the private sector under the Make-1 category. “DRDO says its first light tank prototype will roll out by mid-2023. So, the decision is that 59 tanks be reserved for DRDO, with the condition that it delivers a successful prototype ahead of the others in the fray,” the official said.

What is a light tank?

Light tanks are supposed to have extra manoeuvrability than their regular counterparts and are generally deployed for mountain warfare. The light tanks being developed under Project Zorawar will weigh less than 25 tonnes with a high power-to-weight ratio as well as superior firepower and protection.

Where will Indian Army deploy light tanks?

The Indian Army will deploy these light tanks in the Himalayas, mostly against China. The need for light tanks had been felt by the Indian Army for a while now. But their necessity came into crying focus during the military standoff with China in Ladakh. When the Ladakh standoff started in 2020, the Indian Army had deployed the Russia-made T-90S and T-72 main battle tanks. However, these tanks, which weigh 40 to 50 tonnes each, did not perform at their optimum level at such high altitudes.

“The T-90S and T-72, which are designed for operations in plains and deserts, have limitations in high altitude areas ranging from 11,000 to almost 17,000-feet. Consequently, the need for indigenous versatile light tanks that are more manoeuvrable and operationally flexible in mountains,” an official said. During the Ladakh standoff, the People’s Liberation Army (PLA) of China had deployed a mixture of medium and light tanks, including the newly-minted third-generation Type-15.

<https://www.firstpost.com/india/project-zorawar-indian-army-to-acquire-354-light-tanks-to-take-on-china-pakistan-in-the-himalayas-11774321.html/amp>

Defence News

Defence Strategic : National/International

 **Hindustan Times**

Thu, 08 Dec 2022

Rafale M Fighter Edges Out F/A-18 Super Hornet in Equipping INS Vikrant

The French Rafale M fighter has edged out the American F/A-18 Super Hornet in direct competition to equip the Indian Navy with 26 new deck-based fighters for the country’s first

indigenous aircraft carrier, INS Vikrant, people familiar with the matter said on Thursday. The Rafale is manufactured by Dassault Aviation while the Super Hornet is a Boeing product. Dassault and Boeing demonstrated the capabilities of their aircraft to the navy at a shore-based test facility in Goa in January and June, respectively. The navy has submitted the trial reports of the two fighters to the defence ministry, and it is now for the government to take a final call on the government-to-government deal to meet the navy's requirements, said one of the officials cited above, asking not to be named.

“The Rafale M has been found to be a better fit for the navy's requirements,” said a second official, also asking not to be named. The Indian Air Force (IAF) operates two squadrons of the Rafale fighter, and if the navy also orders the maritime version of the same, there will be commonality of spares and maintenance, the officials said. The 26 fighters that the navy plans to buy are only a stopgap until the country develops its own twin-engine deck-based fighter (TEDBF). The navy is preparing a draft cabinet note for the design and development of TEDBF that India plans to operate from its aircraft carriers, navy chief Admiral R Hari Kumar said last week.

The first prototype of TEDBF is likely to be ready around 2026, and its production could begin by 2032. The navy is working with the Defence Research Development Organisation (DRDO) and Aeronautical Development Agency on the TEDBF project. Since TEDBF is still a decade away, the navy is looking at importing deck-based fighters as an interim measure. It makes sense for the navy to go for the Rafale M fighters to fill the capability gap, said Air Marshal Anil Chopra (retd), director general of the Centre for Air Power Studies. The 26 fighters that the navy plans to buy are only a stopgap until the country develops its own twin-engine deck-based fighter (TEDBF). The navy is preparing a draft cabinet note for the design and development of TEDBF that India plans to operate from its aircraft carriers, navy chief Admiral R Hari Kumar said last week.

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Like INS Vikramaditya, the fighters on board INS Vikrant will also use the ski-jump to take off and will be recovered by arrestor wires or what is known as STOBAR (short takeoff but arrested recovery) in navy parlance. The Vikramaditya operates Russian-origin MiG-29K fighters. The French side has also stressed that the Rafale M brings commonality with IAF's 36 Rafale fighters, thus offering advantages related to training, maintenance, and logistics support. “We will take a call on what's in our best interest,” the navy chief said on December 3. INS Vikrant will operate an air wing consisting of 30 aircraft including the new fighters, Kamov-31 choppers, MH-60R multi-role helicopters, and advanced light helicopters. While the Rafale M is deployed on the French Navy's Charles de Gaulle aircraft carrier, the Super Hornet operates from all 11 US Navy aircraft carriers. Boeing earlier anticipated economic benefits of \$3.6 billion to the

Indian economy over 10 years if the Super Hornet was selected as the navy's next carrier-based fighter, with continued investments in manufacturing, engineering and technology transfer, infrastructure, sustainment and training, and skilling.

<https://www.hindustantimes.com/india-news/rafale-m-fighter-edges-out-f-a-18-super-hornet-in-equipping-ins-vikrant-101670481331812.html>



Thu, 08 Dec 2022

Indian Navy to Upgrade Communication Systems, to Modernise HF Broadcast Transmission Systems

The Indian Navy is on a communications upgrade spree and has sent out Request for Information (RfI) to acquire around 50 advanced High Power HF Broadcast Transmission Systems (HPHBTS) along with accessories, antennae systems, and remote keying facilities. This is to replace or modernise existing HF Broadcast Transmitting Stations (TS) at various locations to provide long-range and reliable HF Broadcast communication within the Navy. “The HF transmitter and receiving systems require extremely large antennas that are up to the standards of the military,” explained a senior officer. The Navy mandates that the operating frequency range be between 1.5 and 30 MHz. Its most common application is in long-distance communications, such as those conducted by the shipping and aviation industries, as well as by radio amateurs and broadcasters worldwide.

The function is accomplished by bouncing the signal off of the ionosphere and back down to receiving stations that are waiting. It is susceptible to changes in the surrounding atmosphere, which can cause fading and noise. The operational range extends from five hundred to several thousand Kms. According to Girish Linganna, Aerospace and Defence Analyst, “The purpose of modernising existing transmitting stations with more advanced HPHBTS systems is to enhance the capabilities of those transmitting stations so that they can provide higher data rates and more reliable HF digital broadcast communication for naval units both afloat and ashore around the world. The capabilities that are envisioned for the system include remote operations, such as keying of Morse (CW) and data communication, which would be done from Broadcast Controlling Stations over naval terrestrial, Satcom, or wireless networks utilising Transmitters and Antennae at Transmitting Stations.”

In addition to voice and CW operations, the capacity of data transmission and file sharing functions is mentioned in the RfI. The system should be capable of establishing a communication network in addition to the provision of a relay facility, which would enable the data to be re-sent immediately on the same or another frequency, depending on the situation. The receiving of data through the serial port on the built-in modem for the purpose of data communications is also mentioned in the proposal. The document also mentions the ECCM for electronic countermeasures for secure and jam-resistant voice and data links.

“It is necessary for the HPHBTS set to have the capacity for remote control through the use of an external PC or laptop. Both the printed circuit boards (PCBs) and application software of the

remote control laptop or desktop PC must be compatible with the most recent versions of operating systems. The system should be able to be operated remotely through both terrestrial and wireless technologies used by the Navy,” adds Linganna. From the time it is delivered to naval transmitting stations, the overall lifespan of the equipment should be at least 12.5 years. To ensure that the equipment can be maintained for an additional three to five years after the warranty has expired, each set is to be supplied with a consolidated set of Base and Depot (B&D) spares and a set of Onboard Ship (OBS) spares. The vendor is obligated to give an undertaking that all future changes to the system’s software and hardware will be made available to the Navy.

In the past, the majority of communication sets in the VLF, V/UHF, and HF frequency bands were obtained first through import and were subsequently created or provided as services via Transfer of Technology (ToT) by public sector organisations such as Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), ECIL, and others.

Other communication networks

For satellite communication, SATCOM terminals that operate in the UHF, S, Ku, and C bands are essential for communication to occur. Currently, UHF and S bands terminals have been procured by the Navy from within the country. It will also be necessary to develop SATCOM terminals indigenously for the C and Ku bands, which are mostly procured from Israel. Most of these SATCOMs are now more than 10–12 years old, and the field units have reported problems relating to product support and a slowdown in data transfer. The Navy is contemplating the purchase of SATCOM terminals that are compatible with C-band and Ku-band frequencies and have increased data and communication transfer rates.

The Indian Navy is also building a Naval Communications Network (NCN) that involves 2900 km of optical fibre cable. Sterlite Tech will be responsible for the design, construction, and maintenance of the digital communications network that will be provided to the Indian Navy as part of the Rs 3,500 crore system integration projects. This will put the Indian Navy on par with the most advanced naval forces in the world. Once it is finished, it will link several Indian naval facilities as well as islands that are managed by India. A high-capacity Internet Protocol–Multi Protocol Label Switching (IP–MPLS) network is going to be built as part of this project.

<https://www.financialexpress.com/defence/indian-navy-to-upgrade-communication-systems-to-modernisehf-broadcast-transmission-systems/2905907/>

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3 Service Chiefs Pay Tribute to Gen Bipin Rawat

The three service chiefs on Thursday paid glowing tributes to India's first Chief of Defence Staff Gen Bipin Rawat on his first death anniversary. Army Chief Gen Manoj Pande, Chief of Naval Staff Admiral R Hari Kumar, and Air Chief Marshal VR Chaudhari paid homage to late Gen Rawat at the iconic Hut of Remembrance of the National Defence Academy (NDA) at Khadakwasla in Pune. Gen Rawat was an alumnus of Charlie Squadron of the 53rd NDA course. He served the nation as the 27th Chief of the Army Staff and subsequently the first Chief of the

Defence Staff. Gen Rawat, his wife Madhulika Rawat and 12 other military personnel were killed in a helicopter crash near Coonoor in Tamil Nadu on December 8 last year.

