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समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

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Tue, 15 Mar 2022

Tejas MK-2 to have GE Turbofans, AMCA to have indigenously developed high thrust engine says DRDO Chief

“We have been holding discussions with Safran on the joint development of AMCA engine. With Single Crystal Blade, DRDO has achieved major milestone in engine manufacturing” Says DRDO Chief.

Defence is the thrust. Government has focused much on policies and, is looking at the various possibilities that could boost defence manufacturing in India. It is ample now. Multiple announcement in the framework of the DAP 2020 has laid out concrete measures as it is unfolding the intention as how the defence sector is going to be. According to SIPRI, the five biggest spenders in 2020, which together accounted for 62 per cent of global military expenditure, were the United States, China, India, Russia and the United Kingdom. US military expenditure reached an estimated \$778 billion and China’s military expenditure, the second highest in the world, is estimated to have totalled \$252 billion in 2020.

While India’s defence budget reached USD 70 billion in the current financial year (2022-2023). Leave aside the U.S. military spending and the military advancement for the reason that are a plenty but China cannot be taken off the map. We are already dealing with the Chinese military at our doors and that warrants a dictum of ‘capability- comparison’

Firstly, within the defence budget, the capital outlay, which focuses towards the modernization of Armed Forces has been increased by 12.82 percent with an allocation of USD 20.36 billion. Also, In recognition of the modernization deficit, the defence budget sets aside 25 percent of the total R&D budget for private industry. So what is our total R&D, taking account of the entire R&D ecosystem in the country? India spends less than 1% of it GDP on R&D and to be more precise -- 0.65% (~ USD 58 billion). And as per the conservative estimates, China spent a massive USD 514 billion which is about 3.3 % of the GDP.

In the current defence budget of 2022-23, R&D allocation is less than 2 percent of total defence budget. Again, the Lok Sabha Standing Committee on Defence 2019-2020 mentioned the PRC’s R&D at 20 percent of the Chinese defence budget. On 2021 budget, it would mean that China could spend as much as \$70 billion this year just on equipment alone which is for the procurement and military R&D. While the defence has been the catalyst for many technological breakthroughs, it is more so applicable today with a total transformation of battlefield.

In the context, R&D in defence exhorts greater attention to fund such technology development in microelectronics, hypersonic, artificial intelligence (AI), cyber security, and similar high-priority military capabilities. This would propel the militarization of the fourth industrial revolution through artificial intelligence, big data, man-machine interfacing, autonomous unmanned systems, 5G networking, and the like—in order to create new dominant military-technological advantages. This builds up the case of Indigenization.

Such is the impact of the policies that put overall priority on R&D in Defence. The statistical spread is intended to understand the ecosystem of defence innovation. And within that India's Defence Research and Development Organization (DRDO) has been spearheading some of the most successful defence innovations, including the gradual advancement of indigenous missile programs. In its new avatar, with structural changes and thrust on accountability, DRDO has set up to push the boundaries. Dr G Satheesh Reddy, Secretary DDR&D and Chairman DRDO has been responsible for much of the changes lately. In an exclusive interaction, Dr Reddy speaks on the wide range of technological breakthroughs and innovations which are taking place in DRDO's laboratories spread across India. In the interaction, he projected the defence innovation in its timeline for that is so vital for the applications and its efficacy in the making of a military hardware.

In an exclusive interaction, Dr Reddy speaks with Manish Kumar Jha of BW Business world on the wide range of technological breakthroughs and innovations which are taking place in DRDO's laboratories spread across India. In the interaction, he projected the defence innovation in its timeline for that is so vital for the applications and its efficacy in the making of a military hardware. He also speaks about the crucial thread between DRDO and industry.

As reported, DRDO is collaborating with French OEM for developing an aero engine for the AMCA project which is under the SPVs norms. Will it be jointly developed under the open architecture matrix, having full access and rights of the said engine with DRDO? We have been talking about this but we have not reached the point where things start moving on the ground yet.

G Satheesh Reddy: And my answer is very clear on this. As far as the aero engine is concerned, the country has worked on Kaveri engine. By the time it came up, the requirement of the TEJAS had changed. So Kaveri could not go into it. But with necessary Technologies, some things that have been develop. Kaveri dry engine which is about 50 KN are underway for some other application. Now coming to AMCA, we need a higher thrust engine, which is not available anywhere in the world today of exact fitting and with specified thrust requirement.

So, Safran is an option as they have been in dialogue with DRDO for a long time and also there are opportunities for the collaborations under the offset as per the procedures. So we have been holding discussions with Safran on the joint development of AMCA engine. And discussions are still going on.

