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Fri, 02 July 2021 3:12PM

DRDO's Short Span Bridging System-10 m inducted into Indian Army

The first production lot of 12 Short Span Bridging System (SSBS)-10 m, designed and developed by Defence Research and Development Organisation (DRDO), has been inducted into Indian Army by Chief of the Army Staff General MM Naravane during a ceremony held at Cariappa Parade Ground, Delhi Cantt. on July 02, 2021. Secretary Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy was present on the occasion.

The SSBS-10 m plays a crucial role of bridging the gaps up to 9.5 m as a single span providing a 4 m wide, fully decked roadway, ensuring faster movement of the troops. Research & Development Establishment (Engrs) Pune, a premier engineering laboratory of DRDO, has designed and developed the system in association with M/s L&T Ltd. The 12 bridges are part of 102 SSBS-10 m from M/s L&T Ltd, which is the production agency.

The Project Short Span Bridging System involved the development of two prototypes of 5 m SSBS on Tatra 6x6 chassis and another two prototypes of 10 m SSBS on Tatra 8x8 re-engineered chassis. Both the systems have undergone rigorous Directorate General of Quality Assurance (DGQA), MET and User trials and after successful completion of all the trials, the systems were recommended for induction into the services. This bridging system is compatible with Sarvatra Bridging System (75 m), where the last span requires covering gaps less than 9.5 m. The deployed bridge is of the load classification of MLC 70. The system will help in quick movement of troops and enhance the mobilization of resources.

The DRDO has vast experience in developing critical Combat Engineering Systems like Military Bridging Systems. Number of mechanised mobility solutions for the Indian Army like Single Span 5 m and 10 m, Short Span Bridging System, 46 m Modular Bridge, 20 m BLT-T72 and multi span 75 m Sarvatra Bridging System etc. have been developed. Manually launched 34.5 m Mountain Foot Bridge was also developed by DRDO earlier. These bridges have been widely accepted by the Indian Army.

Raksha Mantri Shri Rajnath Singh has congratulated DRDO, Indian Army and the Industry on the successful development and induction of the system. He stated that this induction will give a boost to the fast-growing Indian defence industrial ecosystem and help the industry to contribute towards 'Atmanirbhar Bharat'. Chairman DRDO Dr G Satheesh Reddy congratulated the teams involved in the successful development and induction of this bridging system into the Indian Army.

https://pib.gov.in/PressReleasePage.aspx?PRID=1732250

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 02 July 2021 3:12PM

डीआरडीओ का शॉर्ट स्पैन ब्रिजिंग सिस्टम-10 एम भारतीय सेना में शामिल

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) द्वारा डिजाइन और विकसित 12 शॉर्ट स्पैन ब्रिजिंग सिस्टम (एसएसबीएस) -10 एम के पहले उत्पादन लॉट को दिल्ली कैंट के करियप्पा परेड ग्राउंड में दिनांक 02 जुलाई, 2021 को आयोजित एक समारोह के दौरान सेना प्रमुख जनरल एम एम नरवणे ने भारतीय सेना में शामिल किया है। इस अवसर पर रक्षा अनुसंधान एवं विकास विभाग के सचिव और डीआरडीओ के अध्यक्ष डॉ जी सतीश रेड्डी उपस्थित थे।

एसएसबीएस-10 एम सैनिकों की तेजी से आवाजाही सुनिश्चित करने के लिए 4 एम चौड़ी पूर्ण सड़क प्रदान करता है और 9.5 एम के अंतराल को एक स्पेन से पाटने में एक महत्वपूर्ण भूमिका निभाता है। डीआरडीओ की प्रमुख इंजीनियरिंग प्रयोगशाला अनुसंधान एवं विकास प्रतिष्ठान, पुणे ने मेसर्स एलएंडटी लिमिटेड के सहयोग से इस प्रणाली को डिजाइन और विकसित किया है। यह 12 पुल उत्पादन एजेंसी मेसर्स एलएंडटी लिमिटेड से 102 एसएसबीएस-10 एम का हिस्सा हैं ।

प्रोजेक्ट शॉर्ट स्पैन ब्रिजिंग सिस्टम में टाट्रा 6x6 चेसी पर 5 एम एसएसबीएस के दो प्रोटोटाइप और टाट्रा 8x8 री-इंजीनियर चेसी पर 10 एम एसएसबीएस के अन्य दो प्रोटोटाइप को विकसित करना शामिल था। दोनों प्रणालियों में गुणवत्ता आश्वासन महानिदेशालय (डीजीक्यूए), मौसम और प्रयोक्ता परीक्षणों से गुजरे हैं और सभी परीक्षणों को सफलतापूर्वक पूरा करने के बाद सेवाओं में शामिल करने के लिए इन प्रणालियों की सिफारिश की गई। यह ब्रिजिंग सिस्टम सर्वत्र ब्रिजिंग सिस्टम (75 एम) के साथ फिट हैं, जहां अंतिम स्पेन में 9.5 एम से कम अंतराल को कवर करने की आवश्यकता होती है। तैनात पुल एमएलसी 70 के लोड वर्गीकरण का है। इस प्रणाली से सैनिकों की त्वरित आवाजाही में मदद मिलेगी और संसाधनों की तैनाती बढ़ेगी।

डीआरडीओ को सैन्य ब्रिजिंग सिस्टम जैसे महत्वपूर्ण कॉम्बैट इंजीनियरिंग सिस्टम विकसित करने में व्यापक अनुभव है । भारतीय सेना के लिए मैकेनाइज्ड मोबिलिटी सॉल्यूशंस जैसे सिंगल स्पैन 5 एम और 10 एम, शॉर्ट स्पैन ब्रिजिंग सिस्टम, 46 एम मॉड्यूलर ब्रिज, 20 एम बीएलटी-टी72 और मल्टी स्पैन 75 एम सर्वत्र ब्रिजिंग सिस्टम आदि विकसित किए गए हैं। मैन्युअल रूप से शुरू किया गया 34.5 एम माउंटेन फुट ब्रिज भी डीआरडीओ द्वारा पहले विकसित किया गया था। इन पुलों को भारतीय सेना ने व्यापक रूप से अपनाया है।