As India's first Chief of Defence Staff, he was spearheading an initiative to bring convergence in the functioning of the Army, the Navy and the Indian Air Force and bolster the country's overall military prowess. "Gen Bipin Rawat was an outstanding soldier and a true patriot who greatly contributed to modernising our armed forces and security apparatus," the Army said in a statement. "As India's first Chief of Defence Staff, the General Officer worked on diverse aspects relating to our armed forces, most notably defence reforms. His insight and perspectives on strategic matters were exceptional," it said. The Army said the nation will never forget his yeoman service toward festering an enduring culture of jointmanship and integration in the armed forces.

External Affairs Minister S Jaishankar also paid tributes to Gen Bipin Rawat on his first death anniversary. "Fondly remember India's first CDS Late Gen. Bipin Rawat on his death anniversary today. A great soldier, a strong leader and a wonderful human being," he tweeted. The headquarters of the Integrated Defence Staff (IDS) said 71 military officers serving in 44 Indian embassies and high commissions paid homage to the late commander CDS. "On the occasion of the first death anniversary of #CDS Late Gen #BipinRawat and others who laid down their lives on Dec 8, 2021 in a helicopter crash, 71 military officers serving in 44 Indian Embassies and High Commissions paid online homage on the National War Memorial portal," it tweeted.

<https://economictimes.indiatimes.com/news/defence/3-service-chiefs-pay-tribute-to-gen-bipin-rawat/articleshow/96092247.cms>



शुक्रवार, 09 दिसंबर 2022

क्या चीन को लगे झटके से तेजस को मिलेगा मौका?

चीन और पाकिस्तान ने मिलकर एक लड़ाकू विमान जेएफ 17 थंडर (JF-17 THUNDER) बनाया। उसका पहला खरीदार बना म्यांमार, लेकिन खरीदने के चार साल बाद ही अब उसकी वायुसेना ने यह विमान उड़ाने से मना कर दिया है। उसका कहना है कि जेएफ 17 में तकनीकी खामियां हैं। उसने कहा है कि इसके ढांचे में दरारें आने जैसे गंभीर मसले भी हैं। चीन जेएफ 17 की मदद से वैश्विक हथियार बाजार में धमक बनाना चाहता था। लेकिन उसकी उम्मीदों को बड़ा झटका लगा है। वहीं इसी कैटेगरी में भारत ने एलसीए तेजस विमान तैयार किया है। चीनी विमान में खामियों की बात सामने आना तेजस के लिए एक बड़ा सुनहरा मौका है।

लड़ाकू विमान बहुत महंगे होते हैं। इनके अंतरराष्ट्रीय बाजार में अमेरिका, रूस, फ्रांस और ब्रिटेन जैसे चुनिंदा देशों का कब्जा रहा है। इस बाजार में पहुंच बनाने के लिए चीन और भारत ने चार दशक पहले

लगभग एकसाथ कदम बढ़ाए थे। इसी के साथ तेजस और जेएफ 17 की कहानी शुरू हुई। भारत ने विदेश पर निर्भरता घटाने के लिए 1983 में स्वदेशी हल्के लड़ाकू विमान (एलसीए) का प्रोजेक्ट शुरू किया। इसके बाद 1987 में पाकिस्तान और चीन ने अमेरिका की कंपनी गूमैन के साथ मिलकर स्वदेशी लड़ाकू विमान बनाने के लिए प्रोजेक्ट सैबर-2 शुरू किया। लेकिन 1989 में थियानमेन स्कवेयर की घटना के बाद अमेरिका ने चीन पर कई प्रतिबंध लगा दिए। लिहाजा गूमैन ने भी हाथ खींच लिए और प्रोजेक्ट बंद हो गया।

इधर, तेजस परियोजना में भारत ने फ्रांस की मदद से कदम बढ़ाए, लेकिन कई तकनीकी दिक्कतें दूर करने के लिए हिंदुस्तान एरोनॉटिक्स लिमिटेड (एचएएल) को अमेरिका की विमानन कंपनी लॉकहीड मार्टिन से मदद लेनी पड़ रही थी। इस बीच, अमेरिका से मिले झटके बाद चीन और पाकिस्तान ने एक बार फिर मिलकर कदम बढ़ाए। 1995 में एक स्वदेशी लड़ाकू विमान बनाने के लिए दोनों ने समझौता किया। महज पांच साल में चीन ने जेएफ-17 का प्रोटोटाइप बना डाला। वहीं, भारत का एलसीए प्रोजेक्ट देरी का शिकार हो चुका था। 1998 में परमाणु परीक्षणों के बाद लगे प्रतिबंधों से और झटका लगा। फिर भी भारत ने 2001 में प्रोटोटाइप बना लिया।

2001 में एलसीए के पहले प्रोटोटाइप ने उड़ान भरी। चीन और पाकिस्तान के जेएफ 17 के पहले प्रोटोटाइप ने 2002 में पहली उड़ान भरी, लेकिन उसके बाद हालात बदल गए। चीन ने अगले तीन साल में दो जेएफ 17 विमान तैयार कर दिए। उन्हें पाकिस्तान ने 2007 में अपनी वायुसेना में शामिल करने का फैसला लिया। 2010 तक पाकिस्तान जेएफ 17 का पहला स्कवॉड्रन तैयार कर चुका था। बड़े पैमाने पर जेएफ-17 का निर्माण पाकिस्तान में शुरू हुआ। यह पाकिस्तानी वायुसेना का फ्रंटलाइन फाइटर बन गया। 2015 तक पाकिस्तान ने इसे खरीदने के लिए म्यांमार को राजी कर लिया। इधर, 2016 में तेजस को भारतीय वायुसेना ने पहले स्कवॉड्रन में शामिल किया। अभी भारतीय वायुसेना 40 तेजस मार्क 1, 73 तेजस मार्क 1ए और 10 ट्रेनर का ऑर्डर एचएएल को दे चुकी है। हल्के और किफायती मल्टीरोल फाइटर एयरक्राफ्ट का इस वक्त बड़ा बाजार है। इस बाजार में अमेरिका, रूस और फ्रांस के बाद नए विमान विकसित करने वालों में दक्षिण कोरिया है। चीन भी जेएफ-17 के साथ 2015 से इस बाजार में दाखिल हो चुका है। अफ्रीका और एशिया के विकसित होते देशों में लड़ाकू विमानों की मांग बढ़ रही है। चीन ने कई लड़ाकू विमान विकसित किए हैं, लेकिन अभी तक जेएफ 17 को ही अंतरराष्ट्रीय बाजार में ग्राहक मिल पाए हैं। तेजस के साथ 2021 में भारत ने भी इस बाजार में कदम रखा है, लेकिन भारत अभी किसी भी देश को अपना विमान बेच नहीं पाया है। कई देशों के साथ बातचीत चल रही है।

अंतरराष्ट्रीय बाजार में एक जेएफ-17 विमान की कीमत 25 से 32 मिलियन डॉलर तक है। इससे सस्ता सिंगल इंजन का कोई हल्का लड़ाकू विमान नहीं है। भारत का तेजस 25 से 43 मिलियन डॉलर का है। ऐसे में जेएफ-17 के लिए पाकिस्तान अब तक म्यांमार और नाइजीरिया से सौदा कर चुका है। इराक भी 10 जेएफ 17 खरीदने के लिए पाकिस्तान से करार कर चुका है। वहीं, अर्जेंटीना 18 विमान खरीदने के लिए

पाकिस्तान से बात कर रहा है। इनके अलावा लगभग एक दर्जन दूसरे देश भी जेएफ-17 में दिलचस्पी दिखा चुके हैं।

लेकिन अब म्यांमार की वायुसेना ने जिस तरह जेएफ 17 को उड़ाने से मना किया है, उससे चीन और पाकिस्तान को बड़ा झटका लगा है। जेएफ-17 को ग्राउंडेड किए जाने की मुख्य वजह इसका इंजन है। जेएफ-17 में रूस का बना क्लिमोव आरडी-93 इंजन लगा है। यूक्रेन युद्ध के कारण रूस पर कई प्रतिबंध लग गए हैं। इसके चलते क्लिमोव आरडी-93 इंजन बनाने में इस्तेमाल होने वाले स्पेयर पार्ट्स की कमी हो गई है। चीन पहले रूस से ये इंजन खरीदता था। उसके बाद वहां से पाकिस्तान समेत दो अन्य यूजर्स को ये इंजन सप्लाई किए जाते थे। कुछ साल पहले ही पाकिस्तान ने पैसे बचाने के लिए रूस से सीधे इंजन खरीद का समझौता किया था। लेकिन पाकिस्तान को बिल्कुल भी उम्मीद नहीं थी कि रूस इंजन की सप्लाई अचानक बंद कर देगा।