<http://www.indiandefensenews.in/2022/03/tejas-mk-2-to-have-ge-turbofans-amca-to.html>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Tue, 15 Mar 2022 2:43PM

श्रीलंका में रोचक ढंग से पश्चिमी बेड़े की तैनाती का कार्य समाप्त

श्रीलंका में पश्चिमी बेड़े की तैनाती 12 मार्च 2022 को दोनों नौसेनाओं के बीच एक समुद्री साझेदारी अभ्यास के साथ समाप्त हुई। कोलंबो बंदरगाह से प्रस्थान करने पर, आईएन जहाजों चेन्नई और तेग ने श्रीलंका की नौसेना के जहाज सिंदुरला के साथ अभ्यास किया। सुचारू रूप से आयोजित अभ्यास की शुरुआत श्रीलंकाई नौसेना के तेज आक्रमण करने वाले हवाई जहाजों द्वारा बंदरगाह छोड़ने वाले जहाजों के खिलाफ असंयमित खतरे की नकली स्थिति के साथ हुई। इसके बाद, नाविक विद्या अभ्यासों के रूप में, दोनों देशों की नौसेनाएं जहाज खींचने, समुद्र में फिर से भरने के लिए स्टेशन बनाकर रखने और नजदीक से युद्धाभ्यास करने के लिए एक-दूसरे के करीब आईं। भारतीय नौसेना के चेतक हेलीकॉप्टर ने भी अभ्यास में भाग लिया। अभ्यास पारंपरिक तरीके से समाप्त हुआ, जिसमें श्रीलंकाई जहाज भारतीय नौसेना के जहाजों की तरफ विपरीत दिशाओं से और निजी कर्मियों के साथ बढ़े और एक-दूसरे को अलविदा कहा। नौसेनाओं के बीच पेशेवर बातचीत अत्यंत उपयोगी रही और उनके बीच आपसी मेल-जोल बढ़ा।

इससे पहले 11 मार्च 2022 को, रियर एडमिरल समीर सक्सेना, एनएम, फ्लैग ऑफिसर कमांडिंग वेस्टर्न फ्लीट (एफओसीडब्ल्यूएफ) ने श्रीलंका के विदेश सचिव एडमिरल प्रो. जयनाथ कोलम्बेज से मुलाकात की थी। आईएनएस चेन्नई और आईएनएस तेग के कमांडिंग ऑफिसर्स ने श्रीलंका की पश्चिमी नौसेना के कमांडर रियर एडमिरल एयूसी डी सिल्वा से मुलाकात की।

आपसी संपर्क बढ़ाने के लिए दोनों नौसेनाओं के जवानों के बीच जूनियर स्तर पर एक मैत्रीपूर्ण वॉलीबॉल मैच भी खेला गया। भारतीय जहाजों को आम जनता, स्कूली बच्चों, सेवारत नौसेना कर्मियों और विशेष आवश्यकता वाले बच्चों के लिए खुला रखा गया था। आयोजित बातचीत के दौरान कोविड-19 से संबंधित सभी नियमों का पालन किया गया।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806263>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 15 Mar 2022 2:43PM

Western fleet deployment to Sri Lanka ends on high note

The Western Fleet's deployment to Sri Lanka culminated in a maritime partnership exercise between the two navies on 12 March 2022. On departure from the port of Colombo, IN Ships *Chennai* and *Teg* exercised with Sri Lanka Navy ship *Sindurala*. The smoothly conducted exercise began with a simulated situation of asymmetric threat against ships leaving harbour by fast attack crafts of the Sri Lankan Navy. Thereafter, as part of seamanship exercises, ships of both navies made approaches for towing, maintained station for Replenishment at Sea and undertook close distance manoeuvring. Chetak helicopter of the Indian Navy also participated in the exercise. The exercise ended with the traditional steam past with the Sri Lankan ship approaching the column of Indian Navy ships from a reciprocal direction and personnel manning their ship-sides and waving good bye to each other. The professional interaction between the navies was extremely fruitful and enhanced interoperability between them.

Earlier on 11 March 2022, Rear Admiral Sameer Saxena, NM, Flag Officer Commanding Western Fleet (FOCWF) called on Admiral Prof. Jayanath Colombage, the Foreign Secretary of Sri Lanka. The Commanding Officers of INS Chennai and INS Teg called on Rear Admiral AUC De Silva, Commander of Western Naval Area of Sri Lanka.

A friendly volleyball match was also played between personnel of the two navies to enhance mutual interaction at the junior levels. The Indian ships were kept open for general public, school children, serving naval personnel and children with special needs. All COVID-19 regulations were adhered to during the interactions held.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806124>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Tue, 15 Mar 2022 1:35PM

यूनाइटेड सर्विस इंस्टीट्यूशन ऑफ इंडिया में जनरल बिपिन रावत मेमोरियल चेयर ऑफ एक्सीलेंस स्थापित किया गया

भारतीय सेना ने दिवंगत चीफ ऑफ डिफेंस स्टाफ (सीडीएस) जनरल बिपिन रावत के 65वें जन्मदिन की पूर्व संध्या पर उनकी स्मृति में यूनाइटेड सर्विस इंस्टीट्यूशन ऑफ इंडिया (यूएसआई) में एक चेयर ऑफ एक्सीलेंस समर्पित किया है। थल सेनाध्यक्ष और चीफ ऑफ स्टाफ कमिटी (सीओएससी) के कार्यवाहक अध्यक्ष जनरल एमएम नरवणे ने इसकी औपचारिक घोषणा 15 मार्च, 2022 को साउथ