रक्षा मंत्री श्री राजनाथ सिंह ने डीआरडीओ, भारतीय सेना और उद्योग को इस प्रणाली के सफल विकास के लिए और शामिल होने पर बधाई दी है। उन्होंने कहा कि इस इंडक्शन से तेजी से बढ़ते भारतीय रक्षा औद्योगिक पारितंत्र को बढ़ावा मिलेगा और उद्योग को 'आत्मनिर्भर भारत' की दिशा में योगदान करने में मदद मिलेगी। डीआरडीओ के चेयरमैन डॉ जी सतीश रेड्डी ने इस ब्रिजिंग सिस्टम का सफल विकास करने और भारतीय सेना में शामिल करने पर टीमों को बधाई दी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1732386

ANI
South Asia's Leading Multimedia News Agency

Sat, 03 July 2021

Induction of new bridges to enhance capability on Pakistan front: Indian Army

By Sahil Pandey

New Delhi: Indian Army Chief General Manoj Mukund Naravane on Friday said the induction of the latest short span bridges will enhance the capabilities of tanks and armoured fighting vehicles on the western front with Pakistan.

"The bridges' induction will increase the capability of the Indian army. We had a five-metre and 15-meter span bridge but 10 meters was always needed. This will full fill the gap. This will enhance the mechanised formation in western front capability and operation speed will also increase," the Army Chief said at the induction of short span bridge event.

Gen Naravane also highlighted that the 10 meters short span bridge is another successful step towards Atmanirbhar Bharat.

"This short span bridge is fully Made in India. Its production has been done by Larsen and Toubro (L&T) and designed by Defence Research and Development Organisation (DRDO). This is another step towards Aatmanirbhar Bharat. This bridge will boost the ability of the Army," the Army Chief added.

At the event, DRDO Chief Dr G Satheesh Reddy revealed that L&T will deliver 30 bridges by August.

"I thank L&T for coming out with these bridging systems in a short span of time. I'm told that by end of August, they will be able to deliver about 30 bridges," Reddy said.

In a major boost for 'Make in India' in defence sector, the Indian Army received the first 12 indigenously developed 10 metre Short Span Bridging systems on Friday. The bridges will help the force overcome geographical obstacles like small rivers and canals in case of operations along the western borders with Pakistan.

The bridges were handed over to the Corps of Engineers by Army Chief General Naravane at Defence Research and Development Organisation in Delhi Cantonment. They are worth over Rs 492 crore.

The system has been designed by Indian Army Engineers along with DRDO and manufactured by Larsen and Toubro Limited within the country.

The bridges being inducted are mechanically launched and capable of carrying tanks upto 70 tons over different types of water obstacles.

The unique feature of the system is its compatibility with existing bridging systems which enhances flexibility to negotiate all types of water obstacles along western borders.

https://www.newindianexpress.com/nation/2021/jul/02/induction-of-new-bridges-to-enhance-capability-of-tanks-armoured-vehicles-on-pakistan-front-indian-2324484.html

ZEEBUSINESS

Sat, 03 July 2021

Made in India! 12 Bridging Systems designed, developed by DRDO-L&T inducted in Indian Army; General MM Naravane says another step towards Aatmanirbhar Bharat

Giving a boost to Prime Minister Narendra Modi's ambitious 'Make in India' and 'Atmanirbhar Bharat campaigns', the Indian Army on Friday inducted 12 indigenously designed and developed Short Span Bridging systems in the Army

Edited By Prashant Singh

Giving a boost to Prime Minister Narendra Modi's ambitious 'Make in India' and 'Atmanirbhar Bharat campaigns', the Indian Army on Friday inducted 12 indigenously designed and developed Short Span Bridging systems in the Army. The advanced bridging systems have been designed by Defence Research and Development Organisation (DRDO) and manufactured by Larsen & Toubro (L&T).

The advanced bridging systems have been designed by Defence Research and Development Organisation (DRDO) and manufactured by Larsen & Toubro (L&T). Source: ANI

"Indian Army inducts the 1st batch of 12 indigenously designed & developed Short Span Bridging systems into the Corps of Engineers," tweeted news agency ANI.

Army Chief General MM Naravane, who was also present during the induction ceremony of short span bridge into Army, said, "This short span bridge is fully Made in India. Its production has been done by L&T & designed by DRDO. This is another step towards Aatmanirbhar Bharat. This bridge will boost the ability of the Army."

Thanking L&T for coming out with these bridging systems in a short span of time, DRDO Chief Dr G Satheesh Reddy said it was developed by DRDO, while the Technoloy transfer was given by Bharat Electronics. "We had developed this system. Trials are underway at Kolar. Bharat Electronics has been given the technology transfer. Discussions are underway regarding further inputs from armed forces. Many pvt companies have also come, they're also being given technology transfer," said Dr G Satheesh Reddy.

He told the news agency that by the end of August, they will be able to deliver about 30 bridges.

Earlier this week, Defence Research and Development Organisation (DRDO) has successfully flight tested a New Generation Nuclear Capable Ballistic Missile Agni P. The DRDO launched the missile from Dr APJ Abdul Kalam Island off the coast of Odisha, Balasore at 1055 hrs on June 28, 2021.