म्यांमार वायुसेना के सभी सात जेएफ-17 विमान ग्राउंड करने से अंतरराष्ट्रीय स्तर पर पहली बार जेएफ 17 की तकनीकी खामियों की पोल खुली है। भारत के पास अपने तेजस की मार्केटिंग का इससे बेहतर मौका नहीं मिल सकता। अर्जेंटीना और पाकिस्तान के बीच लंबे समय से जेएफ 17 खरीदने को लेकर बातचीत चल रही है। भारत की नजर भी अर्जेंटीना के रक्षा सौदे पर है। तेजस में अर्जेंटीना की भी दिलचस्पी है, लेकिन उसमें इस्तेमाल कुछ स्पेयर पार्ट्स ब्रिटिश कंपनी से लिए गए हैं, जिससे अर्जेंटीना के रिश्ते खराब हैं। भारत की ओर से इन स्पेयर पार्ट्स को बदलने का भी विकल्प है, लेकिन अर्जेंटीना का झुकाव अब तक पाकिस्तानी विमान को ओर रहा है। म्यांमार में जेएफ 17 को लगा झटका तेजस के लिए अवसर बन सकता है। अर्जेंटीना तकनीकी रूप से कमजोर लड़ाकू विमान खरीदने की जगह तेजस पर सहमति बना सकता है। भारत अभी तक तेजस को बेचने के लिए बाजार तलाश रहा है। रॉयल मलेशियन एयरफोर्स ने 2021 में 18 मल्टी रोल फाइटर प्लेन खरीदने के लिए टेंडर निकाला था। उसमें तेजस और दक्षिण कोरिया के एफए-50 में होड़ है। अमेरिका, इंडोनेशिया और फिलीपींस जैसे मुल्कों ने भी तेजस में रुचि ली है। नाइजीरिया को 30 लड़ाकू विमान और खरीदने हैं। कतर, मोरक्को, सऊदी अरब, श्रीलंका, सूडान, जिम्बाब्वे और मिस्र के साथ भी बातचीत चल रही है। म्यांमार घटना के बाद इन मुल्कों में अब तेजस को लेकर भारत अपना पक्ष मजबूती से रख पाएगा।

तेजस एक बार में करीब 2,300 किलोमीटर की उड़ान भर सकता है। यह पाकिस्तान के जेएफ-17 से ज्यादा है। पाकिस्तानी विमान 2,037 किलोमीटर तक उड़ सकता है। तेजस में 2,500 किलो ईंधन आ सकता है, लेकिन जेएफ-17 के पास 2,300 किलो ईंधन रखने की क्षमता है। दोनों फाइटर जेट्स इंजन के मामले में भी काफी अलग हैं। तेजस में बीच हवा में ही फिर से ईंधन भरा जा सकता है, लेकिन जेएफ-17 के साथ ऐसा नहीं है। तेजस में जेएफ-17 से ज्यादा रफ्तार से उड़ान भरने की क्षमता है। चीन के थंडरजेट को टेक ऑफ के लिए कम से कम 600 मीटर लंबे रनवे की जरूरत होती है, लेकिन तेजस सिर्फ 460 मीटर के रनवे से उड़ान भर सकता है। तेजस 50,000 फुट की ऊंचाई से भी संचालित किया जा सकता है।

चीनी जेएफ-17 सस्ता है, लेकिन यह तेजस एमके-आईए वर्जन के तकनीकी मापदंडों से मुकाबला नहीं कर सकता। तेजस सिंगल सीटर पायलट विमान है। लेकिन इसका ट्रेनर वेरिएंट 2 सीटर है। वहीं, जेएफ-17 के भी दो वेरिएंट हैं, ब्लॉक -1 सिंगल सीटर और ब्लॉक -2 डबल सीटर। तेजस के हल्का और आकार में छोटे होने के कारण यह नजदीकी लड़ाई में काफी मददगार हो सकता है। तेजस में हवा से हवा में मार करने वाली छह तरह की मिसाइलें तैनात हो सकती हैं। इसमें इजरायल का बेहतरीन मल्टी मोड रडार सिस्टम भी है।

मोदी सरकार आने के बाद भारत ने हथियारों की खरीद घटाकर मेक इन इंडिया पर जोर दिया है। इससे विदेश से 33 प्रतिशत कम हथियार खरीदे गए हैं। भारतीय निजी रक्षा उद्योग का उदय एक सफलता की कहानी है। बेंगलुरु की डायनेमिक टेक्नोलॉजीज बेल, एयरबस और बोइंग जैसी वैश्विक कंपनियों के लिए एयरो स्ट्रक्चर बना रही है। भारत फोर्ज और टाटा ग्रुप सेना के लिए तोपें बना रहे हैं। लार्सन एंड टुब्रो और महिंद्रा भी रक्षा क्षेत्र में काम कर रहे हैं। टाटा और लॉकहीड मार्टिन मिलकर सी 130 जे के स्पेयर पार्ट्स बना रहे हैं। महिंद्रा एंड महिंद्रा ग्रुप इंग्लैंड की बड़ी हथियार निर्माता कंपनी बीएई के साथ मिलकर 155 कैलिबर तोपों का निर्माण कर रहा है।

हथियारों के वैश्विक बाजार में चीन 4.6 प्रतिशत हिस्सेदारी के साथ आठवें नंबर पर है। अगर भारत की बात करें तो पिछले पांच वर्षों में भारत ने हथियार बेचने में 334 प्रतिशत वृद्धि की है, लेकिन चीन के मुकाबले बहुत पीछे है। स्टॉकहोम इंटरनैशनल पीस इंस्टिट्यूट के मुताबिक, भारत 25 बड़े हथियार निर्माता देशों में 23वें स्थान पर है। अंतरराष्ट्रीय हथियार बाजार में भारत की हिस्सेदारी 0.2 प्रतिशत है, लेकिन अगले कुछ सालों में भारत अपनी हिस्सेदारी बढ़ा सकता है।

<https://navbharattimes.indiatimes.com/navbharatgold/day-today/myanmar-air-force-refuses-to-fly-chinese-aircraft-jf-17-indian-tejas-may-get-chance/story/96088991.cms>



Thu, 08 Dec 2022

Exclusive Interview: Dr Vivek Lall of General Atomics Sees Scope for More Partnerships with India INC

The Chief of Naval Staff Admiral R Hari Kumar on Dec 3, 2022 confirmed that the proposed procurement of a fleet of 30 Predator drones from the US is under process. This means that the deal has not been scrapped, and the procurement of the drones for the three services for under \$3 billion is on the table. The Navy Chief told Financial Express Online that the navy is discussing whether the numbers have to be rationalized. These drones are being sought to further strengthen the country's surveillance in the Indian Ocean Region (IOR) and along the frontier with China due to the growing presence of PLA warships.

Financial Express Online has reported earlier that following the Galwan Valley incident in 2020, the Indian Navy exercised its option to lease two MQ-9B Sea Guardian drones from the US based General Atomics. The initial lease period was for one year and thereafter the lease period has been extended. During his recent visit to New Delhi, Dr Vivek Lall, Chief Executive for the General Atomics Global Corporation, gave an update on various programmes the company is doing in different countries including India.

Following are the excerpts:

Operations of the Indian COCO (Company Owned, Company Operated) marked their second anniversary. Can you describe some of the benefits for India?

The Indian COCO is going very well. We recently completed the second year of that lease agreement, which commenced on November 21, 2020, for the Indian Navy. Over the two years, the aircraft have flown more than 10,000 hours.

Also you made some announcements with Indian companies. What are your further plans with Indian industry?

As for our “Make in India” support, we announced this year that we are working with third iTech for semiconductor technology, and 114ai for Artificial Intelligence. I expect more partnership to grow between General Atomics and the Indian industry in the weeks and months to come. COCO Operations have begun in Japan. Can you describe those operations in more detail given that USAF has also deployed your product there. In October, we commenced operations in support of the Japan Coast Guard, featuring an MQ-9B SeaGuardian from GA. The aircraft is performing Maritime Wide Area Search (MWAS) over the Sea of Japan and the Pacific Ocean. Other missions include search and rescue, disaster response, and maritime law enforcement. All reports from our customer are very positive.

Please describe the NATO Pod and its significance?

The NATO Pod is a joint development between GA-ASI and Sener Aeroespacial of Spain. The NATO Pod is built by Sener Aeroespacial in Europe to meet NATO airworthiness standards, while increasing configuration and payload options for MQ-9A and MQ-9B platforms. NATO Pod development was driven by GA-ASI’s desire to provide customers with a customizable, multi-use pod for carriage of sovereign, cross-domain Intelligence, Surveillance and Reconnaissance (ISR) sensors for MQ-9A and MQ-9B remotely piloted aircraft systems.

GA has recently contracted with Poland. Can you describe the capability they are getting and the significance of that deal?

We did announce that Poland will be receiving MQ-9A capability as part of a lease agreement. However, any information about Poland’s capabilities will need to come from them.

Ukraine has been requesting your unmanned systems that the US government has denied to them so far. What are the capabilities they are keen to get as a result?

We stand ready to support the Ukrainians in any way we can. The decision is with officials from the US and not appropriate for us to comment on what capabilities the Ukrainians are interested in.

Know about Dr Lall who has spearheaded negotiations for major defence deals between India & the US

Dr Vivek Lall is a world renowned scientist and has spearheaded most of the US India defence trade in the past 15 years in addition to trade with other countries globally. Dr Lall has been conferred the Lifetime Achievement Award by the President of the United States of America. And, has also been bestowed the title of “Sir”. He is also an Ambassador of the State of Arkansas as well as a Kentucky Colonel which is the most well-known US colonelcies conferred to several past US Presidents. He was among the top five Chief Executives Prime Minister Modi had met last year during his visit to Washington DC. President Macron of France met Dr Lall last week in Washington DC.