ब्लॉक में आयोजित एक समारोह में की। इस अवसर पर वीसीओएस लेफ्टिनेंट जनरल मनोज पांडे, वीसीएस एयर मार्शल संदीप सिंह, वीसीएनएस वाइस एडमिरल एसएन घोरमडे, चीफ ऑफ स्टाफ कमिटी (सीआईएससी) के अध्यक्ष के लिए एकीकृत रक्षा स्टाफ के प्रमुख बीआर कृष्णा और डीसीओएस (रणनीति) लेफ्टिनेंट जनरल एसके शर्मा भी उपस्थित थे। वहीं, यूएसआई के निदेशक मेजर जनरल बीके शर्मा (सेवानिवृत्त) को 5 लाख रुपये का चेक सौंपा गया, जो कि नामित चेयर ऑफ एक्सीलेंस को मानदेय के रूप में दिया जाएगा।

दिवंगत जनरल बिपिन रावत ने भारत के पहले सीडीएस होने के साथ-साथ भारतीय सेना के 27वें प्रमुख के रूप में भी जिम्मेदारी संभाली थी। वे एक उत्कृष्ट पेशेवर थे और भारतीय सेना के आमूलचूल परिवर्तन के केंद्र में थे। जनरल बिपिन रावत मेमोरियल चेयर ऑफ एक्सीलेंस जुड़ाव और एकीकरण के क्षेत्र पर अपना ध्यान केंद्रित करेगा। चेयर ऑफ एक्सीलेंस जनरल रावत के कुशल नेतृत्व और अपने पेशे में कुशलता के लिए एक उपयुक्त श्रद्धांजलि है।

इस अवसर पर सेना प्रमुख ने बताया कि जनरल रावत रणनीतिक विचारों के लिए उत्साही थे और उन्होंने विभिन्न थिंक टैंक की गतिविधियों में काफी समय व ऊर्जा खर्च की थी और इसलिए उनके 65वें जन्मदिन पर उनके बौद्धिक संस्थानों के साथ सेवाओं के बंधन को मजबूत करने का एक सामयिक समय प्रदान किया है।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806152>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 15 Mar 2022 1:35PM

General Bipin Rawat memorial chair of excellence instituted at the united service institution of India

On the eve of the 65th birthday of late Chief of Defence Staff, General Bipin Rawat, the Indian Army has dedicated a Chair of Excellence in his memory at the United Service Institution of India (USI).

The formal announcement was made by Gen MM Naravane, Chief of Army Staff and Officiating Chairman, COSC, at a solemn ceremony organised at the South Block on 15 March 2022. Lieutenant General Manoj Pande, the VCOAS, Air Marshal Sandeep Singh, VCAS, Vice Admiral SN Ghormade, VCNS, Air Marshal BR Krishna, Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC) and Lt Gen SK Sharma, DCOAS (Strat) also attended the event. A cheque of Rs 5 lakhs was handed over to Maj Gen BK Sharma (retd), Director, USI which will be paid as honorarium to the nominated Chair of Excellence.

Late General Bipin Rawat who served as India's first CDS as well as the 27th Chief of Indian Army was an outstanding professional and was in the midst of steering one of the most radical transformations of the Indian military. Gen Bipin Rawat Memorial Chair of Excellence will focus on the field of Jointness and Integration. The Chair of Excellence is a befitting tribute to the astute leadership and professionalism of the General.

On the occasion, the Army Chief recounted that General Rawat was passionate about strategic thoughts and invested considerable time and energy in the activities of various Think Tanks and therefore, his 65th birthday provided an opportune moment to reinforce the Services' bond with their intellectual institutions. The Chair will be open to Veterans of three Services and civilians having expertise in the field of National Security.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806108>



Press Information Bureau

Government of India

Ministry of Defence

Tue, 15 Mar 2022 7:12 PM

Boost to *Atmanirbharta*: BRO signs MOU with GRSE for construction of 27 double-lane class 70 modular bridges in border areas

Key Highlights

- The MoU includes fabrication, supply, erection and launching of 27 double-lane bridges of carriageway 7.5 meters of load class 70 along the Northern and North Eastern border states
- It reinforces the commitment of BRO for greater self-reliance on indigenous equipment and achieving overall aim of '*Atmanirbhar* Bharat'

Border Roads Organisation (BRO) and Garden Reach Shipbuilders & Engineers (GRSE) Ltd signed a Memorandum of Understanding (MoU) for fabrication, supply, erection and launching of 27 carriageway double lane galvanised modular bridges of 7.5 meters with Indian Road Congress (IRC) Load Class 70. The two-year contract, worth around Rs 60 crore, was inked by Director General BR Lt Gen Rajeev Chaudhry and Officiating Chairman & Managing Director of GRSE Commodore P R Hari IN (Retd) in New Delhi on March 15, 2022.

In line with the clarion call of the Prime Minister Shri Narendra Modi for '*Aatmanirbhar* Bharat' and meeting the aspiration of the Nation for better infrastructure, the BRO had successfully trial evaluated an "Indigenous 140 feet Double Lane Modular Bridge" of IRC Load Class 70 last year, supplied by GRSE Ltd. The first of its kind indigenous bridge was dedicated to the Nation by Raksha Mantri Shri Rajnath Singh on December 28, 2021. The bridge was constructed on important "Flag Hill-Dokala" Road in Sikkim at an altitude of 11,000 feet by *Karamyogis* of Project Swastik in February 2021.