Agni P is a new generation advanced variant of Agni class of missiles. It is a canisterised missile with range capability between 1,000 and 2,000 kms.

https://www.zeebiz.com/india/news-amazing-pics-made-in-india-12-bridging-systems-designed-developed-by-drdo-lt-inducted-in-indian-army-general-mm-naravane-says-another-step-towards-aatmanirbhar-bharat-159817

हिन्दुस्तान

Sat, 03 July 2021

सेना के लिए अब छोटी नदियों और नहरों को पार करना हुआ आसान, DRDO ने तैयार किया रेडिमेड ब्रिज

नई दिल्ली: रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) द्वारा डिजाइन और विकसित 12 शॉर्ट स्पैन ब्रिजिंग सिस्टम (एसएसबीएस) -10 मीटर का पहला उत्पादन लॉट, थल सेना प्रमुख जनरल एमएम नरवने द्वारा भारतीय सेना में शामिल किया गया है। दिल्ली कैंट के करियप्पा परेड ग्राउंड में आयोजित इस कार्यक्रम में रक्षा अनुसंधान एवं विकास विभाग के सचिव और डीआरडीओ के अध्यक्ष डॉ जी सतीश रेड्डी भी उपस्थित थे।

एसएसबीएस-10 मीटर एक सिंगल स्पैन के रूप में 9.5 मीटर तक के अंतराल को पाटने में महत्वपूर्ण भूमिका निभाता है, जो 4 मीटर चौड़ा, पूरी तरह से अलंकृत सड़क मार्ग प्रदान करता है, जिससे सैनिकों की तेज आवाजाही सुनिश्चित होती है। अनुसंधान एवं विकास प्रतिष्ठान (इंजीनियरिंग) पुणे, डीआरडीओ की एक प्रमुख इंजीनियरिंग प्रयोगशाला, ने मेसर्स एलएंडटी लिमिटेड के सहयोग से सिस्टम को डिजाइन और विकसित किया है। 12 पुल मैसर्स एलएंडटी लिमिटेड से 102 एसएसबीएस -10 मीटर का हिस्सा है, जो उत्पादन एजेंसी है।

इन पुलों की मदद से सेना को अब छोटी नदियों और नहरों को पार करने में मुश्किलों का सामना करना नहीं पड़ेगा। ये पुल विशेष रूप से पश्चिमी सीमा पर अधिक मददगार साबित होंगे। इन पुलों को आसानी से एक स्थान से दूसरे स्थान पर ले जाया जा सकता है। इससे सैनिकों की तुरंत तैनाती में मदद मिलेगी।

प्रोजेक्ट शॉर्ट स्पैन ब्रिजिंग सिस्टम में टाट्रा 6x6 चेसिस पर 5 मीटर एसएसबीएस के दो प्रोटोटाइप और टाट्रा 8x8 री-इंजीनियर्ड चेसिस पर 10 मीटर एसएसबीएस के अन्य दो प्रोटोटाइप का विकास शामिल था। दोनों प्रणालियों को गुणवत्ता आश्वासन महानिदेशालय (डीजीक्यूए), एमईटी और उपयोगकर्ता परीक्षणों से गुजरना पड़ा है और सभी परीक्षणों के सफल समापन के बाद, सेवाओं में शामिल करने के लिए सिस्टम की सिफारिश की गई थी। यह ब्रिजिंग सिस्टम सर्वत्र ब्रिजिंग सिस्टम (75 मीटर) के अनुकूल है, जहां अंतिम अवधि में 9.5 मीटर से कम अंतराल को कवर करने की आवश्यकता होती है। तैनात पुल एमएलसी 70 के भार वर्गीकरण का है। यह प्रणाली सैनिकों की त्वरित आवाजाही में मदद करेगी और संसाधनों की गतिशीलता को बढ़ाएगी।

डीआरडीओ के पास सैन्य ब्रिजिंग सिस्टम जैसे महत्वपूर्ण लड़ाकू इंजीनियरिंग सिस्टम विकसित करने का व्यापक अनुभव है। भारतीय सेना के लिए मशीनीकृत गतिशीलता समाधानों की संख्या जैसे सिंगल स्पैन 5 मीटर और 10 मीटर, शॉर्ट स्पैन ब्रिजिंग सिस्टम, 46 मीटर मॉड्यूलर ब्रिज, 20 मीटर बीएलटी-टी 72 और मल्टी स्पैन 75 मीटर सर्वत्र ब्रिजिंग सिस्टम आदि विकसित किए गए हैं। मैन्युअल रूप से लॉन्च किया गया 34.5 मीटर माउंटेन फुट ब्रिज भी डीआरडीओ द्वारा पहले विकसित किया गया था। इन पुलों को भारतीय सेना ने व्यापक रूप से स्वीकार किया है।

रक्षा मंत्री राजनाथ सिंह ने इस प्रणाली के सफल विकास और शामिल होने पर डीआरडीओ, भारतीय सेना और उद्योग जगत को बधाई दी है। उन्होंने कहा कि यह प्रेरण तेजी से बढ़ते भारतीय रक्षा औद्योगिक पारिस्थितिकी तंत्र को बढ़ावा देगा और उद्योग को 'आत्मनिर्भर भारत' की दिशा में योगदान करने में मदद करेगा। डीआरडीओ के अध्यक्ष डॉ जी सतीश रेड्डी ने इस ब्रिजिंग सिस्टम के सफल विकास और भारतीय सेना में शामिल करने में शामिल टीमों को बधाई दी।

https://www.livehindustan.com/national/story-now-it-is-easier-for-the-army-to-cross-small-rivers-and-canals-drdo-has-prepared-ready-made-bridge-4180682.html

Sat, 03 July 2021

DRDO ने बनाया सेना के लिए चलता-फिरता पुल, जानिए इसके बारे में सबकुछ

शॉर्ट स्पैन ब्रिजिंग सिस्टम बहुत ही महत्वपूर्ण सिस्टम होता है। यह सिस्टम 9.5 मीटर की दूरी को भी कवर कर सकता है। इन पुलों की मदद से सेना को अब छोटी नहरों और नदियों को पार करने में मुश्किल नहीं होगी।

चीन के साथ लाइन ऑफ एक्चुअल कंट्रोल (एलएसी) और पाकिस्तान के साथ लाइन ऑफ कंट्रोल (LoC) पर जारी टकराव के बीच सेना को वह 'हथियार' मिल गया है जिसके बाद आसानी से सैनिकों की तैनाती हो सकेगी और साथ ही साथ टैंकों का मूवमेंट आसान हो सकेगा। डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन (DRDO) की तरफ से तैयार शॉर्ट स्पैन ब्रिजिंग सिस्टम (SSBS) को सेना में शामिल कर लिया गया है। सेना प्रमुख जनरल एमएम नरवणे ने राजधानी दिल्ली स्थित करियप्पा परेड ग्राउंड पर 12 ऐसे छोटे ब्रिजों को सेना में शामिल किया। इस मौके पर डीआरडीओ के चेयरमैन जी सतीश रेड्डी भी मौजूद थे।