Some defence deals where Dr Lall spearheaded negotiations-

Boeing Company’s P8I Anti Submarine Warfare (ASW) aircraft for the Indian Navy in a deal worth \$3 billion. Around 22 Anti-ship Harpoon missiles from Boeing. The deal was for US\$ 200 million. The Boeing AH-64E Apache Guardian Attack Helicopters and CH-47F (I) Chinook helicopters for the Indian Air Force (IAF) and both are in the fleet of IAF. Also, the US 4 bn 10 C-17 Globe master III heavy-lift transport aircraft. The US \$ 2.6 bn deal for 24 MH60R multi-role helicopters which are part of Indian Navy’s assets. And, lastly as Chief Executive of General Atomics Global Corporation, he is leading the negotiations for 30 Drones.

<https://www.financialexpress.com/defence/exclusive-interview-dr-vivek-lall-of-general-atomics-sees-scope-for-more-partnerships-with-india-inc/2906377/>



Thu, 08 Dec 2022

Defence Push: Raytheon Arm Starts Global Tech Center in Bengaluru

Collins Aerospace, a unit of one of the world's largest defence and aerospace companies Raytheon Technologies Corporation of the US, has kicked off its new Global Engineering and Technology Center (GETC) and Collins India Operations Center in Bengaluru and is planning to invest over \$200 million in expansion. The new sites are part of a long-term growth strategy for Raytheon Technologies in India and globally to maximise collaboration and innovation with Indian companies for research and development and manufacturing, as India's defence sector is opening up for the private sector, say its top executives. The GETC will house more than 5,000 Collins and Raytheon Technologies employees in India, with additional sites set to open early 2023.

“We’ve been committed to the aerospace industry in India for 25 years now, directly advancing key innovations in the local market for the long term,” said Steve Timm, president of Collins Aerospace, while inaugurating the centre. Collins is going to invest over \$200 million in engineering and manufacturing capabilities and hiring an additional 2,000 highly skilled employees in the Indian aerospace and defense sector over the next five years. India is strategic to the global growth and investment strategy of all Raytheon Technologies’ businesses, he says.

Approximately 3,000 engineers from three other Collins Aerospace locations in Bengaluru, as well as about 600 personnel from other Raytheon Technologies' group of companies will be moving into the 413,000 square-foot GETC at Northgate Tech Park in Bangalore. Plans are to expand further on the 3-acre land next year with new capabilities. Another Raytheon group company Pratt & Whitney's United Technologies Corporation India Pvt Ltd. (UTC IPL) contract engineering services is also planned to open in early 2023 in the same location.

"The opening of these new facilities in Bengaluru shows our continued commitment in India and the GETC India organization supports Collins' six strategic business units and is crucial to the continued success of our global businesses," says Mauro Atalla, senior vice president, Engineering & Technology for Collins Aerospace. Kevin Myers, vice president and head of Enterprise Operations at Collins Aerospace says the new Collins India Operations Center coming up at KIADB Aerospace Park spans 26 acres across the Hitech Defense and Aerospace Park and will help Collins bring operational synergy and economies of scale, as well as support future growth opportunities and customer requirements. Collins plans to host some 1,700 employees at the new site once it is fully completed in 2026.

<https://www.fortuneindia.com/enterprise/defence-push-raytheon-arm-starts-global-tech-center-in-bangalore/110679>

THE ECONOMIC TIMES

Thu, 08 Dec 2022

NDAAs Requires Expanded Cooperation with India on Emerging Technology Readiness: Senator Mark Warner

The National Defence Authorization Act (NDAA) that funds the annual defence budget of the United States requires the Pentagon to expand its cooperation with India on emerging technology, readiness, and logistics, a powerful Democratic Senator said on Wednesday. Senator Mark Warner, who is chairman of the Senate Intelligence Committee and is co-chair of the Senate India Caucus, said that the NDAA continues to strengthen US-India relations by directing the Departments of Defense and State to pursue greater engagement and expanded cooperation with India related to emerging technology, joint R&D, defence and cyber capabilities, and other opportunities for collaboration - including for reducing India's reliance on Russian-built defence equipment.

These provisions support Warner's effort to highlight the importance of defence partnership with India, and to support accelerated efforts by India to diversify defense systems, said the Senator's office after a joint committee of the Senate and the House of Representatives reached an agreement on draft NDAA legislation, which now needs a formal approval by both the chambers of the Congress. Among other things, the NDAA that approved a total of USD857.9 billion defense budget for 2023, focuses on the most vital national security priorities for the United States, including strategic competition with China and Russia; disruptive technologies like hypersonic weapons, artificial intelligence, 5G, and quantum computing; modernizing our ships, aircraft, and vehicles.

As the NDAA moved through the two chambers, the House and Senate versions of the bill contained a provision expressing the sense of Congress that a strong US-India defense

partnership is critical in order to advance United States' interests in the Indo-Pacific region. Section 1260 of the NDAA clarifies that among the new areas of expanded defence cooperation need to include intelligence collection capabilities, unmanned aerial vehicles, fourth and fifth generation aircraft, depot-level maintenance, fifth generation wireless communication, open Radio Access Network technologies, defensive cyber capabilities, cold-weather capabilities and critical and emerging technologies. Within 180 days of the passage of the bill, NDAA urges the Defense Secretary to provide a report to the Congress on discussion of opportunities and challenges related to reducing India's reliance on Russian-built weapons and defence systems.

<https://economictimes.indiatimes.com/news/defence/ndaa-requires-expanded-cooperation-with-india-on-emerging-technology-readiness-senator-mark-warner/articleshow/96073226.cms>

The Tribune

Fri, 09 Dec 2022

To End Conflict, India in Touch with both Ukraine, Russia

India has consistently called for immediate cessation of hostilities and an end to violence since the beginning of the conflict in Ukraine, Minister of State in MEA V Muraleedharan said in the Rajya Sabha on Thursday. “India has called upon both sides to return to the path of diplomacy and dialogue, and also expressed its support for all diplomatic efforts to end the conflict. The government has been in touch with Russia and Ukraine at various levels,” he said in a written reply to a question. Muraleedharan also said Prime Minister Narendra Modi had spoken to the Presidents of Russia and Ukraine several times and urged them to work towards an immediate cessation of hostilities.

“The External Affairs Minister has been in regular touch with his counterparts from Russia and Ukraine. He also met the Ukrainian PM on the sidelines of the UN General Assembly,” he said. Defence Minister Rajnath Singh also held a telephonic conversation with his Russian counterpart Sergei Shoigu on October 26 and pointed out that the nuclear option should not be resorted to by any side as “the prospect of use of nuclear or radiological weapons goes against the basic tenets of humanity”. India is also providing humanitarian assistance to Ukraine and has sent around 100 tonnes of humanitarian aid and financial aid for reconstruction of educational institutions at the request of the Ukrainian Government.

<https://www.tribuneindia.com/news/nation/to-end-conflict-india-in-touch-with-both-ukraine-russia-459110>

THE ECONOMIC TIMES

Fri, 09 Dec 2022

India could be the World’s Third Largest Economy in Next Decade — its G20 Leadership will be Key: Maurice Obstfeld

It’s too early to conclude the US is heading for a soft landing — that means accomplishing a falling inflation rate closer to its two percent target without significant unemployment. I’d still

put the odds of notably lower growth in the US next year and a possible recession at better than 50-50. We are not out of the woods yet. Commentary suggesting otherwise isn't analysing how entrenched inflation has become in the US economy.

How do you view the recent G20 summit?

The Indonesian G20 presidency deserves praise for the way it conducted meetings in an extremely difficult environment due to Russia's regressive actions. The leaders' meeting in Bali was very significant with a jointly agreed communique that rightly centre-staged the Russian invasion as a critical factor causing much greater difficulties for food and energy prices and inflation worldwide. In terms of concrete initiatives, the record is not so good. There has been a lot of endorsement of the idea of richer countries providing more resources to promote climate resilience and adaptation globally but that hasn't really happened yet. The framework the G20 pioneered regarding debt treatments for countries needing restructuring hasn't progressed to a stage where it brings in the private sector most efficiently, covers a broad range of countries, including middle-income ones, or deals effectively with China.

What should India expect during its leadership of the G20 now?

Unfinished business from the Indonesian presidency remains high on the agenda. Also, some factors could grow more acute — if the Fed keeps raising interest rates and more emerging markets experience debt distress, the common framework will be an even larger problem. The continuing war in Ukraine will also be a critical factor. As G20 leader, India will have to forge unity on global problems including climate change, public health and financial stability — and it'll have to navigate these crucial issues amidst tension between Russia and the rest of the world.

How are US-China ties developing?

Trade linkages between the US and China are not going in a positive direction. In light of wider global tensions, the US is taking actions to re-shore the chip industry and deprive China of key capacities which might be relevant for its defence capabilities and possibly go wider. China is also becoming more isolated — this goes beyond its relationship with the West. The Chinese regime has clamped down more broadly on the free market, including its own domestic tech industries. It's become more insular with less interchange between Chinese central bank officials and Western officials. President Xi's drive to consolidate political power in a very personal way can't help but chill Chinese relations with the rest of the world economically — it is also impacting enterprise within the country.

How do you view the IMF's analysis of India as a bright performer on a relatively dark global economic stage?

India has extremely strong fundamentals which are putting it in a position to become the world's third largest economy measured by GDP in the next decade. It has a young labour force and significant human capital with very talented people. It's undertaken reforms that are promoting investments in industry. Its warehousing reforms enable India to play a key role in global supply chains — altogether, that is a bright picture. Also, as China grows more isolated, India could benefit from that as well.

What kind of global coordination is needed to manage the climate crisis?