Subsequent to successful trials, discussions were held between the two agencies to conclude this MoU, under which the GRSE Ltd will be undertaking fabrication, supply, erection and launching of 27 Double Lane Modular Bridges of IRC Load Class 70 on a number of strategic roads along the Northern and North Eastern borders.

The double-lane Modular Steel Bridge developed by the GRSE is the only one-of-its-kind bridge available in India and is 100 per cent indigenous. One of the most important and critical advantages of the MoU will be the time factor as these bridges could be launched within 45 days of handing over the site by the units. This will certainly be a game-changer in road infrastructure development in the country. The construction of such modular bridges with IRC Load Class 70 classification will also enhance the operational preparedness of the security forces in the forward areas. The MoU will further lead to self-reliance and BRO's commitment to Nation-building. It will also ensure better infrastructure development in border areas keeping in view the Nation's security needs.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806285>



Press Information Bureau

Government of India

Ministry of Defence

Tue, 15 Mar 2022 7:13PM

Armed forces will see larger participation of women in the coming years, says Raksha Mantri Shri Rajnath Singh at an event organised by FICCI ladies organisation

**Women have a big role to play in placing India among the world's top three economies:
RM**

Govt has created an enabling eco-system to allow women to forge a New India "Armed Forces will see a larger participation of women in the coming years due to the recent steps taken by the Government," said Raksha Mantri Shri Rajnath Singh while delivering the keynote address at an event organized by FICCI Ladies Organization (FLO) in New Delhi on March 15, 2022. "Today, women are not only working in the Army in every wing, but now we are also giving permanent commission to them. Today, admission is being given to boys as well as girls in every Sainik School. The doors of NDA have also been opened for women. About two lakh women took the entrance exam last year with great enthusiasm. The percentage of women in the Indian Army will increase significantly in the coming times," said Shri Rajnath Singh.

The event 'Celebrating Women', on the theme 'Women Transforming India' was organized as part of 'Azadi ka Amrit Mahotsav' being celebrated across the country to commemorate 75 years of Independence. The Raksha Mantri lauded the FLO for organizing the event which symbolizes a 'New India' where men & women are making equal contribution in the overall development of the Nation. He pointed out the equal respect given to women in India since the Vedic times, stressing that women play a crucial role in the upliftment of society. He said, the Government considers women as building blocks of the future and no stone is being left unturned to ensure their multi-layered development across the country.

Shri Rajnath Singh asserted that a number of schemes dedicated to skill development, employment and entrepreneurship have been rolled out by the Government, under the leadership by Prime Minister Shri Narendra Modi. He said, these schemes have paved way for the holistic development of women and given them confidence to forge a new identity. “Women are now playing an active role in all spheres of life, including education, health, industry, trade, Defence and sports,” he added.

The Raksha Mantri also made special mention of 23-year-old Ms Vinita Singh who left a salary package of Rs one crore and launched her own startup, which has now become a Rs 300 crore company. He said, this inspiring story has been made possible due to the policy brought out by the Government to promote startups in the country. “In 2014, only 500 startups were working in the country. By 2022, this count has crossed 60,000,” he added.

Shri Rajnath Singh listed out a number of schemes that aim to promote the entrepreneurship of the youth, especially women. He reiterated the Government’s commitment to promote women entrepreneurship in India, saying that according to a study, if obstacles in the way of women are removed, at least 1.5 crore new businesses can be started, creating about 6.4 crore additional jobs. He added that this ecosystem of women entrepreneurship will inspire more women and new businesses will emerge.

Shri Rajnath Singh expressed confidence that women will play a major role in making India one of the top three economies in the world in the times to come. He called upon the women of the country to come forward and work shoulder-to-shoulder in the development of India. He exuded confidence that they will be equal partners in building a strong, prosperous and self-reliant India as envisioned by Prime Minister Shri Narendra Modi.

The Raksha Mantri also welcomed the judgment of the Karnataka High Court on the Hijab issue. He said, the dress code of schools/colleges must be followed by everyone of every religion.

On the occasion, rich tributes were paid to the Armed Forces personnel who made the supreme sacrifice to safeguard the sovereignty and integrity of the Nation. Rich tributes were also paid to Bharat Ratna Late Lata Mangeshkar. Her sister Ms Usha Mangeshkar received an award on behalf of Late Lata ji. The Raksha Mantri remembered the Nightingale of India, saying that she will always be alive in the heart of every Indian. President, FLO Ms Ujjwala Singhania and other members of FLO were also present.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1806301>



Tue, 15 Mar 2022

क्या होते हैं *Stealth Fighter Jet*? जिसे बनाने के प्रोजेक्ट पर आगे बढ़ रहा भारत

भारत ने अब पांचवी पीढ़ी के स्टेल्थ फाइटर जेट एमका के निर्माण की दिशा में कदम बढ़ा दिए हैं. ये फाइटर जेट अभी अमेरिका, रूस और चीन जैसे देशों के पास ही हैं. रूस और यूक्रेन की जंग ने पूरी दुनिया को एक कड़ा सबक दिया है. इस युद्ध ने ये सबक दिया है कि अपनी सुरक्षा सुनिश्चित करनी है तो अपना बाहुबल मजबूत करो. भारत ने भी इस दिशा