DRDO को पुलों को तैयार करने में महारत हासिल है।

तुरंत हो सकेगी सैनिकों की तैनाती

शॉर्ट स्पैन ब्रिजिंग सिस्टम बहुत ही महत्वपूर्ण सिस्टम होता है। यह सिस्टम 9.5 मीटर की दूरी को भी कवर कर सकता है। इन पुलों की मदद से सेना को अब छोटी नहरों और नदियों को पार करने में मुश्किल नहीं होगी। दस से बारह मीटर लंबे ये पुल विशेष रूप से देश की पश्चिमी सीमा पर ज्यादा मददगार साबित होंगे। करीब चार मीटर चौड़े इन ब्रिजों को सड़क के रास्ते से तुरंत एक जगह से दूसरी जगह पर ले जाया जा सकेगा। इससे सैनिकों की तुरंत तैनाती में काफी मदद मिलेगी और साथ ही मुश्किल स्थिति में टैंक को भी तुरंत तैनात किया जाएगा।

पुणे स्थित रिसर्च डेवलपमेंट एस्टैब्लिशमेंट (RDE) ने इन पुलों को लार्सन एंड ट्यूब्रो के साथ मिलकर बनाया है। RDE, डीआरडीओ की ही लैब है। रक्षा मंत्री राजनाथ सिंह ने डीआरडीओ, सेना और उद्योग जगत को इसके लिए बधाई दी है। उन्होंने कहा है कि इस उपलब्धि से आत्मनिर्भर भारत अभियान को

बढ़ावा मिलेगा। डॉक्टर सतीश रेड्डी ने भी इस सिस्टम को सेना में शामिल किए जाने पर टीम को बधाई दी है।

70 किलो का बोझ उठाने की क्षमता

प्रोजेक्ट शॉर्ट स्पैन ब्रिजिंग सिस्टम में टाट्रा 6×6 चेसिस पर 5 मीटर एसएसबीएस के दो प्रोटोटाइप और टाट्रा 8×8 री-इंजीनियर्ड चेसिस पर 10 मीटर एसएसबीएस के अन्य दो प्रोटोटाइप को तैयार करना शामिल था। जो पुल सेना को सौंपे गए हैं वो 70 किलो तक का भार उठा सकते हैं। डीआरडीओ के पास सैन्य ब्रिजिंग सिस्टम जैसे महत्वपूर्ण लड़ाकू इंजीनियरिंग सिस्टम विकसित करने का व्यापक अनुभव है।

भारतीय सेना के लिए मशीनीकृत गतिशीलता समाधानों की संख्या जैसे सिंगल स्पैन 5 मीटर और 10 मीटर, शॉर्ट स्पैन ब्रिजिंग सिस्टम, 46 मीटर मॉड्यूलर ब्रिज, 20 मीटर बीएलटी-टी 72 और मल्टी स्पैन 75 मीटर ओवरऑल ब्रिजिंग सिस्टम को भी तैयार किया गया है। मैन्युअली लॉन्च 34.5 मीटर माउंटेन फुट ब्रिज भी डीआरडीओ द्वारा पहले विकसित किया गया था। इन पुलों को भारतीय सेना ने व्यापक रूप से स्वीकार किया है।

https://www.tv9hindi.com/knowledge/indian-army-inducts-short-span-bridging-system-helpful-for-tank-movement-719989.html

INDIA TODAY

Sun, 04 July 2021

Combating the drone menace: India needs to pick up pace with anti-drone measures

In the wake of the drone attack on the Indian Air Force station in Jammu and the fast evolving technology driving these devices, it is important for India to arm itself with effective and up to date anti-drone capabilities to safeguard its interests

By Abhishek Bhalla

New Delhi: Low flying buzzing drones with little or no sound can be a nightmare for security forces as they are difficult to detect and can be tools to carry out destruction. This was most recently seen in the attack on the Indian Air Force Station in Jammu on June 27.

A drone's ability to fly low makes it difficult to be caught by radars. Besides, it produces very little sound while operating, which adds to the stealth that makes its detection a challenge.

Indian Army Chief General MM Naravane has sounded a warning that drones will continue to be used by state and non-state actors. It is in this backdrop that India needs to ramp up its anti-drone capabilities and look for solutions from within and outside to combat the menace.

India saw a small trailer of drone warfare as two bombs were dropped at the high security air force station of Jammu on June 27.

Drone attacks are not new and have been adopted in the past to not just hit military targets, but also civil infrastructure and attack high profile personalities. (Photo: Reuters)

Why anti-drone tech is important

Drone attacks are not new and have been adopted in the past to not just hit military targets, but also civil infrastructure and attack high profile personalities.

Trained eagles, to radio jamming technology and laser beams to bring down drones--the anti-drone warfare is still evolving as the challenges keeps changing with cheaper options of destruction.

Drone attacks are a cheap and easy option for which India needs to be better prepared. Experts feel since use of drones is rapidly growing, technological methods to combat them are also evolving.

Group Captain RK Narang, who has extensively studied challenges of unmanned aerial vehicles (UAVs), says there are many innovators in India but it remains a question why they haven't been indicted so far.

"This is the time we must use existing capabilities and take ownership and make one entity in-charge. If we prioritise, we can achieve deployment of new technologies in a short period," Narang said.

Anshuman Tripathi, a drone technology expert who is also a member of the National Security Advisory Board, says, "Drones are still evolving and solutions to handle them are incomplete. It's a matter of few years when the technology matures and you can standardise equipment as you go forward."

Anti-drone systems developed around the world

Israel's drone dome

Just like Israel's Iron Drome that can detect and neutralise missiles, the Drome Drone is an effective system to take on rouge unmanned aerial vehicles (UAVs) or drones.

Developed by the Isreali company Rafael, the system detects, jams and then shoots down the suspected drone.

A 360-degree radar system allows precise detection followed by visual tracking by the inbuilt camera. The manufacturers describe it as an end-to-end solution for interception and destruction of hostile drones.