There should be adherence to prior and new commitments where rich countries financially aid developing economies to invest in green infrastructure, reduce dependence on fossil fuels and

benefit from green technology innovations. This helps global prosperity by reversing climate degradation. It also fits the West's geopolitical goals by reducing fossil fuel-based dependence on Russia and other oil exporters. Another vital aspect is biodiversity and public health. The Indonesian G20 presidency offered hopes for a joint approach to financing public health initiatives globally, with a forum of finance and health ministers. There's been progress in setting up a financial intermediary fund at the World Bank to support the best global public health projects. Yet, we haven't advanced much in concrete terms even though climate change is promoting the emergence of new pathogens. Many policy makers are drawing the wrong conclusion about outbreaks being under control — the next pathogenic disaster could be far more dangerous. Unless we build global capacity to monitor and apply genomic analyses to pathogens inhabiting zoonotic reservoirs, we are basically sticking our heads in the sand. I hope the G20 will focus on this now.

https://m.economictimes.com/news/et-evoke/india-could-be-the-worlds-third-largest-economy-in-next-decade-its-g20-leadership-will-be-key-maurice-obstfeld/amp_articleshow/96092355.cms



Thu, 08 Dec 2022

Russia Bombs ArcelorMittal Workshop in Ukraine; Claims Destroying Dozens of HIMARS Rockets & Systems

By Tanmay Kadam

The Russian military destroyed dozens of HIMARS rockets and a couple of multiple-launch rocket systems (MLRS) systems in central and eastern regions of Ukraine, according to a recent update by the Russian Ministry of Defense (MoD). Russian MoD spokesperson Lieutenant-General Igor Konashenkov reported on December 7 that Russian troops destroyed 70 HIMARS rockets and two MLRS in a precision strike against the ArcelorMittal plant in Kryvyi Rih. “According to the confirmed information, a strike by ground-based high-precision weapons against a missile/artillery armament depot in one of the workshops of the ArcelorMittal metallurgical plant in the city of Kryvyi Rih destroyed over 70 rockets of the HIMARS multiple launch rocket system and two multiple rocket launchers,” Konashenkov said.

In addition to that, four other MLRS systems were critically damaged in the strike, Konashenkov added. It is not possible to independently verify Russian MoD's claims, except that a Russian missile did strike the ArcelorMittal Kryvyi Rih plant on December 5. As per Ukrainian sources, one person was killed and three injured in this missile strike. Konashenkov further reported that another HIMARS MLRS, along with a cache of ammunition, was destroyed in the Donetsk region.

Winter Favors Russia

The latest Russian claims of successes against HIMARS MLRS come amid suggestions by experts that the HIMARS system is unsuitable for combat operations in the autumn and winter seasons. The HIMARS began arriving in Ukraine during the summertime and proved to be a game-changer for Kyiv by turning the tide of the ongoing war in favor of the Ukrainian armed forces. HIMARS provided the Ukrainian military with a rapid precision strike capability at standoff ranges without the need for air power, thereby allowing the Ukrainian military to compensate for the small size of its air force. However, a Russian officer of the 1st army corps of the Donetsk region recently told Russian news agency RIA Novosti “the intensity of the use of the MLRS HIMARS by the enemy has significantly decreased” since the start of winter.”

Indian Air Force veteran and military analyst Vijainder K Thakur previously told the EurAsian Times that the Ukrainian Army has been struggling with several issues since the winter set in, such as loss of foliage as cover, the difficulty of building tracks in mud and snow, and the requirement of special fuel and lubricants. Thakur explained that loss of foliage cover had imposed limitations on HIMARS’ ‘shoot and scoot’ capability, as earlier the American-made MLRS system would launch rockets in rapid succession and then quickly hide behind foliage cover, such as in a nearby forest, however, now there is no greenery to hide beneath because of winter.

This enables the Russian ISR (Intelligence, Surveillance, and Reconnaissance) assets such as drones, satellites, and the Tu-214R reconnaissance aircraft to detect HIMARS more readily, thereby exposing the weapon system to Russian precision strikes.

Russia Claims 100% Interception Rate Against HIMARS?

In addition to destroying HIMARS MLRS and rockets, Russian air defense units allegedly intercepted four HIMARS rockets and other rockets fired by Olkha and Uragan MLRS operated by Ukrainian forces. “Four rockets of HIMARS, Olkha, and Uragan multiple launch rocket systems were intercepted in the areas of the settlements of Olkhovatka in the Kharkiv Region, Pervomaisk and Frunze in the Lugansk People’s Republic and Volnovakha in the Donetsk People’s Republic,” Konashenkov said. The Russian air defense troops have received new software that allows them to detect and shoot down HIMARS rockets swiftly.

A commander of a Russian air defense unit stationed in the Zaporizhzhia region recently told local Russian media that the new software allows them to shoot down HIMARS MLRS missiles “without difficulties.” “If at the initial stage the Russian air defense forces did not understand what the HIMARS MLRS missiles were, then after the firmware of the new program, they became a “normal target,” the Russian air defense commander was quoted as saying by RIA Novosti. “We freely see, observe and destroy without problems,” the Russian commander added while noting that his unit had successfully managed to shoot down approximately 10 HIMARS rockets, including four in November. Russian experts say that the new software enables the Russian air defense units to make calculations that are roughly 100 percent accurate, thereby allowing them to shoot down HIMARS rockets quickly.

Alexei Podberezkin, the director of the Center for Military-Political Studies of MGIMO, told Sputnik radio, “In principle, even before the new software, 75-80 percent of the missiles that were launched by HIMARS systems were shot down, but not 100 percent.” Podberezkin further explained that a HIMARS rocket is pretty long, and an air defense missile must strike accurately

at its warhead to destroy it. He also noted that HIMARS rockets are fired from incredibly long distances, and it is important to calculate their course accurately, as minor errors in course calculation will cause the interceptor missile to miss hitting its target.

This is where the software update comes in, as it enables the precise calculation of the rocket's course to ensure that the rocket warhead is struck. Overall, Russia seems to have concentrated its efforts on defeating HIMARS, and apparently, those efforts are paying off if the latest Russian claims are anything to go by.

<https://eurasianimes.com/russia-bombs-arcelormittal-workshop-in-ukraine/>

नवभारत टाइम्स

गुरुवार, 08 दिसंबर 2022

परमाणु युद्ध का खतरा बढ़ता जा रहा, रूसी राष्ट्रपति पुतिन की अमेरिका और यूक्रेन को कड़ी चेतावनी

यूक्रेन के साथ जारी जंग के बीच ही बुधवार को रूस के राष्ट्रपति व्लादिमीर पुतिन ने बड़ा बयान दिया है। पुतिन ने कहा है कि परमाणु युद्ध का खतरा बढ़ता जा रहा है। क्रेमलिन में रूस के मानवाधिकारी परिषद की एक मीटिंग के दौरान पुतिन ने जो कुछ कहा है उसने अंतरराष्ट्रीय समुदाय की चिंताएं बढ़ा दी हैं। पुतिन ने कहा कि अभी तक रूस ने पहले परमाणु हथियारों के प्रयोग के बारे में नहीं सोचा है। किसी भी स्थिति में रूस परमाणु हथियारों के प्रयोग से बचेगा। लेकिन इसका यह मतलब नहीं निकाला जाना चाहिए कि इनका प्रयोग बिल्कुल ही नहीं होगा। पुतिन ने चेतावनी दी कि अगर रूस की सीमा पर कोई हमला हुआ तो फिर परमाणु युद्ध की आशंका से इनकार नहीं किया जा सकता है।

परमाणु हथियार रूस की रणनीति

पुतिन ने कहा, 'रूस की एक रणनीति है जिसे रक्षा के तौर पर जाना जाता है। हम तबाही वाले परमाणु हथियारों को इस रणनीति के तहत देखते हैं। इनका प्रयोग बदले की कार्रवाई के तहत किया जाता है। इसका मतलब है कि जब हम पर संकट है हम बदले में इसका प्रयोग करेंगे।' रूसी राष्ट्रपति की मानें तो अमेरिका के परमाणु हथियार यूरोप के कई देशों में बड़े पैमाने पर मौजूद हैं। जबकि रूस ने अपने परमाणु हथियारों को किसी और देश में नहीं रखा है और न ही ऐसी कोई योजना है। लेकिन अगर किसी साथी की रक्षा के लिए इनकी जरूरत पड़ी तो फिर इसे रूस के बाहर भी तैनात किया जा सकेगा। पुतिन ने हमेशा से अमेरिका और इसके साथी देशों को सीमा रेखा पार न करने की चेतावनी दी है।

क्यों होगा हथियारों का प्रयोग

पुतिन ने कहा है कि वह परमाणु हथियारों को रक्षात्मक उपायों के तौर पर देखते हैं। पुतिन के शब्दों में, 'हम पागल नहीं हैं। हमें मालूम है कि परमाणु हथियार क्या हैं और कितनी तबाही मचा सकते हैं। हमारे पास किसी और देश की तुलना में ज्यादा एडवांस्ड और आधुनिक परमाणु हथियार मौजूद हैं, यह साफ नजर आता है।' इसके बाद उन्होंने कहा, ' हम दुनिया भर में चल रहे इन हथियारों को रेजर की तरह लहराने नहीं जा रहे हैं। बेशक, हम इस बात को मानने से हिचकेंगे नहीं कि रूस के पास ये हथियार नहीं हैं। लेकिन यह संघर्ष के लिए नहीं हैं लेकिन बचाव के लिए हैं और मुझे उम्मीद है कि लोग इस बात को अच्छे से समझेंगे।'

