जुलाई
July
2024

खंड/Vol. : 49 अंक/Issue : 128
11/07/2024

समाचार पत्रों से चयनित अंश
Newspapers Clippings

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

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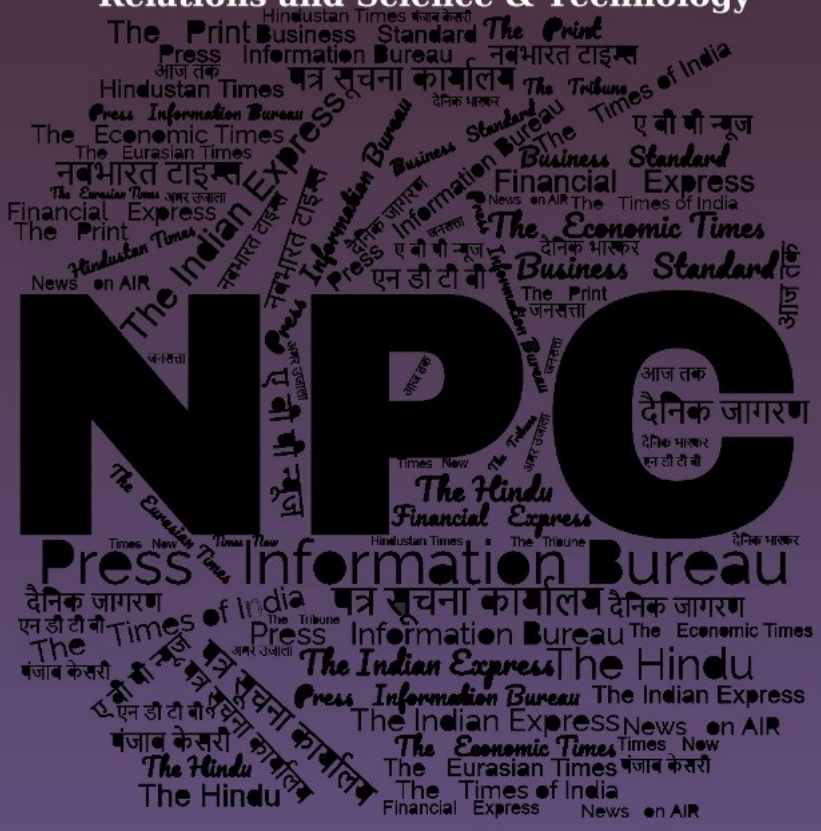

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Wed, 10 July 2024

Raksha Rajya Mantri Shri Sanjay Seth launches GRSE Accelerated Innovation Nurturing Scheme (GAINS 2024)

Raksha Rajya Mantri Shri Sanjay Seth launched "GRSE Accelerated Innovation Nurturing Scheme (GAINS 2024) of Garden Reach Shipbuilders & Engineers Limited (GRSE) in Kolkata on July 10, 2024. It is an innovative scheme which seeks solution to the problems related to the shipyards and promotes technology development using the start-ups created and nurtured in the country. It encourages and enables MSMEs and Start-Ups to develop innovative solutions for further technological advancement. This initiative is in keeping with the 'Make in India' and 'Start-up India' policies of the Government of India.

Speaking on the occasion, Raksha Rajya Mantri praised the GRSE's contribution in nation building. Innovations and technological advancements like GAINS will give a new dimension to the future of Indian defence. We will be proactive in maritime security and air defence. With our technological advancements and dedication, we will enhance the strength of our armed forces and enhance maritime security, he said.

Cmde PR Hari, IN (Retd), Chairman and Managing Director, GRSE, said: "New Technology adoption is a key focus area of the shipyard and I am confident that GAINS 2024 shall be a major contributor towards this. I wish the brilliant Indian start-ups the very best in making the Nation building initiatives a huge success. "

'GAINS' is a unique national scheme to encourage and enable MSMEs and Start-Ups to develop innovative solutions that GRSE may incorporate for further technological advancement. The aim is to leverage the vast eco-system of MSMEs and Start-Ups to address present and emerging challenges in the ship design and construction industry, while achieving the objectives of Atmanirbharta.

Directors of GRSE and other dignitaries were also present on the occasion.

https://pib.gov.in/PressReleasePage.aspx?PRID=2032206

THE ECONOMIC TIMES

Thu, 11 July 2024

Def min suspends dealings with defsys for 6 months

The defence ministry has ordered the suspension of all business dealings with private sector manufacturer Defsys Solutions Private Limited, saying it has received fresh information on its involvement in the AgustaWestland VVIP helicopter corruption case being investigated by the Central Bureau of Investigation.

The Gurgaon-based company, which makes fighter aircraft pylons, external fuel tanks and defence electronics, has been suspended from any dealings with the defence ministry and its entities for the next six months.

Invoking a clause that stipulates the competent authority to suspend dealings with an entity if information is received on initiation of a criminal investigation or inquiry by the CBI or other agencies, the ministry has conveyed to all departments to strictly follow the order.

Defsys had initially been banned in 2022 by the ministry for its alleged involvement in the helicopter scandal but had approached the courts asking for relief.

The MoD had suspended its business after receiving an intimation from the CBI purportedly saying that a former director of the company-Sushen Gupta- was involved in the Rs 3,600 crore VVIP chopper deal. The CBI had also issued two notices to Defsys.

https://economictimes.indiatimes.com/news/defence/def-min-suspends-dealings-with-defsys-for-6-months/articleshow/111642237.cms?from=mdr

THE ECONOMIC TIMES

Wed, 10 July 2024

Army commander asks troops to be prepared for future challenges

Army Chief Gen Upendra Dwivedi reviewed the security situation along the Line of Control (LoC) in Jammu and Kashmir on Wednesday and exhorted the troops to remain steadfast to meet all security challenges, officials said.

This was his first visit to the Jammu region after taking charge as the 30th chief of the Indian Army on June 30 and it assumes significance in view of the ongoing Amarnath Yatra and massive anti-terror operations underway, especially in the hilly districts.