Through its jammers or the high-powered laser beams, the drones can be brought down.

One of the biggest challenges for any anti-drone system is to detect small or mini drones that are easily available commercially. The Drone Dome system claims to detect target as small as 0.002 m2, at a distance of 3.5 km, the Rafale website says.

The company claims that the system ensures it does not cause collateral damage because it will not shoot the laser beam till it's 100 per cent locked onto the target.

The system has been operational in Israel since 2019.

SMASH 2000

The SMASH 2000 system is fitted on a rifle and can be used to bring down drones. The Israeli system recognises, tracks and engages targets in the air with precision.

While the Indian Navy has already opted for the Israeli anti-drone Smash rifles, the Jammu attack is a reality check for other forces to bring in similar capabilities to guard against drone attacks.

The Israeli and US forces are among those who are using the system that can track and hunt down multiple targets.

Developed by the Israeli company Sharpshooter, the SMASH system allows any soldier on ground to be equipped with anti-drone capabilities as the system can be easily mounted on rifles.

"Our proprietary target acquisition and tracking algorithms are integrated with sophisticated image-processing software into a rugged hardware solution, providing an easy to use and cost-effective solution," the Israeli company claims on its website.

Drone Hunter

Manufactured in the US, the Drone Hunter can intercept suspicious drones through its sophisticated radars.

"DroneHunter captures and tows away these dangerous or malicious drones with no collateral damage," says the website of Fortem Technologies.

The anti-drone system works in different modes depending on the scenario. In the Pursue Mode, it investigates suspicious drones through its on-board optical cameras.

It has a warning mode, wherein with flashlights it gives out a warning alarm to the threatening drone. In the defense and attack modes, it fires a netgun before capturing and towing away the drones with a net shield that it engages with.

What US Forces approved last year

The US military had drawn out a list of counter-drone technologies last year to meet the new challenges that UAVs pose. It was in January 2020 that the Department of Defence formed a joint Counter-Small Unmanned Aerial System body for identifying and developing the future strategy against drone threats.

The seven approved systems were divided into three categories: (1) Fixed and semi-fixed systems, (2) Dismounted and handheld systems; and (3) Mounted mobile systems.

CORIAN or the Counter Remote Controlled Model Aircraft Integrated Network System comes under the fixed and semi-fixed category that was selected for guarding defence facilities against drone threats. The US Navy has also opted for this system.

"CORIAN is a modular, scalable mission technology system which detects, identifies, tracks, and mitigates Unmanned Aerial System threats using precision-neutralisation techniques that ensure little to no collateral damage to the surrounding radio frequency (RF) spectrum and existing communications," said a press release from the company last year after it was selected for department of defence's mission.

NINJA (Negation of Improvised Non-State Joint Aerial-Threats) has been offered to the US Air Force under the same category.

Amongst the handheld counter-drone technologies in the list is the Dronebuster used by US forces. "With the Dronebuster, the operator can quickly intercept the drone command link and command the drone to descend or go home. All the operators must do is aim the Dronebuster at the drone and pull the trigger," the manufacturer FlexForce claims.

The Smart Shooter that can be used for on conventional rifles is the other approved system under the handheld category for the US forces.

In the mounted category is the Light Mounted Air Defence Integrated System. Termed as the killer drone this is used by the US Marines.

India's options

The Defence Research and Development Organisation (DRDO) has developed an anti-drone technology to detect, intercept and shoot down drones that is undergoing trials.

"It has both soft kill and hard kill capabilities. We are interacting with all security agencies and trying to improve the system. Industry has already taken transfer of technology. Bharat Electronic Limited is the ToT holder. Some more industries are coming forward," said DRDO Chairman G Sateesh Reddy speaking to journalists.

He said the system has been developed and trials are on. "More inputs being taken from armed forces, discussions on to modify it further."

The DRDO had deployed the system last year during events like Republic Day but many feel for a 24x7 monitoring in more hostile territory, the system needs to be further tested.

The system is developed to jam drones up to 3 km and can bring down targets using a laser weapon at targets 1-2 km away.

There are other options from the industry as well that need to be closely studied.

Hyderabad-based Grene Robotics says it has developed India's own drone dome 'Indrajaal' that can guard against drone threats.

https://www.indiatoday.in/india/story/combating-the-drone-menace-india-needs-to-pick-up-pace-with-anti-drone-measures-1823517-2021-07-03

ANI
South Asia's Leading Multimedia News Agency

Sat, 03 July 2021

Our anti-drone technology can prevent Jammu Airbase like attacks: DRDO

New Delhi: The counter-drone technology developed by Defence Research and Development Organisation (DRDO) could help Army swiftly detect and destroy drones that pose a security threat to the country.

Dr Jillelamudi Manjula, Director General-Electronics and Communication Systems, DRDO (Photo/ANI)

As per Dr Jillelamudi Manjula, Director General-Electronics and Communication Systems (ECS), DRDO, the D-4 drone system could detect close-range attacks like the one in Jammu on Sunday that injured two Army jawans.

"D-4 drone system would've detected attack (in Jammu) as its range is over 4 kilometres. The system's aim is to detect rogue drones that are likely to attack most vulnerable places. The system has got multiple sensors and two different counterattacks to destroy the rogue drones," she said.

Dr Manjula further informed that the D-4 drone system is capable of destroying micro-drones by jamming the command and control links and further by damaging the hardware of the drones.

"Prevention can be done by early detection only, so we need to have multiple systems all around our vulnerable areas. We need to detect the drones early," said the DRDO DG. The D-4 drone system was used for security during this year's Republic Day parade at Rajpath.

"It was used during Republic Day security preparation to detect and respond to any suspicious activity or contingency situation. We were continuously monitoring 24X7 those days but fortunately, we didn't find anything suspicious," Dr Manjula further said.

On Sunday, two low-intensity explosions were reported in Jammu Air Force station. One of the blasts caused minor damage to the roof of a building while the other exploded in an open area.