यूक्रेन ने किया हमला

सोमवार को यूक्रेन ने रूस की सीमा के अंदर ड्रोन से हमला किया है। नौ महीने पुराने युद्ध में यूक्रेन पहली बार इतना आक्रामक हुआ है। यूक्रेन ने इस हमले में रूस के दो मिलिट्री बेसेज को निशाना बनाया है। रूस के रक्षा मंत्रालय और सीनियर यूक्रेनी अधिकारी की तरफ से इस हमले की पुष्टि की गई थी। इन ड्रॉन्स को यूक्रेन की सीमा से लॉन्च किया गया था।

अमेरिका ने किया इनकार

स्पेशल फोर्सज की मदद से इन हमलों को अंजाम दिया गया था। इस हमले के पीछे रूस ने अमेरिका को जिम्मेदार ठहराया था। मगर अमेरिकी विदेश मंत्री एंटोनी ब्लिंकन ने इस बात को मानने से इनकार कर दिया है। उन्होंने कहा है कि न तो अमेरिका ने यूक्रेन को हमलों के लिए उत्साहित किया और न ही उसे रूस की सीमा के अंदर हमले करने के मदद मुहैया कराई गई है।

<https://navbharattimes.indiatimes.com/world/rest-of-europe/nuclear-war-risk-is-increasing-warns-russia-president-vladimir-putin-amid-war-with-ukraine/articleshow/96073055.cms>



Thu, 08 Dec 2022

China has More 'Nuclear Warheads' on Ballistic Missiles than US; Key Determination by STRATCOM Gives Rise to Speculation

By Sakshi Tiwari

Pentagon's recent report on China's Military Power estimated that Beijing's stockpile of nuclear warheads had surpassed 400 in a surprisingly short period. Just days later, there is bickering in the US Congress that Beijing may have amassed more nuclear warheads than Washington. The speculations have been raised due to the US Strategic Command's (STRATCOM) recent

classified determination to Congress by a clause in the fiscal 2022 National Defense Authorization Act, Defense News reported. The STRATCOM oversees the US nuclear inventory.

According to the clause, the Command must notify the US Congress if China surpasses the US in one of the three components concerning its Inter Continental Ballistic Missile (ICBM) arsenal. This would allow US Congress to be informed if China deploys more ICBMs or ICBM launchers than the United States. According to data from the Pentagon's annual China report and a report from the Congressional Research Service, the United States continues to have a numerical edge over China regarding the number of deployed ICBMs and ICBM launchers. This means that neither of those two circumstances led to the STRATCOM alert.

The third component of the law that requires the STRATCOM to determine Congress is when China surpasses the United States in the number of nuclear warheads equipped on its ICBMs. In a letter to STRATCOM commander Admiral Charles Richard on December 5, James Inhofe, the senior Republican on the Senate Armed Services Committee, urged the Pentagon to declassify the determination as required by law. In addition, other policy experts have also opined that the speculations among lawmakers may be correct. These assertions are significant as they come days after the US released the China military power report emphasizing that the country was accelerating its nuclear expansion on a war footing. It also predicted that Beijing could amass around 1,500 nuclear warheads by 2035 if the expansion continues at the same pace.

According to the Congressional Research Service, the United States had 1,389 warheads on a total of 665 deployed ICBMs, submarine-launched ballistic missiles, and heavy bombers as of September 2021. As per US estimates, China has an aggregate of roughly 300 ICBMs and ICBM launchers. However, the exact number of nuclear warheads in the Chinese arsenal is not known. In a rather unusual move, even though China lambasted the US report, it stopped short of addressing the accusations regarding its nuclear build, leaving room for concern and ambiguity.

Further, the US report contends that China tested more ballistic missiles (135) in 2021 than the rest of the world combined. Regardless, China has doubled its ICBM stockpile since 2020 and has moved at an unprecedented speed to add more teeth to its strategic power.

China Expanding Nuclear Arsenal

China's Defense Ministry stated earlier this week in a scathing reaction to the US report suggesting a significant expansion in nuclear capabilities that Beijing scrupulously adheres to its policy of refraining from using nuclear weapons as a first resort "at any time and under any circumstances." The Spokesperson for the Chinese Defense Ministry, Tan Kefei, said, "the report distorts China's national defense policy and military strategy, makes groundless speculation about China's military development, and grossly interferes in China's internal affairs on the issue of Taiwan." For a long time, China has maintained what it refers to as a wholly defensive national security approach, which includes the assurance that it will never be the first to deploy nuclear weapons in a conflict. This position has frequently been contested domestically and internationally, particularly regarding a dispute involving Taiwan.

"What needs to be emphasized is that China firmly pursues the nuclear strategy of self-defense and defense, always adheres to the policy of no first use of nuclear weapons at any time and under any circumstances and maintains its nuclear force at the minimum level required for national security," Tan said in the statement. Jeffrey Lewis, the director of the East Asia

Nonproliferation Project at Middlebury College, told Defense News that China's Dongfeng-41 missile can "carry multiple warheads, so 300 missiles could get you slightly over 400 warheads." However, he repudiated the claims that Beijing could have swollen its nuclear warhead inventory to overtake that of Washington. That being said, the United States is now within credible striking distance for the first time, thanks to China's deployment of a new generation of submarine-launched ballistic missiles called the JL-3.

In March, the US STRATCOM reportedly informed the US Senate Armed Services Committee that the missiles could strike the continental United States "from a protected bastion within the South China Sea." On its part, the United States has upped the ante by unveiling its B-21 Raider stealth strategic bomber, positioned as its best bet in case of a conflict with China. In addition, the US Nuclear triad got another shot in the arm earlier this year as it test-fired the unarmed Minuteman-III Intercontinental Ballistic Missile (ICBM), a Ground-Based Strategic Deterrent. Both China and the United States have a nuclear triad that typically ensures 'survivability,' as a nuclear strike does not disable a country's nuclear arsenal and allows it to launch a retaliatory strike. This is expected to maintain effective deterrence between the two arch-rivals. With tensions rising in the region, China has categorically stated that it never renounced using force to merge Taiwan with the Chinese mainland, which would be a red line for the United States.

<https://eurasianimes.com/china-has-more-nuclear-warheads-on-ballistic-missiles-than-us-key-determination-by-stratcom-gives-rise-to-speculation/>



Thu, 08 Dec 2022

China's 'Monster Drone' TB-001 Twin-Tailed Scorpion Combat UAV Spotted In 'Heavy Bomber, Missile Truck' Mode!

By Parth Satam

China's Tengono TB-001 drone was photographed recently carrying a full load of air-to-ground munitions of missiles and bombs, indicating the force-multiplier effect the Unmanned Combat Aerial Vehicle (UCAV) can have on the battlefield. The TB-001 is a Medium Altitude Long-Endurance (MALE) drone with three engines, first unveiled in September 2017 and has been in service with the People's Liberation Army (PLA) since 2021. China presently has the most extensive and diverse range of drone systems, both stealth, non-stealth, jet-powered and propeller-driven, in the world. The country is preparing fervently for a Taiwan conflict with a possible face-off with the United States (US) military.

The photo of the drone was shared over multiple social media and Twitter accounts, which showed the drone carrying twelve AGM ordnance – five each on each wing and two air-to-surface missiles on launcher racks on the underside.

Bomber Drone!

The TB-001, often known as the 'twin-tailed scorpion,' was developed by the Sichuan-based Tengono Technology. Distinguished by its twin-tail booms and first launched in September 2017, it has a range of about 6,000-8,000 kilometers and a maximum flight time of 35 hours. It

has a maximum take-off weight (MTOW) of over 3,000 kg and a service ceiling of 32808 feet. It also has an unusually positioned three-propeller configuration, with one on each wing and the other a push-propeller at the end of the main fuselage. This flight altitude is higher than the effective interception range of the short-range surface-to-air missiles, improving the operational safety of the UCAV.

This design combines the tops of the two vertical tails to create a flat tail by extending two tail support sections backward on the wing, each joining a vertical tail. A flat tail, a vertical tail, and a tail brace together form a structure. This layout is used on various aircraft, including the well-known P-38 Lightning Fighter during World War II. With an electro-optical tracking system (EOTS) just ahead of the ventral missile launchers, the drone can come in handy in taking out heavy concentrations of ground targets by acting as a 'bomb truck.' Being a non-stealth UCAV with a heavy weapons payload, it cannot be expected to remotely reconnaissance, track and attack targets solely on its own in contested environments, with active enemy long-range surface-to-air missiles, fighters, and UAVs. Therefore, it qualifies largely as a 'Reconnaissance Strike' UAV, providing ground support in situations where enemy airpower and anti-air batteries are either degraded or heavily engaged by friendly forces.

How Could It Be Used?

Combining its own electro-optical tracking system along with other friendly stealth drones, fighter jets, and ground assets, the TB-001 can be called in to release its payload and fly back. Being able to carry the kind of load it does might allow other ground assets to be lightly armed and mobile. Or they might not need to be either and might be just as heavily armed, with the air support in the form of the TB-001 being just additional firepower. In other situations, ground forces can destroy air defense from the ground itself, while the TB-001 destroys bunkers, command centers, and armored vehicles that aid in the capture and holding of land territory.

The TB-001 drone can fire the 20 kg AR-2 air-to-ground missiles to destroy light vehicles, enemy personnel on the ground, and other targets. To destroy heavy armored targets and fortifications, Chinese developers have also introduced the 80 kg AR-4 air-to-ground missiles. The AR-4 has a range of up to 20 kilometers and can be launched from a height of 7000 meters, which is far superior to the Hellfire air-to-ground missile of the United States. AR-4 can use an infrared, TV, or millimeter wave radar, seeker. The TB-001, therefore, likely holds great utility in a Taiwan operation, attacking land targets. It has already seen operational flights, first flying over the East China Sea unaccompanied and then flying through the Miyako Strait alongside two Shaanxi Y-9 aircraft in August 2021. On both occasions, it was detected by the Japanese Maritime Self-Defence Force (JMSDF).