The Army chief reached Jammu in the morning and flew to the border district of Poonch to review the security situation and operational preparedness along the LoC, the officials said, adding he was accompanied by General Officer Commanding-in-chief, Northern Command, Lt Gen Suchindra

Kumar and General Officer Commanding (GOC) of the Jammu-based White Knight Corps Lt Gen Navin Sachdeva. Gen Dwivedi also chaired a high-level meeting of Army and police officers on his return from Poonch at the Army headquarters in Nagrota.

Northern Army Commander Lieutenant General M V Suchindra Kumar on Wednesday visited forward areas along the Line of Control in Ladakh and asked troops to be prepared for future challenges. The Army commander also visited the Kargil War Memorial in Drass, and paid homage to those who laid down their lives during Operation Vijay.

"Lt Gen M V Suchindra Kumar, Army commander northern command accompanied by GOC Fire and Fury corps visited units deployed along the Line of Control and reviewed operational preparedness of Forever in Operations division," the Northern Command wrote on X. The Army commander complimented the troops for their high standards of professionalism and exhorted them to be prepared for future challenges.

He also met formation commanders and jawans during his visit to Batalik in Kargil sector.

https://economictimes.indiatimes.com/news/defence/army-commander-asks-troops-to-be-prepared-for-future-challenges/articleshow/111628786.cms

THE ECONOMIC TIMES

Tue, 09 July 2024

IAF's Su-30 MKIs to be part of 20-nation mega 'Exercise Pitch Black' in Australia

The India Air Force on Tuesday said its Su-30 MKI fighter jets are set to take part in a biennial multinational aerial warfare exercise in Australia starting later this month that will be its largest edition with participation from 20 countries across the globe.

India will be part of 'Exercise Pitch Black 24' which will take place from July 12 to August 2. "Exercise Pitch Black 24 will be the largest in the exercise's 43-year history. It will bring together 20 participating nations and over 140 aircraft from around the world, with approximately 4,435 personnel participating," according to the website of the Royal Australian Air Force (RAAF).

The IAF in a post on X shared that Su-30 MKIs will be part of the mega air combat exercise Down Under.

"#IAF Su 30 MKIs are raring to take a Trans Pacific leap to participate in Exercise Pitch Black 2024 in Australia. The biennial multinational aerial warfare exercise would commence from 12 Jul to 02 Aug 24 at airbases of Darwin and Tindal, Australia.

"The IAF contingent is looking forward to operate on the multinational stage of this edition of Ex Pitch Black 2024, which will be the largest with participation from 20 countries across the globe. "On return, IAF will also participate in Ex Udara Shakti 24 with RMAF from 05 to 09 Aug 24 at Kuantan, Malaysia. @AusAirForce @tudm_rasmi #PitchBlack24 #UdaraShakti24," it posted on the social media platform.

The IAF also shared visuals of some of its aircraft. This year's exercise will be conducted primarily from RAAF Base Darwin and RAAF Base Tindal in the Northern Territory; with additional aircraft operating from RAAF Base Amberley, located near Ipswich in Queensland, according to the RAAF's website.

"Exercise Pitch Black is the Royal Australian Air Force's (RAAF) most significant flying activity for strengthening international engagement and enhancing our ability to work with overseas partners," it said.

It was first held from RAAF Base Williamtown in New South Wales in June 1981 as a three-day air defence exercise, with 'attacking' aircraft flying from RAAF Bases Amberley and Richmond. It was held again from RAAF Base Williamtown in July 1982.

https://economictimes.indiatimes.com/news/defence/iafs-su-30-mkis-to-be-part-of-20-nation-mega-exercise-pitch-black-in-australia/articleshow/111614706.cms?from=mdr

The EurAsian Times

Wed, 10 July 2024

India, Russia Fail To Sign RELOS – A Pact That Could Have Given Indian Navy Unrestricted Access To Arctic

In balancing its burgeoning relationship with the US with its long-term ally Russia, New Delhi was poised to seal the deal for military logistics with Moscow after years of delay. Prime Minister Narendra Modi visited Russia, where he was warmly greeted by President Vladimir Putin. During the visit, the long-awaited Reciprocal Exchange of Logistics Agreement (RELOS) was expected to be signed, paving the way for simplified logistical support for military operations, including military exercises, training, port calls, humanitarian assistance, and disaster relief efforts.

Despite Russia and India having long standing defense ties, India inked a similar agreement with the US way before in 2016. Once signed, the RELOS will be valid for five years and automatically renewed unless either country decides to terminate it. The biggest winner of RELOS would have been the Indian Navy, which would get access to Russian military facilities in the Arctic. With its economy largely dependent on agriculture, India will be impacted by the climate change around the Arctic, rising sea levels, and the monsoon pattern. The sea level in the Arctic has been declining at a rate of 13 percent per decade.

Also, the melting of the Arctic ice will open new shipping routes and redraw the global sea trade map. India wants to develop the International North-South Corridor with Moscow and link it to the Arctic to build trans-Arctic shipping routes and decrease shipping costs.

Experts see RELOS as beneficial to both countries and that they should encourage each other’s presence in their respective regions. RELOS would aid the Russian Navy operating in the Indian Ocean Region and the Indian Navy in the Arctic.

“This (RELOS) should lead to institutionalized cooperation between the two navies, between the Russian Pacific Fleet headquartered in Vladivostok and India’s Eastern Fleet based in Visakhapatnam, by posting liaison officers (Los) to each other’s headquarters, just as the Indian Navy has posted LOs to INDOPACOM headquartered in Hawaii, and the US-led multinational maritime force, Combined Maritime Forces (CMF) in Bahrain,” Captain Anurag Bisen (retired) a veteran Indian Navy submariner told the EurAsian Times. He has been instrumental in drafting and coordinating the approval process of India’s Arctic Policy, released by the Government in March 2022.