After the attack, Chief General MM Naravane said, "Easy availability of drones definitely increases the complexity and challenges that we have to deal with. We have put in place some measures. We're developing capabilities to deal with the drone threat in both kinetic and non-kinetic realm".

https://theprint.in/defence/drdo-says-its-anti-drone-system-can-help-army-prevent-jammu-airbase-like-attacks/688638/

हिन्दुस्तान

Sat, 03 July 2021

आतंकियों से ही नहीं दुश्मन सेनाओं से भी ड्रोन हमले का खतरा, DRDO के पास 'हथियार' लेकिन आर्मी से दूर

By मदन जैड़ा

नई दिल्ली: आतंकियों के ड्रोन हमले ने जहां सुरक्षा बलों की नींद उड़ा दी है, वहीं इससे भी बड़ा खतरा ड्रोन का दुश्मन देश की सेनाओं के इस्तेमाल को लेकर है। सेना प्रमुख एम. एम. नरवणे ने भी ड्रोन के सेनाओं के इस्तेमाल और युद्ध के बदलते तरीकों की ओर ईशारा करते हुए युद्ध रणनीति बदलने की बात एक दिन पहले कहीं है। लेकिन सबसे बड़ी बात यह है कि सेनाओं एवं सुरक्षा बलों के पास एंटी ड्रोन तकनीक नहीं है।

रक्षा विशेषज्ञों के अनुसार ड्रोन का इस्तेमाल हमले के लिए जब आतंकी कर सकते हैं तो दुश्मन देश की सेनाएं भी कर सकते हैं। चीन पाकिस्तान को ड्रोन दे रहा है। आशंका यह भी जाहिर की गई है कि पाकिस्तान से आतंकियों को ड्रोन दिए जा रहे हैं। ऐसे में पाकिस्तान और चीन के पास भी ड्रोन हमलों की क्षमता है। लेकिन दोहरे मोर्चे पर मौजूद इस संकट के बावजूद सुरक्षा बलों में अभी ड्रोन रोधी तकनीकों की खरीद प्रक्रिया शुरू करने की बात चल रही है।

डीआरडीओ के पूर्व वैज्ञानिक एवं रक्षा विशेषज्ञ रवि गुप्ता कहते हैं कि तैयारियों में देरी हो रही है। डीआरडीओ ने कई साल पूर्व एंटी ड्रोन तकनीक विकसित की है। इसे पिछले साल 15 अगस्त पर प्रधानमंत्री की सुरक्षा में भी तैनात किया गया। यह तीन किसी के दायरे में आने वाले ड्रोन के सिग्नल जाम कर देती है तथा लेजर वैपन के जरिये उसे नष्ट भी कर सकती है। लेकिन सेनाएं इसे खरीदने में दिलचस्पी नहीं दिखा रही हैं। जबकि कई बार इसके डेमो दिए जा चुके हैं। देश में तकनीक होते हुए भी सुरक्षा बलों का उससे वंचित होना कहीं ज्यादा चिंता का विषय है।

सेना प्रमुख नरवेण ने एक दिन पहले ही चिंता जताई है कि ड्रोन का इस्तेमाल नान स्टेट और स्टेट एक्टर दोनों कर सकते हैं। नान स्टेट एक्टर का तात्पर्य आतंकियों एवं स्टेट एक्टर से तात्पर्य सुरक्षा एजेंसियों से है। लेकिन इसके बावजूद हमारी तैयारियां इस दिशा में नहीं के बराबर है। रक्षा जानकारों के अनुसार सिर्फ ड्रोन ही नहीं, नई तकनीकों से युद्ध का स्वरूप बदल रहा है। कृत्रिम बुद्धिमता के तकनीकों का रक्षा क्षेत्र में उपयोग बढ़ रहा है, इसलिए मिलिट्री संसाधनों को नए सिरे से तैयार होने की जरूरत है। ड्रोन हमले का सबसे घातक हथियार के रूप में उभरकर आ रहा है। इसलिए सेनाओं एवं सुरक्षा बलों को हमले के लिए ड्रोन खरीदने भी होंगे और दुश्मन सेनाओं एवं आतंकियों के हमले नाकाम करने के लिए एंटी ड्रोन तकनीक भी तैनात करनी होंगी।

एआई तकनीकों के इस्तेमाल को लेकर 2018 में बनी नेशनल टास्क फोर्स की सिफारिशों पर हालांकि देश में अमल की बात कही जा रही है लेकिन यह अभी यह योजनाएं बनाने के स्तर पर ही है। जमीनी स्तर पर इसमें ज्यादा खास नहीं हुआ है।

https://www.livehindustan.com/national/story-danger-of-drone-attack-not-only-from-terrorists-but-also-from-enemy-forces-drdo-has-weapons-but-away-from-army-4181612.html

FINANCIAL EXPRESS
Read to Lead

Sat, 03 July 2021

Emergency procurement of anti drone technology! Regulation of Defence Research: Keeping the perspective right

To deal with the growing number of drone threats, this system provides the ability to hit any ground or airborne targets and eliminate the threat effectively

By Huma Siddiqui

The recent drone attack at Jammu airbase highlighted multiple shortcomings in India's preparedness to deter emerging innovations in asymmetric warfare. However, it was remarkable to note that some agencies came out publicly to announce that the anti-drone technology is already available within the country and Defence forces are solely responsible for not using them.

The most glaring example here was DRDO (Defence Research and Development Organisation) itself staking the claim that since last one year they have developed the anti-drone technology but it is not being used.

The most glaring example here was DRDO (Defence Research and Development Organisation) itself staking the claim that since last one year they have developed the anti-drone technology but it is not being used.

What did the DRDO Chief say about the Anti Drone System?

Earlier this week as has been reported, DRDO chief G Satheesh Reddy had told the media that the counter-drone technology developed by his organization has the capability to not only swiftly detect, but to also intercept and destroy small drones that pose a security threat. His comments came two days after the first ever drone attacks which had targeted the Jammu Air Force Station.

The DRDO system was first deployed in 2020 during various national events as well as VVIP protection duties, and it was a surprise to note that Armed Forces were not geared with such a system. In expert's view, "in most probability, the anti-drone system may not be meeting the efficacy of the border security."