<https://eurasianimes.com/chinas-tb-001-twin-tailed-scorpion-combat-uav-spotted/>

अमेरिका का दावा- ड्रोन व मिसाइल आपूर्ति के लिए ईरान की मदद ले सकता रूस

यूक्रेन में युद्ध के लिए हथियारों की आपूर्ति बनाए रखने में संघर्ष कर रहा मॉस्को अब रूसी सेना को ड्रोन विमानों और सतह से सतह पर मार करने वाली मिसाइलों की आपूर्ति के लिए एक बार फिर ईरान का रुख कर सकता है। घटनाक्रम से वाकिफ राष्ट्रीय सुरक्षा परिषद के अधिकारियों ने नाम न जाहिर करने की शर्त पर बताया कि अमेरिका इस बात को लेकर चिंतित है कि रूस आने वाले दिनों में ईरान से उन्नत पारंपरिक हथियार हासिल कर सकता है। उन्होंने कहा कि अमेरिका विशेष रूप से चिंतित है कि रूसी सेना ईरान से सतह पर सतह पर मार करने वाली मिसाइलें खरीद कर सकता है।

इस बीच, संयुक्त राष्ट्र के एक राजनयिक ने कहा कि ईरान ने सुरक्षा परिषद के वर्ष 2015 के प्रस्ताव का उल्लंघन करते हुए रूस को सैकड़ों मिसाइलें और ड्रोन विमान बेचने की योजना बनाई है। इस प्रस्ताव ने तेहरान और छह प्रमुख विश्व शक्तियों के बीच ईरान के परमाणु कार्यक्रम को लेकर हुए समझौते का समर्थन किया था। राजनयिक के मुताबिक, 2015 के समझौते के हस्ताक्षरकर्ताओं में रूस भी शामिल है। उन्होंने कहा कि रूस द्वारा समझौते के उल्लंघन से कहीं ज्यादा अहम यह सवाल है कि ईरान से ड्रोन और मिसाइल के बदले मॉस्को उसे क्या देगा।

<https://www.punjabkesari.in/international/news/us-russia-looking-to-iran-to-supply-more-drones-missiles-1729635>



Fri, 09 Dec 2022

US: Russia Looking to Iran to Supply More Drones, Missiles

Struggling to maintain a steady supply of arms for its war in Ukraine, Moscow is looking to Iran once again to resupply the Russian military with drones and surface-to-surface missiles, according to two officials familiar with the matter. There is growing US concern that Russia may seek to acquire additional advanced conventional weapons from Iran, according to a National Security Council official who spoke on condition of anonymity to discuss US intelligence. The official said the administration is particularly concerned that Russia may seek to acquire surface-to-surface missiles from Iran.

Separately, a UN diplomat said Iran has plans to sell Russia hundreds of missiles and drones in violation of the 2015 Security Council resolution that endorsed the nuclear deal between Tehran

and six major powers. Russia, as a signatory of the 2015 agreement, would be undermining the resolution, and a key question is what Russia will be giving Iran in return for the drones and missiles, the diplomat said, speaking on condition of anonymity to discuss sensitive internal information. The diplomat added that the sales would mark a significant increase in the depth of defense cooperation between Russia and Iran and could have “massive implications for security of the region.” It did not appear the weaponry has been shipped yet but it is “clearly on the order books,” the diplomat said. Concerns about new weapon sales to Russia come after Iran sold hundreds of attack drones to Russia over the summer. The Biden administration says Russia has also turned to North Korea for artillery as the nine-month war grinds on.

On Wednesday, White House National Security Council spokesman John Kirby told reporters that the US has not yet seen Iranian missiles transferred to Russia. But he underscored the impact that previous arms sales have had in the war, as Russian forces have increasingly targeted Ukraine's civilian infrastructure with the cold winter months setting in. “We have seen continued provision of Iranian drones from Iran to Russia. You can see those drones continuing to hit civilian targets and kill innocent Ukrainians nearly every day,” Kirby said. “So we know that they're involved in the efforts that (Russian President Vladimir) Putin has been expending lately to try to bring the Ukrainian people to their knees with respect to power and water and other resources.”

The White House has repeatedly sought to spotlight Russia's reliance on Iran and North Korea, another broadly isolated nation on the international stage, for support as it prosecutes its war against Ukraine. The Biden administration recently unveiled sanctions against Iranian firms and entities involved in the transfer of Iranian drones to Russia for use in Putin's ongoing invasion of Ukraine. It all comes as the administration has condemned the Islamic republic's violent squelching of protests that erupted throughout Iran after the September death of 22-year-old Mahsa Amini while being held by the morality police.

<https://www.dailypioneer.com/2022/world/us--russia-looking-to-iran-to-supply-more-drones--missiles.html>



Thu, 08 Dec 2022

Rafale, Eurofighter Developers Close to ‘Seal the Deal’; Was French ‘Strategic Autonomy’ Hinderding the FCAS Program?

Why FCAS Was Getting Delayed

Germany, France, and Spain constitute the Future Combat Air System (FCAS) project. In late 2017, France and Germany disclosed their intention to jointly develop and build a future fighter aircraft to replace the Rafale and Eurofighter, respectively, as part of a wider FCAS, also known as the New Generation Aircraft (NGF). In February 2020, they signed a €150-million investment

agreement to fund early prototyping and to scope work on the system. Spain officially joined the program in December 2020 as the prime contractor for low observability within the consortium. The first flight of the future fighter prototype is expected in 2030. Entry into service is planned for between 2040 and 2045. On the other hand, Tempest is being attempted by Britain, Italy, and Sweden. Britain first mooted the idea in 2018, with the support of its industrial majors such as BAE Systems, Leonardo UK, MBDA, and Rolls-Royce. Italy and Sweden agreed to join the UK in this endeavor the same year. The fighter's entry into the services is slated to be in the early 2030s.

Rafales, Typhoons On Their Way Out

Both the planned fighters are expected to replace combat aircraft currently in use by four military services in three European nations – French Rafale multirole fighters, including their carrier-capable 'M' version; German Eurofighter Typhoons — focused on air-to-air missions; and Spanish Typhoons, which also fulfill a ground attack role. France wants the aircraft to be capable of delivering nuclear weapons with a distinct set of data links to guarantee a secure command and control architecture. The aircraft in both programs are also expected to fulfill virtually the entire spectrum of modern combat air missions over land as well as sea.

Secondly, the planned programs are not limited to advanced fighter jets alone. Given the rapid strides the unmanned combat aerial vehicles (UCAVs) or drones have taken in warfare in recent years, they are being developed as “a System of Systems” (SoS) that includes the use of drones as well as a variety of artificial intelligence and autonomous systems. It may be noted that the 6th generation fighters envision a high degree of decentralization and automation of tactical functions, implying a further shift from human-controlled, platform-centric concepts to intelligent “systems of systems.” Some even advocate that manning them should be optional.

Currently, European fighters include the Eurofighter Typhoon, Rafale, and Swedish Gripen. They all are labeled “generation 4.5” and comparable to 5th-generation US aircraft – the F-22 Raptor and the F-35 Lightning II – in electronic and handling characteristics. Still, they are said to be lacking effective stealth features.

France-Germany Tension Over FCAS?

However, there are now some reports that tensions exist between France and Germany on some fundamental issues like intellectual property rights, industrial work share, operational priorities, and the relationship of the FCAS project to other joint endeavors, such as an upgrade program for the Tiger helicopter gunship. France, represented by Dassault, is seen as particularly sensitive about access to its nuclear-capable supply chain. Germany, whose interests are represented in the project by Airbus, wants an equitable industrial share. But then the fact remains that, unlike Germany, France is a nuclear power and has its own nuclear deterrent. Besides, France, while remaining in the US-led NATO, has its own strategic autonomy and wants to play a much bigger international role by projecting its power.

Conversely, Germany is usually considered a “defensive power” that prefers to work in consort with other powers in the European Union and NATO. It does not share, therefore, the sensitivities that France is very particular about: “the nuclear delivery mission; long-range power-projection (strike) capabilities; and carrier-capable combat air to operate from the successor to the Charles de Gaulle.” Germany is specifically opposed to any nuclear dimension. For Germany, it is enough if a combat aircraft is good enough to undertake the defensive

counter-air mission against potential threats to German and NATO allies in Europe. The second primary source of potential problems is industrial work share arrangements. The French government maintains national control over strategic industrial capabilities. Amos Dossi and Niklas Masuhr of the Center for Security Studies (CSS) at ETH Zürich point out that the system has bred an institutionally ingrained tradition of state-industry interaction, active steering, and direct ownership. By contrast, in German – and, equally, Spanish – politics and administration, the willingness and ability to constructively influence the domestic defense industry appear much less developed.

The relationship between the French state and its military aerospace sector, especially Dassault, is a close one. France routinely puts significant diplomatic clout behind Dassault export campaigns and views maintaining a capable sovereign combat air industrial base as an important long-term policy objective. For Germany, too, maintaining a strong industrial base and skilled jobs is a critical political consideration. However, export controls are likely to prove a significant sticking point, given Germany's political reluctance to sell military equipment to governments with poor human rights and non-proliferation records. Given this background, there are Franco-German tensions regarding how the partners can agree on the export prospects of the new fighter jet. France is a votary of pragmatic export rules" and will never like the German vetoes on sales. And this is all the more so as France, all told, is the lead partner in the project because of its superior experience.