“It should also lead to the Indian Navy and the Russian Navy signing a White Shipping information sharing agreement as the Indian Navy has done with 36 other navies and multilateral constructs. The signing of RELOS will also help the Indian Navy in the protection of the Chennai-Vladivostok Maritime Corridor (CVMC) when it is fully operationalized,” Captain Bisen opined.

India’s only big-ticket defense acquisition from Russia has been S-400 long-range surface-to-air missiles. While three squadrons of the missiles have been delivered, the remaining two squadrons have been delayed following the outbreak of war in Ukraine. Recently, Russia announced the deal for local manufacturing of “Mango” armor-piercing rounds for the Indian Army’s T-72 and T-90 tanks. The two countries are also expected to sign a long-term Uranium supply pact for a nuclear power plant in Tamil Nadu. The India-Russia relationship has undergone a tectonic change in the past few years. No longer is Russia the sole supplier of weapon platforms to India.

US Weapons Storm India

Two decades ago, the US defense sales to India were almost zero. Now, the two countries are discussing joint production of major systems. Today, the US accounts for 10 percent of India’s defense imports (by value). India is the world’s largest defense importer, accounting for 10 percent of global arms imports from 2008 to 2023. A recent report released by the Stockholm International Peace Research Institute (SIPRI) notes that “although Russia remained India’s main arms supplier (accounting for 36 percent of its arms imports), this was the first five-year period since 1960–64 when deliveries from Russia (or the Soviet Union before 1991) made up less than half of India’s arms imports.”

This shows that although Russia is still India’s biggest weapons supplier, weapons sales from the U.S. to India have increased dramatically. In the next 10 years, New Delhi is expected to spend at least US $200 billion to modernize its armed forces. Even as India’s defense arsenal has a Russian bias, Western countries have been working to steer India away from its ally.

Since 2008, about 62 percent of India’s defense imports (by value) have come from Russia; other top suppliers include France (11 percent), the United States (10 percent), and Israel (7 percent). Before 2008, the US-India defense trade was restricted to naval helicopters and counter-battery radars in the mid-2000s. In 2007, the US also provided India with an amphibious transport dock ship under the US Excess Defense Articles program—the former USS Trenton, now the INS Jalashwa.

Now, India has contracted for nearly US $20 billion worth of US-origin military equipment since 2008, according to the Defense Department. Most of the deals with the US have been made through the Foreign Military Sales route. In the last 15 years, India has purchased a C-130J Super

Hercules special mission aircraft, a C-17 Globemaster III heavy lifter, and P-8I Poseidon anti-submarine warfare aircraft. In fact, outside the US, India is the largest operator of C-17s and P-8Is. In the rotary wing department, India has purchased attack helicopters CH-47F Chinooks, MH-60R Seahawks, and AH-64E Apaches.

Other purchases include Harpoon anti-ship missiles and M-777 howitzers. The two countries have inked an agreement to jointly produce advanced F-414 jet engines in India. The purchase of 31 MQ-9B Sea Guardian and Sky Guardian unmanned aerial vehicles for more than US $3 billion has been approved. Other proposed sales include turbofans for indigenously produced Indian combat aircraft, MK 54 lightweight torpedoes, and additional Hellfire anti-tank missiles and Excalibur guided artillery rounds.

The two countries are also discussing jointly producing Stryker Armoured vehicles and Javelin anti-tank missiles. Besides this, the US government is in contention to supply medium-role Fighter Aircraft, for which the government is offering F-21 Fighting Falcon and F-15EX Eagle II fighter jets.

https://www.eurasiantimes.com/india-russia-fail-to-sign-relos-a-pact-that-could/

FINANCIAL EXPRESS
Read to Lead

Wed, 10 July 2024

India and UAE Bolster Defense Ties at 12th Joint Defence Cooperation Committee Meeting

The 12th edition of the Joint Defence Cooperation Committee (JDCC) meeting between India and the UAE underscored the growing importance of bilateral defence and security cooperation between the two nations. In Abu Dhabi on July 9, 2024, the two sides highlighted their mutual commitment to enhancing regional stability and security. The discussions covered a broad spectrum of collaborative opportunities, including training, joint military exercises, defence industrial cooperation, subject matter expert exchange, and research and development (R&D).

A key focus of the meeting was on regional security, particularly maritime security, and the necessity for enhanced cooperation to address emerging security challenges. Both sides agreed on the importance of exchanging visits across various domains to leverage each other's experience and knowledge. Additionally, they concurred on mutual exchange of training opportunities in specialized areas, recognizing the value of such exchanges in strengthening their defence capabilities.

Led by Joint Secretary Amitabh Prasad, the Indian delegation comprised senior officials from the Ministry of Defence, the Armed Forces, and the Embassy of India in Abu Dhabi. The UAE side was co-chaired by Brigadier General Staff Jamal Ebrahim Mohamed Almazrooqi.

During his visit, Joint Secretary Amitabh Prasad held productive discussions with the Assistant Under Secretary of the UAE Ministry of Defence, Ali Abdulla Al Ahmed, and the CEO of the

Tawazun Economic Council. These meetings were instrumental in exploring new avenues for bilateral defence cooperation. Staff talks between the Navy and Army of both countries were also conducted on the sidelines of the JDCC, focusing on service-specific cooperation.

Background

Established in 2006, the India-UAE JDCC has become a cornerstone of the Comprehensive Strategic Partnership between the two countries. The 12th meeting not only reviewed the progress made since the previous rounds but also identified new areas for collaboration, reflecting the dynamic nature of India-UAE defense relations.

The continuous dialogue and cooperation facilitated by the JDCC are vital for both nations as they navigate the complexities of regional security. The commitment to joint training, exercises, and knowledge exchange enhances the operational readiness and interoperability of their armed forces, contributing to a more secure and stable region.

https://www.financialexpress.com/business/defence-india-and-uae-bolster-defense-ties-at-12th-joint-defence-cooperation-committee-meeting-3549365/

DNA
DAILY NEWS & ANALYSIS

Wed, 10 July 2024

Sabre's Sniper Sangfroid: SSS Defence's magnum opus marks India's arms ascendance

India's private arms manufacturer, Bangalore-based, Stumpp Schuele & Somappa Defence (SSS Defence), has achieved a milestone by exporting sniper rifles to a friendly foreign nation, as per media reports.