मेंअपनेकदम तेजी सेआगेबढ़ा दिए हैं. रक्षा के क्षेत्र मेंदेश को आत्मनिर्भर बनानेकी तैयारियों के बीच भारत नेअब पांचवी पीढ़ी के एक ऐसेलड़ाकू विमान के निर्माण की दिशा मेंअपनेकदम आगेबढ़ा दिए हैंजो अभी अमेरिका, रूस और चीन जैसेचुनिंदा देशों के पास ही है. डिफेंस रिसर्चएंडएं डेवलपमेंट ऑर्गेनाइजेशन (डीआरडीओ) और एयरोस्पेस डिफेंस एजेंसी (एडीए) नेपांचवीं पीढ़ी के लड़ाकू विमान स्टेल्थ फाइटर जेट (*Stealth Fighter Jet*) के निर्माण की दिशा मेंएक और कदम बढ़ा दिया है. डीआरडीओ और एडीए नेस्टेल्थ फाइटर जेट एमका के लिए विशेष सामग्री का निर्माण शुरू कर दिया है. भारत, एमका का निर्माण करतेही अमेरिका, रूस और चीन के बाद दुनिया का चौथा देश बन जाएगा जिसके पास येफाइटर जेट होंगे.

क्या होते हैं *Stealth Fighter Jet*

अब सवाल येभी उठता हैकि स्टेल्थ फाइटर जेट क्या होतेहैं. स्टेल्थ फाइटर जेट वेफाइटर जेट होतेहैंजो गुप्तगुप्त रहतेहैं. गुप्तगुप्त रहतेहैंयानी इन फाइटर जेट्स को रडार नहीं पकड़ पाता. इनक भारत जिस पांचवीं पीढ़ी के फाइटर जेट एमका के निर्माण पर काम कर रहा है, वो बीवीआर मिसाइल के साथ क्लोज कॉम्बेट फाइटर की क्षमता सेभी लैस होगा. येकाफी ताकतवर होगा और इसेस्टेल्थ एयर फ्रेम के साथ ही नेटसेंट्रिक वारफेयर, सेंसर डेटा फ्यूजन और एडवांस इंटीग्रेटेड सेंसर सूट सेभी लैस किया जाएगा. इस फाइटर जेट के **2025** तक बनकर तैयार हो जानेकी उम्मीदें जताई जा रही हैं. एयरो-इंडिया शो मेंप्रदर्शित की गई थी डिजाइन एमका की डिजाइन फरवरी **2021** मेंआयोजित एयरो-इंडिया शो मेंप्रदर्शित की गई थी. येदो इंजन वाला फाइटर जेट होगा. गौरतलब हैकि स्टेल्थ फाइटर जेट अभी अमेरिका, रूस और चीन के पास ही हैं. अमेरिका के एफ **22** रेप्टर और एफ-**35** लाइटनिंग, रूस के सुखोई-**57** और चीन के जे-**20** या चेंगदू-**20** फाइटर जेट भी स्टेल्थ फाइटर जेट हैं

<https://www.aajtak.in/india/news/story/stealth-fighter-jet-amca-5th-generation-fighter-jet-project-ada-drdo-usa-russia-china-ntc-1429268-2022-03-15>

**INDIA
TODAY**

Tue, 15 Mar 2022

HAL signs pact with SASMOS to work together in Aerospace domain

Hindustan Aeronautics Limited (HAL) has signed an MoU with Bangalore-based company SASMOS to work together on advanced electronics, electrical and fibre optic interconnections in the aerospace domain. A memorandum of understanding was signed between the two companies on March 11. HAL's subsidiary Naini Aerospace Limited (NAeL) was also a signatory to the MoU, SASMOS' statement noted.

"The MoU is intended to explore business cooperation, especially in the northern India, through utilization of capacity and capabilities of NAEL to bring their expertise in fibre

optics, electronics and electrical interconnected system in the aerospace domain through the support from HAL and SASMOS," it added.

Under the MoU, HAL and SASMOS will "work together in the field of advanced electronics, electrical and fibre optics interconnections in the aerospace domain", it mentioned.

<http://www.indiandefensenews.in/2022/03/hal-signs-pact-with-sasmos-to-work.html>

THE ECONOMIC TIMES

Tue, 15 Mar 2022

Army's northern command in high state of readiness to face evolving threats: GOC-in-C

The Army's Northern Command is in a high state of readiness to face constantly evolving threats and challenges, General Officer-commanding-in-chief Lt Gen Upendra Dwivedi said on Tuesday. The commander presented gallantry awards as well as distinguished service awards to brave hearts, both officers and other ranks, in a solemn and distinguished investiture ceremony here. "The security situation in Northern Command continues to remain volatile, as we are the only command in active operations facing adversaries from both the northern and western front, in addition to the internal security threats," the commander said.

"Northern Command is in a high state of readiness to face the constantly evolving threats and challenges," he added. "Northern Command is in a high state of readiness to face the constantly evolving threats and challenges," he added. The extraordinary zeal and motivation among all ranks reassures me that security of the borders is in safe hands, he said. At the ceremony, 92 gallantry awards were presented to those who showed exemplary courage under extreme circumstances during anti-terrorist operations and foiling enemy designs on the Line of Control in Jammu and Kashmir and Line of Actual Control (LAC) in Ladakh.