With companies such as Dassault (systems integration in aerospace) and Safran (jet engines), France has maintained a national industrial base capable of autonomously developing and manufacturing systems across a broad spectrum of military applications. Germany (Spain, too), by contrast, has long shifted most of its ambitions for autonomy from the national to the European level.

Smooth Sailing For Tempest

In contrast, there is a relatively high degree of compatibility in the Tempest program. Britain, Italy, and Sweden appear to be looking for weapon systems of similar operational properties. Their approaches toward defense-industrial cooperation are also similar in their essential pragmatism. The manufacturing capabilities they can contribute to joint development and production efforts display a notable degree of potential complementarity. Dossi and Masuhr argue that the Tempest consortium setup displays several potential advantages in politico-industrial terms. Overall, security-related cooperation among these countries appears largely unencumbered by political symbolism and lock-in effects. Britain, Italy, and Sweden are similar in their "selective" notions of defense-industrial autonomy as well as in their sober, synergy-driven approaches toward that end. Respective ties are close, with the UK-based multinational BAE Systems acting as the hinge.

BAE Systems has cooperated on a high level for many years with the Swedish firm SAAB as part of the Gripen project. Similarly, BAE System is involved with the Italian Leonardo conglomerate not only regarding the further development of both nations' Eurofighter Typhoon fleets but also in the F-35 program. The latter is likely to have resulted in valuable knowledge transfer. In a sense, unlike France, which is totally dependent on the success of the FCAS program as it does have to find out a replacement for the Rafale that will be technologically backward in a decade, neither Britain nor Italy, nor Sweden will be solely dependent on the success of the Tempest. Their operational requirements are narrower, mainly because both the

British and Italian F-35s already cover many mission profiles that would otherwise be complexity drivers. Unlike France, Britain and Italy have not placed all their eggs in the basket of a single, overarching military aerospace project. This means that a possible failure of Tempest would be less problematic for them. Militarily, they will possess sizable F-35 fleets by the 2030s.

In other words, while for its partners, particularly for France, FCAS has a high political salience, and the project appears “too big to fail” for the involved nations, it is not the case with, say, Britain. And this flexibility gives Tempest partners a much better comfort level. Just imagine if the FCAS fails, and France is compelled to buy US fighter aircraft for its defense – or even Tempest, it will be a terrible blow to French pride, particularly when their recent ties with the US have been marked by more hate than love. Even it will be a blow for Germany, which is trying to strengthen “European” defense capabilities and revive “European power,” with US interests mainly diverted towards Indo-Pacific.

<https://eurasianimes.com/rafale-eurofighter-developers-close-to-seal-the-deal-was-french-strategic-autonomy-hinderding-the-fcas-program/>

Naval Technology

Thu, 08 Dec 2022

US, Australia, and UK Defence Officials Review AUKUS Pact Progress

The US, Australia and the UK have expedited the submarine development work as part of the trilateral security pact to acquire nuclear-powered submarines for Australia. This was confirmed by the US Department of Defense (DoD) in a media statement, which was released after the first joint ministerial meeting at Pentagon on 7 December. US Defence Secretary Lloyd J Austin III together with British counterpart Ben Wallace and Australian Defence Minister Richard Marles discussed the trilateral Australia-UK-US (AUKUS) security pact, which was announced in September last year. During the meeting, the officials reviewed the latest progress of associated work being carried out under this agreement to provide ‘conventionally-armed’ nuclear powered submarines to Australia.

Marles said: “AUKUS is a partnership built on trust, commitment and determination in the service of a secure and stable Indo-Pacific.” Austin said: “The US is committed to ensuring that Australia acquires this capability at earliest possible date and in adherence with the highest non-proliferation standards.” Other areas of discussion included the development of advanced capabilities, such undersea intelligence, surveillance and reconnaissance capabilities, hypersonic weapons and autonomous systems. The objective of capability development will be fulfilled by engaging several defence industry partners and academic organisations from the beginning of 2023. Wallace said: “AUKUS reflects the unique level of trust and cooperation the UK shares with its US and Australian partners, and I look forward to enhancing our technologies and capabilities together.”

Besides, the three officials planned to conduct joint military exercises over the next two years to enhance interoperability between the trilateral forces. In September this year, Wallace announced that the Royal Navy will provide training to the Royal Australian Navy's crews aboard the UK's newly commissioned Astute-class submarine, HMS Anson.

<https://www.naval-technology.com/news/us-australia-uk-review-aucus/>

Science & Technology News



Fri, 09 Dec 2022

Advances in Tech to Create More Jobs: Former DRDO Head

Scientist and former head of the Defence Research and Development Organisation (DRDO) Dr V K Aatre on Thursday said that the development of technology will lead to increased employment and a shift towards exports. Speaking at the inauguration of the AM 3D Aero 2022 Conference & Expo -- jointly organised by Boeing, Ramaiah Institute of Technology, and the American Society of Mechanical Engineers (ASME) -- he said, "Huge opportunities are being made available due to technological developments. As technology advances, the opportunities for job creation increases." The two-day expo, focusing on additive manufacturing and 3D-printing in the aerospace industry, has as many as 38 stalls, and will be attended by 350 industry experts. "With India improving indigenous production, we are moving from importing goods to exporting goods to other countries. This can be improved if industrialists and academicians work together. We should also make sure that talent is recognised in the younger generations and kept within the country, so that there won't be an exodus of students and young professionals to other countries," Dr Aatre, who was former scientific advisor to the Defence Minister, said.

Referring to the changes that are required going forward, he said that research should be more oriented towards practical applications. "Research should not remain only on paper, but should also be implemented. Students must also consider research in areas like aviation and this must be high-quality and for better performances. Research in civil engineering should be undertaken so that departments are able to use modern technology," he said.

<https://www.newindianexpress.com/states/karnataka/2022/dec/09/advances-in-tech-to-create-more-jobs-former-drdo-head-2526367.html>

Thu, 08 Dec 2022

Landing Experiment of ISRO's Reusable Launch Vehicle Planned for Next Year, Centre Tells Parliament

The Centre has told the Parliament that the landing experiment of Isro's reusable launch vehicle (RLV) is planned for early next year. "The RLV project is under progress at Isro. The RLV technology demonstrator (RLV-TD) was successfully flight tested on May 23, 2016, from the spaceport in Sriharikota, validating the critical technologies such as autonomous navigation, guidance & control, reusable thermal protection system and re-entry mission management," Union minister Jitendra Singh said in a written reply. "The next test planned under the project is the first runway landing experiment or RLV-LEX, which is scheduled early next year from the aeronautical test range in Challakere, Chitradurga," he added.

Meanwhile, the first PS0MXL motor, which forms the PS0 stage of Isro's Polar Satellite Launch Vehicle-XL (PSLV-XL), produced by Nagpur-based company Economic Explosives Limited has been tested at the space agency's spaceport in Sriharikota. The PS0 or PS-zero stage refers to six strap-on motors that are around the PS1 (the first stage of the rocket) stage. "The performance is satisfactory. The Vikram Sarabhai Space Centre had transferred the technology to Economic Explosives in 2019. With today's test, the industry's capability to produce the PS0 stage for PSLV is established. This is the first step in the end-to-end production of PSLV through Industry," Isro said. The PSLV-XL is one of the variants of Isro's workhorse launch vehicle — PSLV — which has four other variants built over the years since its first successful launch in October 1994.

<https://timesofindia.indiatimes.com/india/landing-experiment-of-isros-reusable-launch-vehicle-planned-for-next-year-centre-tells-parliament/articleshow/96091107.cms>

The Tribune

Thu, 08 Dec 2022

PSLV-XI Rocket Motor Made by Industry Passes Test: ISRO

The Indian Space Research Organisation (ISRO) said the performance of the booster motor made by Economic Explosives Limited for its PSLV-XL rocket was satisfactory. The Indian space agency tested the booster motor called PSOM-XL at its rocket port in Sriharikota on Wednesday. According to the ISRO, with this test, the private industry's capability to produce the stage for PSLV has been established. This is the first step in the end-to-end production of PSLV through the industry. The ISRO had transferred the technology to Economic Explosives Limited, Nagpur, in 2019. The commercial arm of Department of Space NewSpace India Limited has selected the HAL-L&T-led consortium to make five PSLV-XL rockets. IANS

<https://www.tribuneindia.com/news/science-technology/pslv-xl-rocket-motor-made-by-industry-passes-test-isro-458903>

India Achieves 166GW of Renewable Energy Capacity till October

India has achieved 165.94GW of renewable energy capacity till October as against the target of 175GW by 2022, Parliament was informed on Thursday. "Against the target of achieving 175 GW of Renewable Energy installed capacity by 2022, a total of 165.94 GW of renewable energy capacity (including large hydro) has been installed in the country as on October 31, 2022," Power and New & Renewable Energy Minister R K Singh stated in a written reply to Lok Sabha on Thursday. A capacity of 76.13 GW (of renewables) is under various stages of implementation and a capacity of 36.44 GW is under various stages of bidding, Singh informed the House.

In line with the Prime Minister's announcement at COP26, the Ministry of New and Renewable Energy is working towards achieving 500 GW of installed electricity capacity from non-fossil sources by 2030. Singh further elaborated that so far, a total of 172.72 GW capacity from non-fossil fuel-based energy resources has been installed in the country as on October 31, 2022, which includes 119.09 GW Renewable Energy, 46.85 GW Large Hydro and 6.78 GW Nuclear Power capacity. This has a share of 42.26 per cent of total installed generation capacity in the country i.e. 408.71 GW as on October, 31, 2022.

<https://www.dailypioneer.com/2022/business/india-achieves-166gw-of-renewable-energy-capacity-till-october.html>