According to sources within the defense establishment, this marks the first instance of India exporting sniper rifles to another country. These rifles, known as Sabre, use the .338 Lapua Magnum cartridge, which allows military snipers to hit targets up to 1,500 meters (4,900 Feet) away. The sniper rifle is fully designed and manufactured in India, including the production of its barrel.

In addition to the rifles, SSS Defence has also exported high-quality ammunition worth $50 million to various countries. The company is currently in talks with several other nations to export more rifles and ammunition.

The Indian Army needs 4,500 sniper rifles that use the .338 Lapua Magnum cartridge. They have already imported some Italian .338 Lapua Magnum Scorpio TGT sniper rifles and .50 caliber Barrett M95 rifles from the United States.

Traditionally, the Indian Army has used the 7.62x54mm Russian-made Dragunov designated marksman rifle (DMR) for long-range shooting. However, these rifles are effective only up to 900-

1,000 meters. This is why the Army is looking to switch to the more powerful .338 Lapua Magnum cartridge rifles.

Although the bids for the Indian Army's requirement of 4,500 sniper rifles were released over a year and a half ago, trials have not yet started. With this recent export order and the confidence shown by a foreign customer, the .338 Lapua Magnum Sabre rifle is in a strong position to secure this order.

The Power and Precision of the .338 Lapua MagnumThe .338 Lapua Magnum cartridge is renowned for its exceptional long-range accuracy and powerful performance, making it a preferred choice for military snipers. Designed to maintain high accuracy at extended ranges, it is capable of hitting targets up to 1,500 meters or more. This long-range capability is enhanced by its high muzzle velocity, typically around 2,800 to 3,000 feet per second, depending on the specific load and bullet weight. This high velocity helps flatten the trajectory and reduce the time of flight to the target, improving accuracy.

Additionally, the .338 Lapua Magnum delivers significant kinetic energy on impact, effective for penetrating body armor and light vehicles, making it ideal for military and law enforcement applications. The bullets used in this cartridge often have a high ballistic coefficient, meaning they are less affected by wind drift and retain velocity better over long distances, further enhancing precision.

Beyond military use, the .338 Lapua Magnum is also popular among civilian long-range shooting enthusiasts and hunters who need a cartridge capable of taking down large games at long distances. Overall, the combination of range, accuracy, power, and versatility makes the .338 Lapua Magnum a standout choice for long-range precision shooting.

Magnum Scorpio TGT Sniper Rifles and Barrett M95 RiflesThe .338 Lapua Magnum Scorpio TGT sniper rifles and .50 caliber Barrett M95 rifles from the United States are two of the most powerful and precise long-range weapons available. The Magnum Scorpio TGT is known for its exceptional accuracy and effective range, designed to hit targets up to 1,500 meters away with high precision. It utilizes the .338 Lapua Magnum cartridge, which provides a high muzzle velocity and significant kinetic energy, making it ideal for military snipers who need to engage distant targets.

On the other hand, the .50 caliber Barrett M95 is a formidable anti-materiel rifle known for its ability to deliver powerful shots over long distances. The M95 uses the .50 BMG (Browning Machine Gun) cartridge, which is capable of penetrating thick armor and disabling light vehicles. This rifle is highly favored by military and law enforcement units for its ruggedness, reliability, and stopping power.

Both the Magnum Scorpio TGT and the Barrett M95 offer unmatched performance in their respective categories, making them essential tools for precision shooting and heavy-duty applications. Their combination of power, accuracy, and versatility ensures they remain top choices for professionals who demand the best from their equipment.

https://www.dnaindia.com/india/report-sabre-s-sniper-sangfroid-sss-defence-s-magnum-opus-marks-india-s-arms-ascendance-3096342

THE HINDU

Wed, 10 July 2024

‘Germany well positioned in Navy’s submarine deal’

German submarine manufacturer TKMS (Thyssenkrupp Marine Systems) was initially not inclined to bid for the Indian Navy’s mega deal for six conventional submarines under Project-75I due to the “terms and conditions”, but later entered the fray as the German government backed the project, said the company’s India head Khalil Rahman on Wednesday.

He said they successfully demonstrated the Air Independent Propulsion (AIP) capability, the key determinant in the deal, on their Type 212 submarine in the evaluation conducted by the Navy recently. TKMS has pitched a customised version of its Type 214 for the Indian Navy’s requirements.

“Technically we are in a very strong position. Indian Navy is very happy with the Type 209s in service. We have a sea-proven AIP,” Mr. Rahman said expressing confidence during a media interaction.

“Our design will be specifically tailored to India and will ensure stealth in the waters... As per terms of the Request For Proposal (RFP), the P-75I design will be handed over to the Indian Navy.”

The Navy’s mega-submarine deal under Project-75I, estimated at over ₹43,000 crore, crossed a major milestone with the completion of Field Evaluation Trials (FET) to check the compliance of the bids received. There are two contenders in the fray - Germany’s TKMS and Navantia of Spain.

While an Indian Navy team visited TKMS shipyard in March for FET, the evaluation of Navantia’s offer was conducted in the last week of June, as reported by The Hindu earlier. The German government is expected to take up a stake in TKMS. On their entry into the deal, Mr. Rahman stated that initially, TKMS had made the decision to keep out.

“We initially made the decision not to bid due to terms and conditions in the RFP…. Company felt there was too much risk in the commercial terms. These issues have now been resolved… One of the reasons is the support of the German government,” he said.

He said the German government historically regarded India as a market and partner, and it was really after the invasion of Ukraine that there was a “change of thinking” in the German government, when it was felt that it was very necessary to enter into a deeper partnership with India. While TKMS has partnered with Mazagon Dock Shipbuilders Limited (MDL), Navantia has partnered with Larsen & Toubro.