Nineteen of the awards were awarded posthumously to the next of kin of soldiers who laid down their lives in the service of the nation. Twenty-five distinguished service awards were presented for selfless service to the nation. The commander further said that 2021 was an exigent year for the armed forces as the troops displayed exceptional bravery through a well-coordinated and an aggressive response strategy on the northern borders. "Our forces have shown exemplary courage and remarkable fortitude in these testing times. I, convey my heartfelt gratitude to the brave soldiers of Indian Army for their supreme sacrifice in the line of duty defying all odds in Operation Rakshak, Operation Meghdoot and Operation Snow Leopard," he said. He said the Army is committed to defend India's sovereignty and territorial integrity and believes in constructive dialogue through both military and diplomatic means to resolve the border issues. "Restoration of peace and tranquility to enable progress in bilateral relations has been and will remain our constant endeavour.

We are keeping a constant watch on all developments and will take all necessary steps to protect our national interests," the commander said. He said besides the operational challenges on the Line of Actual Control and LoC, the Army remain committed to providing succour in the times of natural disasters which includes the COVID-19 pandemic. "I also take this opportunity to laud the efforts of Covid warriors whose relentless efforts have kept us protected in these testing times," he said.

Gen Dwivedi said 'Operation Sadbhavana' has bridged the gap between the armed forces and people resulting in a better civil- military integration and coordination."This has been achieved through well-orchestrated developmental work in conjunction with the civil administration and assisting grassroots level development activities in far flung areas under Project Sadbhavana," he said."A participative approach by all stakeholders coupled with integration of all agencies and synergy of efforts to enhance development, improved educational facilities and employment opportunities for the youth will result in fulfilling the aspirations of the people," he added. The commander also congratulated all the awardees and their families.

"I commend the 'veer naris' present here who bear the unfathomable loss of their loved ones with stoic silence. I wish to reassure you that we stand firmly besides you on your loss and remain committed to ensuring our unstinted support to you. We are deeply committed to ensure your resettlement with utmost dignity in society," he said. The commander exhorted all ranks of the Northern Command to be prepared for varied challenges on the internal and external security front.

"The nation looks upon us in times of crises and we have to live up to the hopes and trust reposed on us by our countrymen," he said. Lauding all ranks of the Northern Command for their dedication and devotion to duty in the highest traditions of the Army, Gen Dwivedi conveyed his heartfelt gratitude to the brave men who made the supreme sacrifice while facing adverse situations. He expressed his gratitude to the people of Jammu and Kashmir and Ladakh and the civil administration for their unstinted support and wished for peace and contentment for the people of the regions.

<https://economictimes.indiatimes.com/news/defence/armys-northern-command-in-high-state-of-readiness-to-face-evolving-threats-goc-in-c/articleshow/90220427.cms>



Tue, 15 Mar 2022

Why Russian strikes on Ukraine's Defence industry sites are worrying Indian Navy & IAF

Pictures and videos have surfaced, showing factories of aircraft manufacturer Antonov and gas turbine maker Zorya- Mashproekt on fire in Ukraine due to Russian missile and artillery strikes. The strikes spell trouble for the Indian Navy and the Indian Air Force, though they seem to be insulated for now from the immediate impact of the ever-widening war in Ukraine.

India procures several parts of the Russian systems in use with the armed forces from Ukraine. When the USSR disintegrated, many of its Defence manufacturing hubs remained in Ukraine. The Indian Air Force operates over 100 An-32 aircraft manufactured by Antonio. These transport planes, which form the backbone of the military, are in the final stages of an upgrade.

Similarly, the Indian Navy depends on Zorya-Mashproekt to power many of its surface ships, including the Talwar-class stealth frigates and Delhi-class destroyers.

Sources in the Defence and security establishment said the worry is that while spare parts and other systems are stocked for immediate maintenance and refit cycles, their supply from

Ukraine may be affected in the future. The concern has also been flagged by former Navy chief Admiral Arun Prakash (Retd), who tweeted saying that “given the Indian Navy’s large holdings of Ukrainian marine gas turbines, which power Indian destroyers, frigates and corvettes, this is an opportune moment to seriously consider a Hindustan Aeronautics Limited (HAL)/ Zorya Mashproekt joint venture to manufacture them in India”.

Prakash said India missed the bus when the USSR disintegrated, and both scientists and technology were available for the taking. Sources explained that unlike the IAF, whose dependence on Ukrainian firms is limited to the An-32 and certain missiles, the Navy is heavily dependent. Even for the two Admiral Grigorovich-class guided-missile stealth frigates that are being made for the Indian Navy by a Russian shipyard as part of a \$2.5 billion deal, New Delhi had to first procure gas turbines from Ukraine and hand them over to Russia.

<http://www.indiandefensenews.in/2022/03/why-russian-strikes-on-ukraines-defence.html>



Tue, 15 Mar 2022

With China trying to bail out Russia, challenges and opportunities for India

About a week after Russia’s President Vladimir Putin said his Ukraine invasion was progressing as planned, reports suggest his government has reached out to China for help. This exposes Russia, which has remained a super-power for about a hundred years, including the Soviet era, as it turns to rising super-power of the world, China. The Chinese angle in Russia-Ukraine war or Putin-West conflict throws up certain challenges and also presents some opportunities to India.