Sources confirmed that the DRDO had demonstrated its anti-drone technology to different security agencies at the Hindon Air Force station last year in January and at the National Security Guard (NSG) campus in Manesar in August 2020 and January 2021.

And this technology has transferred the technology for the production to Bharat Electronics Limited (BEL). Letters have been sent to the three services informing them about the system which has been developed by the DRDO and its capabilities.

Anti-Drone Technology

However, following the drone attack on June 27, 2021, the armed forces are looking at emergency procurement of anti-drone technology in large numbers. The Border Security Force and the Indian Army are both in discussions with the Israeli company for acquiring Smash-2000.

In the annual presser of the Indian Navy last December, Navy chief Admiral Karambir Singh in response to a media question had said that the Navy was procuring SMASH-2000s as anti-drone equipment to protect against attacking drones.

The Indian Navy in 2020 has already placed an order for an unspecified number of Smash-2000 fire control systems from Israel's Smart Shooter Company. This can be used to counter a drone attack and will also help in improving the accuracy and speed of hitting targets by a soldier. The

order was placed by the Ministry of Defence for SMASH (an electro-optic sight system) 2000 Plus Fire Control Systems. These can be installed on AK-47 and AK 203 rifles.

To deal with the growing number of drone threats, this system provides the ability to hit any ground or airborne targets and eliminate the threat effectively.

Announcements by DRDO and Status

Each year DRDO gets a big chunk from the Defence funds. Yet, DRDO has said on various occasions that the armed forces have not asked for it.

Besides the anti-drone system, Exo-skeleton is another product for which R&D was carried out and the DRDO told Financial Express Online that there had been no order from the Indian Army until 2020. In June 2021, in an email response, DRDO said it is now working on two different types of Exo-skeleton for the Indian Army.

As per Defence experts, "it is usually a case where the R&D equipment proposed is more at the science project level and does not even meet the internal DRDO standards. And, in any case, the trial cycles for R&D items run into multiple years without urgency for delivery, with funding allocation on yearly basis."

The other glaring example is the AIP (Air-Independent Propulsion) for Scorpene class submarines. Before the commissioning of each submarine a Press note from DRDO states that the AIP has been developed and ready to be fitted.

"Unfortunately, a development in the Lab environment requires major re-configuration to make the systems fighting fit and amenable to fitment onboard an aircraft, warship or military hardware. This gap is not easy to patch up and most of the DRDO projects are unable to finally make it to the field exploitation, despite large commitment of resources by the Defence," a senior naval officer had told Financial Express Online in an earlier report.

Institutionalise the procedure of research related announcements

There is an urgent need for the government to institutionalize the procedure of making Research related announcements, especially for items related to National security and medicine (in the present pandemic times).

"DRDO is not a production agency, therefore their announcements should actually be made by those who will be doing the production — DPSU or private industry, after they complete the due trial reports," explained a defence officer on condition of anonymity.

Adding, "At any given time, Armed Forces are always keen to undertake trials of various equipment, systems or subsystems, whether the item meets their immediate or future requirements.

The Armed Forces cannot be seen from the perspective of the Developmental agencies and are already busy handling threats at the National level to give time or importance to unilateral announcements in Defence Research since it is clear that Defence role cannot be seen from a developer's perspective."

https://www.financialexpress.com/defence/emergency-procurement-of-anti-drone-technology-regulation-of-defence-research-keeping-the-perspective-right/2282960/

जागरण

Sat, 03 July 2021

निजी कंपनियां भी बनाएंगी बड़े सैन्य हथियार, डीआरडीओ ने मिसाइल बनाने के लिए निजी कंपनियों को अनुमति दी

कई निजी कंपनियां रक्षा क्षेत्र में उतरेंगी। इससे सैन्य ताकत बढ़ने के साथ निर्यात का रास्ता भी खुलेगा। अभी तक छोटे व बड़े सैन्य हथियारों के कई पुर्जों पर विदेश पर निर्भरता है। अब निजी कंपनियों के साथ मिलकर काम करने पर यह निर्भरता खत्म होगी।

By Akash Dwivedi

कानपुर: सेना के लिए हथियार बनाने में अब निजी कंपनियां भी आगे आ रही हैं। रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) हथियार बनाने के लिए अपनी तकनीक निजी कंपनियों को दे सकता है। डीआरडीओ ने मिसाइल बनाने की अनुमति देकर इसकी पहल कर दी है। हथियारों की गुणवत्ता के मद्देनजर सरकारी व निजी किसी भी फैक्ट्री को अब आर्डर दिए जा सकते हैं।

रक्षा प्रतिष्ठानों के निगमीकरण के बाद कई निजी कंपनियां रक्षा क्षेत्र में उतरेंगी। इससे सैन्य ताकत बढ़ने के साथ निर्यात का रास्ता भी खुलेगा। अभी तक छोटे व बड़े सैन्य हथियारों के कई पुर्जों पर विदेश पर निर्भरता है। अब निजी कंपनियों के साथ मिलकर काम करने पर यह निर्भरता खत्म होगी। निजी कंपनियों को रक्षा क्षेत्र में लाने का उद्देश्य आत्मनिर्भर भारत के तहत घरेलू बाजार को बढ़ाना है। डीआरडीओ के डेवलपमेंट कम प्रोडक्शन पार्टनर प्रोग्राम के तहत निजी कंपनियां मिलकर मिसाइल व अन्य सैन्य उपकरण विकसित करने का काम कर सकती हैं। उल्लेखनीय है कि शहर के कई उद्यमी रक्षा क्षेत्र में बेहतर काम कर रहे हैं। शहर की कंपनी मिनरल आयल कारपोरेशन ने हाल ही में मिसाइलों के लिए मेड इन इंडिया यानी देसी ईंधन बनाया है। ब्रह्मोस मिसाइल के कलपुर्जों के लिए स्वदेशी ग्रीस भी विकसित की है।