The FET was only to demonstrate AIP and not to demonstrate the submarine in general, and stipulations in the RFO were very clear in regard to demonstrating a “sea-proven AIP”, Mr. Rahman stressed.

The TKMS AIP on offer will be both fuel cell- as well as Lithium Ion-based, giving it enhanced performance, he said, explaining that while fuel cell gives long-range endurance at low speed, Lithium Ion “functions at high speed”.

The RFP states that the first submarine should have indigenous content (IC) of 45% which should go up to 60% for the sixth and last submarine. Also, it stipulates that the first submarine be rolled out 84 months or seven years from the signing of the contract.

With both the FETs completed, a technical report will be submitted by the Indian Navy to the Defence Ministry, after which staff evaluation would be done to determine who all have complied.

The submarine deal is expected to figure prominently during upcoming high-level talks with both Germany and Spain. German Chancellor Olaf Scholz is scheduled to visit India in the second half of October for inter-governmental consultations while Prime Minister Narendra Modi is likely to visit Spain in the next few months.

Navantia has offered a submarine based on its new S80 class of submarines, the first of which was launched in 2021 and was commissioned into the Spanish Navy as S-81 Isaac Peral last November. L&T will be responsible for constructing the submarines.

An AIP module acts as a force multiplier as it enables conventional submarines to remain submerged for longer duration thereby improving endurance as well as stealth. Since World War II, TKMS has built 175 submarines and there are 52 AIP-equipped submarines either operating across the globe or contracted, company officials added.

https://www.thehindu.com/news/national/germany-well-positioned-in-navys-submarine-deal/article68389678.ece

THE NEW INDIAN EXPRESS

Thu, 11 July 2024

Joint command, local engagement foils for Jammu terror attacks

Five Indian Army soldiers were killed and five injured on Monday in an ambush by militants in Badnota, a village about 80 km from Jammu's Kathua district.

The attack coincided with the eighth death anniversary of Burhan Wani, the poster boy of terrorist organisation Hizbul Mujahideen, who was killed in an encounter in 2016. This was the fourth militancyrelated incident in J&K this month, in which six militants and two soldiers were killed in south Kashmir in separate encounters.

The incidents came days after the new Chief of Army Staff General Upendra Dwivedi's first visit to forward locations along the LoC in Poonch, where he reviewed antiterror operations and arrangements for the Amarnath Yatra. The Pakistan-backed militants' shift in strategy to target security personnel and pilgrims in the Jammu division is new. They are expanding the area of conflict from the Valley to the Hindu-dominated Jammu, which till October 2021 was much quieter.

Things changed after the abrogation of Article 370 in August 2019. Since October 2021, Jammu has witnessed a series of terror attacks that have claimed at least 43 lives, while Kashmir has

experienced a gradual shift towards relative peace. The latest infiltration and attacks by well-trained, heavily-armed militants from across the border are timed to occur before the impending assembly elections in the Union territory.

The heightened militancy seeks to challenge New Delhi's narrative of the return of normalcy to J&K after August 2019 and to create a sense of disquiet among the people who are looking forward to local representation in politics, employment opportunities and statehood. Militant attacks resulting in deaths give ammunition to the opposition, which is already questioning the Centre's handling of security in J&K.

If provocation continues, the ceasefire will be at stake. Pakistan, roiled by severe political, economic and security troubles of its own, needs a face-saving diversion. There is nothing more useful for the Pakistani deep state than to bring Kashmir back to the table. It is a calculated risk they seem willing to take. So the Jammu region, with around 65 percent Hindu population, is their new playing field.

For India, a joint command in J&K is a must for seamless coordination and accountability. Back-channel diplomacy and more engagement with locals must also be given a fair chance to prevent further escalation.

https://www.newindianexpress.com/editorials/2024/Jul/10/joint-command-local-engagement-foils-for-jammu-terror-attacks

The Indian EXPRESS

Wed, 10 July 2024

Russia, India agree to speed up delivery of military spare parts

India and Russia have agreed to expedite the delivery of spare parts of Russian-origin military platforms by setting up joint ventures in India among other ways, Foreign Secretary Vinay Kwatra said Tuesday, the Government's first public acknowledgement of a delay in Russian supplies amid the war in Ukraine.

Kwatra said Prime Minister Narendra Modi raised the issue with Russian President Vladimir as the two leaders discussed bilateral defence ties at the 22nd India-Russia annual summit in Moscow.

"Both sides had a general sense of agreement that this would be expedited, including through setting up joint venture partnerships in India to look at some of these spare parts, particularly the more critical spare parts so that we are able to address this challenge in a more meaningful and sustainable way," Kwatra said.

Most of India's existing military hardware is Russian-origin and needs a regular supply of spares for maintenance. The Ukraine war has also delayed Russia's scheduled deliveries of certain big-ticket weapon systems to India, like the S-400 Triumf surface-to-air missile systems. Top Indian

military leaders have, however, maintained that the delay in spares or maintenance support have not affected the Armed Forces' operational preparedness.

According to officials, since supplies began to be affected after the Russia-Ukraine war broke out in February 2022, India has been looking to procure spares both from indigenous sources as well as countries like Poland and Georgia.

Last year, the former Army Chief, General Manoj Pande (retd), said that the Army had assessed its reliance on Soviet-origin equipment and was identifying alternative sources for spares and ammunition amid the Russia-Ukraine war.

Meanwhile, a joint statement released Tuesday by the two countries said their defence partnership was reorienting presently to joint research and development, co-development and joint production of advanced defence technology and systems to meet India's quest for self-sufficiency. They confirmed their commitment to maintain the momentum of joint military cooperation activities and expand military delegation exchanges.

Both sides, the statement said, agreed to encourage joint manufacturing in India of "spare parts, components, aggregates and other products" for maintenance of Russian-origin arms and defence equipment under the Make-in-India programme. This would be done "through transfer of technology and setting up of joint ventures for meeting the needs of the Indian Armed Forces as well as subsequent export to mutually friendly third countries with their approval".