The China Post

This move has the potential to force a realignment of forces involved in Russia-Ukraine war. It is reflected in the US’s warning to China of serious consequences if it steps into the war in East Europe to reinforce Russia. The move is, however, also an admission of the inability of Russia to dominate ‘weak’ Ukraine that has received active aid from the West.

China’s entry in the Russia-Ukraine war may tip the scale decisively in favour of Putin, both domestically and internationally. This would widen the ambit of the war something that the US and NATO (North Atlantic Treaty Organization) Europe have been assiduously trying to avoid. It may force NATO countries take a direct role in Ukraine to stave off Russia aided China.

Sensing bigger trouble with China’s participation, US President Joe Biden’s National Security Advisor (NSA) Jake Sullivan warned China’s foreign policy advisor Yang Jiechi in a face-to-face meeting that they held in Rome, Italy.

Such warnings are unusual in international diplomacy. But the seven-hour meeting on Monday between Sullivan and Yang was a little different. On Tuesday, the US military said Russia would exhaust its ammunition to continue its invasion of Ukraine. China, thus, becomes crucial for both Russia and the US-Europe coalition. This is where India becomes the next focus of the West.

Challenges for India

Neutrality in international conflicts has served India well from the days of first Prime Minister Pandit Jawaharlal Nehru to incumbent Narendra Modi. However, this neutrality has not been neutral it was tilted towards Soviet Russia in pre-liberalisation era and closer to the American bloc thereafter. India's recent positioning of neutrality at the United Nations meetings over the Russian invasion of Ukraine has brought relief in the Russian camp but stretched discomfort on the West side. Russia has offered India to purchase its oil at a cheaper rate while the West has exhorted India to speak from the parapet of the democratic West. The West is vehement in putting pressure on India to not support the aggressor backed by a communist authoritarian regime, not even through abstention during a vote in the UN.

Gradually, the West's 'you are either with us or against us' policy is being pushed to bring countries like India. Some action has been seen against Bangladesh for staying neutral in the Russia-Ukraine war in Europe cancellation of Covid-19 vaccine doses to the country.

Experts have warned India that despite its nuanced position at the UN in the Russia-Ukraine war, which essentially is an expansion conflict between Putin and NATO in Europe, it is facing a huge risk. For example, if Russian invasion of Ukraine continues for long, a consequent rise in oil prices might disrupt India's economic recovery severely. India imports more than 80 per cent of its oil requirements. Buying cheaper oil from Russia ignoring the West's sanctions may result in some punitive action against India.

India depends hugely on the Russian weapons and military equipment to keep its forces prepared against two hostile neighbours. If Russia is forced to seek Chinese help to replenish its military essentials within three weeks of its high-stakes war, India is already in a placed precarious situation. Keeping the West in good stead then is prudent for India. But this requires condemning Russia. A Catch-22 situation for the Indian government.

To maintain a neutral portfolio in a highly polarised world may end in the loss of both the worlds for India, experts have warned. However, this is an unlikely result for a country and economy of the size as India's in such an intricately globalised world. Unlike Bangladesh, India is too big to punish. And, unlike China, India is a bigger consuming market than a net supplier exploring markets elsewhere. This is where India's neutrality presents it opportunities.

Opportunity in Crisis

India has not supported Russia if it did not condemn Putin for invading Ukraine, alarming the West. Beyond the ethics and morality of humanity, India has followed the policy of reciprocal diplomacy. The West has not been an automatic India-backer when China invaded its territories, captured its land or changed the status quo along the Line of Actual Control (LAC), and when Pakistan launched wars and proxy war through terrorism, and continued refusing to vacate occupied territories of Jammu and Kashmir, and Ladakh despite the UN resolution declaring that the merger of princely state to India was legal and valid.

The West did not automatically shared India's concerns over infiltration of terrorists and execution of terror attacks in Jammu and Kashmir and other parts of India in a Pakistan-sponsored design. Even terrorists who India sought to be sanctioned were blocked by China and the West did not side with India.

The West, however, woke up to the threat of terrorism only after 9/11 attacks on the US and sought India's support both in its war on terror and subsequent reconstruction of ravaged territories in Afghanistan and elsewhere. India's stand is nuanced and reciprocal.

It is this neutral position of India that makes it a potential mediator between Russia and the West to end the war in Ukraine. India has repeatedly called for ceasefire and to find peace

through talks. PM Modi asked both Putin and Ukraine's President Volodymyr Zelenskyy in his telephonic conversations to hold direct talks to find a solution.

There is more. If China participates in the Russia-Ukraine war to bail out Putin, the US and other NATO countries are likely to retaliate. This would not only prolong the war but also make it truly multi-dimensional. War often ends up in weakening the participants. A weakened China is stronger India given the current equation of the two Asian giants.