In this regard, the statement added, the two sides agreed on establishing a new Working Group on Technological Cooperation and discussing its provisions during the next meeting of IRIGC-M&MTC (Intergovernmental Commission on Military and Military Technical Cooperation) in Moscow in the second half of 2024.

In the backdrop of the Russia-Ukraine war, the Indian military had estimated that the Mi-17 V5 choppers, the Su-30 MKI fighters and the RD-33 engines of MiG-29 jets for the IAF and its naval variant MiG-29 K fighters would likely face delays in spares supply and maintenance support from Russia.

Naval platforms such as the Kolkata-class stealth guided missile destroyers, the Shivalik class multirole stealth frigates, the Brahmaputra class frigates, the Kora class corvettes as well as the Army's anti-tank ammunition, upgrade of its licence-built BMP-2 amphibious infantry combat vehicles, the T-90 tanks are among major platforms requiring Russian spares.

Aside from the S-400 Triumf, two Tushil-class ships are being constructed in Russia, an unspecified number of Smerch Multiple Rocket Launch Systems and rocket projectiles and Russian-made X-31 missiles, among other missiles, and spares for several weapon systems and equipment are being procured from Russia.

https://indianexpress.com/article/india/russia-india-agree-to-speed-up-delivery-of-military-spare-parts-9443501/

The Indian EXPRESS

Thu, 11 July 2024

Drone with 25-kg payload tested at world's highest pass

A Bengaluru-based firm has claimed to have successfully tested a 100-kg Max Take Off Weight (MTOW) Unmanned Aerial Vehicle (UAV) at an altitude of 19,024 feet at Ladakh's Umling La pass, which also happens to be the highest motorable pass in the world.

MTOW includes the weight of the drone and the payload. The NewSpace Research and Technologies claimed to conducted the test flight on Tuesday.

Speaking to The Indian Express, the CEO of NewSpace, Sameer Joshi said the company has successfully demonstrated carriage of 25 kg of useful payload from the 5.800m high pass, with a radius of action greater than shown by the DJI FlyCart 30 drone of China at Mount Everest base camp in April 2024. During the flight testing in Ladakh, the NewSpace drone flew to an altitude of 6,200m, said Joshi, a former IAF fighter pilot.

Joshi claimed that this is a new world record at high altitude for a 100-kg MTOW class drone for High Altitude Operations. He said their product offers a great value for money to support autonomous drone operations towards civilian and military use cases.

"It will especially give a huge boost to support logistics carriage, disaster and rescue events and medical relief in the higher regions of J&K, Uttarakhand, and the North Eastern states," he said.

The NewSpace drone can also augment the Ministry of Defence's air maintenance sorties at high altitude, offering a huge reduction in cost per hour of manned flights in region. A Cheetah helicopter can carry around 25-75 kg load at around same altitude with much more cost per sortie. With both China and India engaged in a stand-off in the higher reaches of the Himalayas, private companies in the two countries are engaging in competitive development of logistics drones.

https://indianexpress.com/article/cities/chandigarh/drone-with-25-kg-payload-tested-at-worlds-highest-pass-9445738/

THE HINDU

Wed, 10 July 2024

‘Outstanding work’: IIT-M team makes mineral nanoparticles with water

Water drops are ubiquitous around us and come in different sizes. They can be as large as a raindrop or as small as aerosol particles released from a spray can. They can be even smaller — invisible to the naked eye — when they come as microdroplets. The latter are just a thousandth the size of a typical raindrop.

“We think that droplets are very tiny, and they are not important enough,” Thalappil Pradeep, a chemist at IIT Madras, told The Hindu. But they can pack a punch. Dr. Pradeep led a study recently published in the journal Science that showed microdroplets of water can break minerals down into nanoparticles. The team involved researchers from IIT Madras and the Jawaharlal Nehru Centre for Advanced Studies, Bengaluru.

“This outstanding work adds significantly to the growing body of evidence that water droplets enable chemical transformations that bulk water does not make possible,” Richard Zare, a chemist at Stanford University who wasn’t involved in the study, told The Hindu.

Eccentricity of water microdroplets

In a bucket of water, water molecules at the surface can participate more easily in chemical reactions than those in the bulk. But even at the surface, they’ll need to be supplied some energy before they can participate.

The water molecules of microdroplets do one better: because they have so little room and are packed closely together, they’re more eager to participate in chemical reactions. The water in microdroplets thus engage more readily in exotic chemical reactions that also proceed faster, up to a million-times in some cases.

This isn’t possible with water molecules in bulk. For the same reason, microdroplets are also good carriers of electric charge. Dr. Pradeep said they’re easy to encounter in this form. Go to the beach, and close to the shore, microdroplets from the spray of water could carry an excess of ions from the salt in the water and settle on your skin, he said.

A microdroplet can also become electrically charged in other ways. For example, when a larger droplet loses some water by evaporation and shrinks, the water molecules left behind are pushed closer together, and establish (weak) hydrogen bonds between themselves. This often results in a water molecule shedding one of its hydrogen atoms and becomes a negatively charged hydroxyl ion (OH). The freed H is essentially a proton.

This process happens in bulk water as well — but because each molecule is surrounded by other water molecules, the protons can't move around much. In microdroplets, the protons easily reach the surface, rendering the surface more acidic and creating fertile ground for chemical reactions. Researchers have shown that amino acids use free protons on their surfaces as an intermediary to form peptide linkages. The new study reported microdroplets have yet another ability.

An explosive experiment

Dr. Pradeep & co. were interested in whether water microdroplets could break bonds in crystals like silica (SiO) and alumina (Al O) to create nanometre-sized pieces. Spoorthi Bhat, then a PhD student under Dr. Pradeep and one of the paper's coauthors, set up an experiment to confirm this hypothesis in crystals of quartz (silica), ruby, and fused alumina. She pressed a battery terminal against the outside of a capillary tube.

The terminal delivered a few thousand volts to mineral microparticles suspended in water inside the tube. The voltage elongated the suspension, squeezing it out of one end, and sending it flying through the air as a mist of microdroplets. They were still airborne when, in just 10 ms, the mineral microparticles broke up into nanoparticles. The researchers had a few ideas about what could have caused this break up.

The free protons could have squeezed themselves into crystal layers, which they scraped the mineral off from within if supplied some energy. The study suggests the electric fields produced by the charged surface could have provided this energy. Surface tension — the force that keeps droplets spherical — could have been involved as well. In the experiment, a contest between surface tension, which is attractive, and like charges on the surface repelling each other could have set off shockwaves that blew up the microdroplets.

"This is a striking and non-intuitive result," Shashi Thutupalli, a biophysicist at the National Centre for Biological Sciences, Bengaluru, who was not involved in the study, said to The Hindu. "It seems quite plausible that the high electric field within the droplets could cause the particle breakup." He added that the findings could be useful to the study of proto-cells, the precursors to cells as we know them today. Scientists are interested in proto-cells because they could have played an important part in the processes that first created life on the earth.

"For me personally, the relevance of these results to the context of the origins of life is very exciting." He said the microdroplets could mimic proto-cells by being little compartments in which biochemical reactions play out.

Making a green paradise

The formation of nanoparticles from microparticles, Dr. Pradeep said, is "related to the origin of life, the problem of agriculture, … to issues as large as water itself. Another problem as big as water is food. It is in this context that soil is probably an interesting thing."

Silica makes up half of sand. Plants absorb silica in the form of nanoparticles to help them become taller. The rice crop usually has high levels of silica. Supplying soil with silica nanoparticles could thus have a positive impact on agriculture.

"Here is a way to convert unproductive soil, unproductive fields or even desertified areas into productive areas," Dr. Pradeep said. He implored scientists to investigate whether water

microdroplets react with minerals to form nanoparticles as part of atmospheric processes, in the form of ‘microdroplet showers’. Dr. Pradeep was optimistic they do.

https://www.thehindu.com/sci-tech/science/iit-madras-scientists-mineral-nanoparticles-with-water-agriculture-applications/article68384580.ece

ThePrint

Wed, 10 July 2024

Martian missions, astrophysics advances — why the West just can’t ignore Chinese science now

China now produces the largest number of patents. Its Chang’e 6 lunar robotic spacecraft has hoisted the Chinese flag on difficult terrain of the Moon and its research and development (R&D) has grown 16-fold since 2000. The Western media is catching all that.

But this is the result of years of sustained investments in homegrown research and academia.

At present, the country is fast shedding its tag of an imitator and producing some of the best research in chemistry, physics, and material sciences. Their contribution to prestigious journals of the world too has risen.

And its batteries and state-of-the-art electric vehicles (EVs) are flooding global markets.

So what has China done in the last few years, and where does it stand on the global stage? ThePrint answers some burning questions.

What did China do in terms of science & research last year?

In early January this year, academics from the Chinese Academy of Sciences and Chinese Academy of Engineering released their annual, high-profile list of the top ten scientific advances of 2023. The standouts were operations in space: the first crewed mission to the Chinese space station (Tiangong), and the Martian orbiter and rover (Tianwen-1 mission’s Zhurong rover).

Astrophysics advancements included finding nanohertz gravitational waves. The country is also utilising emission-free energy, and is working on building a solar power station in space to convert sunlight from orbit into electricity on Earth.

Energy advances also focused on the meltdown-safe Shidaowan high-temperature gas-cooled (HTGR) nuclear plant that began operating in December 2023. China also completed operation of its experimental nuclear fusion reactor, Huanliu-3, and has begun building the world’s biggest particle collider, the Circular Electron Positron Collider, for 2027.

In November, China surpassed the US in terms of the most cited and influential academic papers published, while in 2017, it surpassed the US in terms of the number of papers published.

Additionally, China has also been making advances in the health sector with surgical advances like rapid adoption of xenotransplantation of pig cornea’s to treat organ shortage.

What is the government policy on publishing?

The Chinese government policy has been modified in recent years to reevaluate academic contribution metrics, and policy focus has shifted towards impact and "representative work" as opposed to volume of papers published. Today, academics often also choose to publish in domestic journals that have begun to publish in China, following the open access model.

In 2021, scientists from the country published 2.03 million scientific papers.

It has also surpassed the US in the share of work being done in chemistry, at par with work on Earth and environmental sciences, and physical sciences.

What have been China's largest science projects?

The Jiangmen Underground Neutrino Observatory in southern China is an underground laboratory that studies basic particle physics far away from the influence of the sun and space. Similarly, the Jinping Underground Laboratory is a dark matter laboratory. It recently underwent renovations and has become the world's largest and deepest laboratory, located at a depth of 2,400 metres below sea level.

The 500-metre Aperture Spherical telescope or FAST is the world's largest radio telescope and searches for ancient hydrogen in the early universe.

EarthLab is a large-scale numerical simulation facility for Earth systems. It studies billions of parameters to simulate Earth's environment, climate, atmosphere, hydrosphere, cryosphere, biosphere, lithosphere, and how they all interact with each other.

The Large High Altitude Air Shower Observatory (Lhaaso) is located at the summit of a 4,400-metre high mountain and is the largest cosmic ray detector in the world. The observatory observed the brightest cosmic light and tracked down high energy sources previously unknown to astronomers.

Tiangong space station is China's own space station that is currently in orbit, and has already started seeing the first crewed missions. China also became the first country to land on the far side of the moon with its Chang'e missions, and has also performed lunar sample return missions.

China's 1984 particle collider made news when it became the first instrument in the world to detect a 'tetraquark', an exotic subatomic form of matter. The country has its own neutrino observatories, fusion reactor prototype, and more such big science projects, catching up with Western nations, which have historically played host to large-scale particle physics projects.

The Chinese Academy of Sciences, the government academy, is the world's largest research organisation today.

What is China's research budget for science and technology?

In 2023, the government spent 328 billion yuan or US $48 billion, which was a two percent increase from 2022. This was about 6.5 percent of China's R&D expenditure.