<https://www.indiatoday.in/news-analysis/story/china-bail-out-russia-india-ukraine-1925567-2022-03-15>

Science & Technology News



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DST-INSPIRE faculty fellow working on doping techniques for monolayer and bi-layer 2D-semiconductors for future 2D-electronics devices optimization

Dr. Divya Somvanshi, currently working at the Department of Electronics and Telecommunication Engineering (ETCE), Jadavpur University, Kolkata, is a recipient of the INSPIRE Faculty fellowship instituted by the Department of Science & Technology, Govt. of India. As an INSPIRE Faculty fellow, she is working on doping techniques for monolayer and bilayer 2D-semiconductors, doping enhancement using strain engineering, and the effect of stacking order on metal/2D-semiconductor contact that can guide experiments for future 2D-electronics devices optimization.

Due to the continual shrinking of the dimension of transistors, silicon (Si) technology has reached its limit; therefore, new materials systems and device designs have been explored to carry on Moore's law. The exceptional and tunable nature of two-dimensional (2D) semiconductors has opened new possibilities for nano electronics, optoelectronics, and sensors applications. In her current research work, Dr. Divya's group compares oxide doping techniques for monolayer (1L) and bilayer (2L) 2D-semiconductors, which look very promising due to their stability, CMOS compatibility, and high device performance. They have also theoretically studied fundamental insight of the substitutional doping in 2D materials, doping enhancement using strain engineering, and the effect of stacking order on metal/2D-semiconductor contact that can replace or guide experiments for future 2D-electronics devices optimization. The 2L semiconductors are interesting for next-generation electronic device applications due to their additional degree of freedom, such as stacking order.

Her recent work on 2L- Molybdenum diselenide (MoSe₂) suggested that choice of stacking order is very crucial in Au/2L-MoSe₂ contact, which is critical for 2L-Transition metal dichalcogenides (TMDCs) (a new family of 2D nanosheets) based device optimization. This

work has been published in the journal *'Solid State Communications'*. Further, controlled enhancement of doping concentration represents a critical obstacle for fully utilizing 2D materials for the next-generation electronic device. The dopant formation energy (E_{form}) is a critical parameter that primarily influences the doping concentration. In one of her recent works, she is exploring the possibility of enhancing doping concentration by application of mechanical strain in transition metals-doped WSe₂ (Tungsten diselenide) monolayer. This work has been accepted for publication in *'Europhysics Letters'*.

Dr.Divya says, "With the financial assistance from the DST-INSPIRE Faculty project grant, a 2D-Materials Atomistic Simulation Lab has been established in the Department of ETCE, Jadavpur University to carry out research activities and training of the Ph.D. / PG level students. The objective of this Lab is to study and analyze novel properties of 2D materials and their heterostructures- based electronic devices into functional technology, even if their operation is beyond existing paradigms." Along with that, she is also working on an experimental setup for the synthesis of different nanostructures of 2D semiconductors such as quantum dots (QDs), nanosheets, etc., using this fellowship grant.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1806120>



Tue, 15 Mar 2022

ISRO successfully conducts ground test of solid booster stage for SSLV

THE INDIAN Space Research Organisation (ISRO) on Monday successfully completed the ground test of the solid-fuel based booster stage (SS1) of its new Small Satellite Launch Vehicle (SSLV), completing the ground testing of all three stages of the launch vehicle. The new launch vehicle is now ready for its first development flight, which is scheduled for May this year. "The successful test of solid booster stage has given sufficient confidence to proceed with the first developmental flight of SSLV (SSLV-D1), which is scheduled in May 2022. The remaining stages of SSLV i.e. SS2 & SS3 stages have successfully undergone necessary ground tests and are ready for integration," the space agency said in a statement.

The space agency usually declares a launch vehicle operational after two successful development flights. The SSLV was designed to be smaller, cheaper, and quickly assembled for commercial launches on demand. The SSLV is likely to cost R 30 crore as compared to R 120 crore for each Polar Satellite Launch Vehicle (PSLV), which is India's workhorse. It can be assembled by a team of six within seven days in comparison to a team of 600 that takes a couple of months to assemble a PSLV. The launch vehicle will carry smaller payloads of about 500 kg in comparison to 1,750 kg carried by PSLV.

The SSLV launch, which was initially planned for 2020 end, has been repeatedly pushed as the pandemic resulted in fewer missions for ISRO – just four launches in the last two years. The delays, experts say, will result in India losing its global market share. "Companies must have already booked their slots for the first development flight, but the problem is that they have been waiting for long. If the first launch is not followed by quick successive launches of the SSLV, the customers might move to other launch providers. ISRO will have to be ready with the manufacturing and assembly capacity before the first launch itself," said Ajey Lele, senior fellow at Manohar Parrikar Institute for Defence Studies and Analyses.

“There is also a need for ISRO to create a separate launch pad for the SSLV so that quick launches can keep happening. And, the current first and second launch pad at Sriharikota can be used for the other ISRO missions. This will also reduce the turnaround time for SSLV launches.” With the space sector being the domain of the government’s department of space, India accounted for less than 2% of the global space market. After the sector was opened up, the chairperson of the newly created body Indian National Space Promotion & Authorisation Centre (In-Space) meant to regulate private space sector Dr Pawan Goenka said that the aim was to increase the share to 9%.

<https://indianexpress.com/article/india/isro-successfully-conducts-ground-test-of-solid-booster-stage-for-sslv-7820099/>