The government stated that its goal is to bring this number up to eight percent. In 2024 so far, the country has increased the budget by 10 percent, to US $52 billion or 371 billion yuan.

The previous years saw a consistent increase in budget. In 2021, the budget had been USD 26.4 billion, which was an increase of 24 percent from 2020.

By contrast, the US budget this year for federal research is $202 billion, of which $92.8 billion is for research in the Department of Defence.

https://theprint.in/science/martian-missions-astrophysics-advances-why-the-west-just-cant-ignore-chinese-science-now/2168604/

Business Standard

Wed, 10 July 2024

Nuclear fusion to quantum computing: India, Russia explore hi-tech projects

India and Russia are in talks to construct six more high-powered nuclear power plant units, as well as small nuclear power plants, at a new facility in India, Russian news agency TASS reported on Tuesday, citing information released by Russia's state-run corporation ROSATOM.

"New areas of cooperation are being discussed as well. On the table is the construction in India of six more Russia-designed high-powered power units and Russia-designed small nuclear power plants," said the files released by ROSATOM's press service, adding, "Joint work on closing the nuclear fuel cycle seems promising."

State Atomic Energy Corporation Rosatom (ROSATOM) is a multi-industry holding company, comprising assets in power engineering, construction, and machine building. The announcement came during Prime Minister Narendra Modi's recently concluded two-day Russia trip to attend the 22nd annual India-Russia summit. In April 2024, Russia had also presented proposals for setting up floating nuclear power plants to India.

From new reactors to nuclear fusion

Both countries see significant potential for a partnership under the framework of the Russian multipurpose research reactor project on fast neutrons, Moneycontrol reported on Tuesday, citing ROSATOM. Additionally, preparations are underway for the technical specifications for building a new Russian-designed nuclear power plant, which will have VVER-1200 reactor units, in India.

Moneycontrol also quoted ROSATOM as saying that India and Russia "have great potential for cooperation in the field of controlled nuclear fusion".

ROSATOM added that it was discussing the possibility of building "six more high-capacity nuclear units and small-scale nuclear power plants" within India. Citing reports, *Moneycontrol* said that these new nuclear power plants would be built by state-owned Bharat Heavy Electricals Limited (BHEL) and Power Mech Projects Limited, an infrastructure construction company based in Hyderabad.

In May 2024, Power Mech reportedly announced that it had won an order worth Rs 563 crore from BHEL to construct a nuclear power plant. The Kudankulam nuclear power plant, the largest nuclear

plant in India and a flagship project between Moscow and New Delhi, is up and running in Tamil Nadu. The Kudankulam plant is designed with six power units, using VVER-1000 reactors, with an installed capacity of 6,000 MW, with power units No. 1 and No. 2 being commissioned in 2013 and 2016.

India, Russia exploring quantum computing collaboration

The Moneycontrol report added that India and Russia are also actively exploring prospects of collaborating in the quantum computing field, including for the creation of quantum computers.

India and Russia aim to tap Northern Sea Route

Citing ROSATOM, Moneycontrol reported that Russia and India are also in talks about jointly developing the Northern Sea Route's transit potential. The Northern Sea Route, a shipping route along the coast of Siberia, running from west of the Kola Peninsula through the Bering Strait in the east, is a quicker way to get from India to western Russia than going the other way round.

At present, the predominant shipping routes between India and western Russia and Europe are via the Suez Canal and the Cape of Good Hope. However, the Northern Sea Route is becoming more feasible as a shipping passage because of the Arctic ice melt. In fact, the entire stretch is projected to be ice free by 2050.

According to the *Moneycontrol* report, India and Russia are also discussing the possibility of supplying Russian energy resources by way of the Northern Sea Route to Indian ports, with trans-shipment taking place at Russian Far Eastern ports. Both countries are also reportedly looking at options for establishing a pilot line for international container transit through the route.

https://www.business-standard.com/external-affairs-defence-security/news/nuclear-fusion-to-quantum-computing-india-russia-explore-hi-tech-projects-124071000924_1.html

FINANCIAL EXPRESS
Read to Lead

Wed, 10 July 2024

Skyroot Aerospace Nears Historic Launch with Successful Vikram-1 Stage-1 Test

India’s major space company Skyroot Aerospace, recently achieved a major milestone when they successfully completed the proof pressure test of the new Vikram-1’s Stage-1 hardware that will soon fly on its maiden flight.

This 10-meter-long stage, named Kalam-1200, crafted with high-strength carbon fibre, will boost Vikram-1 from lift-off to above the denser atmosphere, delivering a peak thrust of 1200 kN.

What is so special about this?

In conversation with FinancialExpress.com, Pawan Chandana, one of the founders of Skyroot Aerospace said: “This is an important milestone towards our launch this year as this hardware is of the first stage of Vikram-1 orbital rocket which constitutes more than 70 percent of the vehicle.

Pressure test is done to test the hardware to the extreme combustion pressure it could experience in flight, and hence it is an important milestone for launch.

This hardware will then be filled with propellant and attached with a nozzle and other systems before taking off from the launch pad. This stage was built using high strength carbon composite which is light weight and has more strength than the traditionally used metals like steel and aluminium.

Carbon fibre is used to build this – how is that better than steel?

“Carbon fibre composites have more strength than the highest strength steel alloys and is five times lighter,” Chandana said.

Does this achievement make Skyroot Aerospace the first space startup in the world? Which are the other countries which have this technology?

We are not the first space startup to use carbon composites but one of the first few globally. There are few other companies based in the US and Italy who use it.

When is the maiden flight scheduled?

We are targeting the flight within 4-6 months from now.

Background

Earlier this year in March the company had conducted a crucial test of Stage-2 for its Vikram-1 rocket. on March 27, 2024. It signified the first private company in India gearing up to send a rocket into space. FinancialExpress.com has reported previously that the company had previously achieved a milestone with the launch of a smaller rocket, the Vikram-S.

https://www.financialexpress.com/business/defence-skyroot-aerospace-nears-historic-launch-with-successful-vikram-1-stage-1-test-3549316/