आइआइटी खड़कपुर से एमटेक की डिग्री प्राप्त करने वाले उद्यमी मयंक अग्रवाल ने सैनिकों को माइनस 60 डिग्री सेल्सियस तापमान में भी उनके शरीर को सुरक्षा प्रदान करने के लिए स्वदेशी टेक्निकल नायलान फैब्रिक थ्री लेयर सूट बनाया है। उद्यमी विकास अग्रवाल ने माइनस 60 डिग्री में चाय व खाना बनाने के लिए डिफेंस कुकिंग कुकर बनाया है। डीआरडीओ से स्वीकृति मिलने के बाद सेना सियाचिन व लद्दाख क्षेत्र में इसका इस्तेमाल कर रही है। इसके अलावा उन्होंने सैनिकों के बंकर माइनस 40 डिग्री सेल्सियस में गर्म रखने के लिए हिमताप बुखारी बनाई है, जिसका इस्तेमाल भी सेना कर रही है। ऐसे कई उद्यमी हैं, जो रक्षा क्षेत्र में पहले से काम कर रहे हैं। भविष्य में डीआरडीओ व अन्य रक्षा प्रतिष्ठानों के साथ मिलकर यह और बेहतर काम कर सकेंगे।

https://www.jagran.com/uttar-pradesh/kanpur-city-drdo-allows-private-companies-to-make-missiles-21791760.html

The Sentinel
of this land, for its people

Sun, 04 July 2021

Agni P spearheads India's major Naval revamp to deter China

India's demonstration of its intent to build "carrier killer" missiles by test firing the Agni P on Monday is part of New Delhi's energetic effort to prepare for an assertive role in the Indo-Pacific where China is flaunting its military muscle

New Delhi: India's demonstration of its intent to build "carrier killer" missiles by test firing the Agni P on Monday is part of New Delhi's energetic effort to prepare for an assertive role in the Indo-Pacific where China is flaunting its military muscle.

Potentially, the missile would be able to target Chinese aircraft carriers, and blunt their cutting edge in the future. From and Indian perspective this is all the more necessary as Chinese state-run media in the past has argued that Beijing must have six aircraft carriers by 2035.

China's state-run motormouth tabloid, The Global Times had earlier quoted Yin Zhuo, a senior researcher at the People's Liberation Army- Navy (PLAN) Equipment Research Centre as saying that "China needs two carrier strike groups in the West Pacific and two in the Indian Ocean. So, we need at least five to six aircraft carriers," to protect the country's maritime interests.

The daily also paraphrased Xu Guangyu, a senior adviser to the China Arms Control and Disarmament Association, who said that "future" aircraft carrier groups would require access to overseas logistical bases in countries such as Pakistan and Sri Lanka.

Analysts see the Agni-P as an equaliser to the China's DF-21D missiles customised to attack aircraft carriers, up to an 1800 kilometres distance with conventional warheads. China has developed this weapon to undermine the US navy's capacity to dominate the Indo-Pacific on account of its much larger fleet of aircraft carriers-floating airfields which can exercise "sea control". The Chinese have also inducted the sister DF-26B missile in its arsenal. Netizens also call this Intermediate Range Ballistic Missile (IRBM) "Guam express" or "Guam killer" because it can, with its 5000-kilometre range, target the giant US military base of Guam in the Pacific with nuclear warheads.

The Agni P is part of a much larger arsenal that India wants to deploy in the Indo-Pacific region to effectively deter China in the maritime domain.

At the heart of India's new Indo-Pacific defence posture is its submarine fleet, which is being rapidly revamped. The key to refurbished deterrence are the changes to the 30-year submarine plan which was approved in July 1999 under the leadership of former Prime Minister Atal Bihari Vajpayee. The original plan had envisaged induction of 24 diesel attack submarines, the Hindustan Times reported.

But in view of China's military rise and aggressive posturing, the navy, instead, now wants to induct 18 conventional diesel attack submarines including those with air independent propulsion-a technology that makes conventional submarines hard- to- detect because they can stay underwater for much longer periods.

Besides, it also wants to have six nuclear attack submarines or SSNs, which are powered by nuclear engines, but do not deploy atomic weapons. This is a China-centric change in view of Beijing's rapidly expanding nuclear submarine force, which includes Jin class nuclear submarines, deploying Jl-12 Submarine Launched Ballistic Missiles (SLBMs), which have a range of 7,400 km.

Currently, India has leased one Akula class nuclear submarine from Russia, called INS Chakra. It has also inducted INS Arighat, which can fire ballistic missiles. India's Strategic Forces Command (SFC) exercises command and control over these underwater platforms. In fact, it is the SFC that exercises operational control over all ballistic missile firing submarines, also called SSBNs.

In tune with beefing up its submarine arsenal Indi has tested K4 SLBM. The 3,500-km range K4 missile, which can be launched from Arihant class nuclear submarines of which INS Arighat is a part, adds a new dimension to India's second-strike capability-the ability to carry out a retaliatory nuclear attack after absorbing an initial attack by an atomic weapon. The newly acquired heft to carry out a crushing nuclear counterattack with an Intermediate Range Ballistic Missile (IRBM), from a concealed underwater platform, steels India's nuclear deterrent.

The K4's 3,500 km reach, which can cover the entire Pakistan and the industrial heartland of China, helps in providing assured deterrence in the region, which includes the 10-nation Association of SouthEast Asian Nations (ASEAN) and other territories in the West Pacific.

With an eye on China's forays in the Indo-pacific, India also deploys Su-30 multi-role fighter jets at the Thanjavur airbase in Tamil Nadu. Analysts say that with mid-air refuelling, the Sukhoi would bring the Malacca straits, the strategic link between the Indian and the Pacific Ocean within its strike range. Besides, the Su-30 fighters will deploy the deadly BrahMos supersonic cruise missiles-a highly potent joint venture enterprise of India and Russia.-IANS

https://www.sentinelassam.com/national-news/agni-p-spearheads-indias-major-naval-revamp-to-deter-china-545368

The Shillong Times
ESTABLISHED 1945

Sat, 03 July 2021

China takes notice of India's test of 'carrier killer' Agni-P ballistic missile

New Delhi: China has noticed with concern Indias test of its home-grown "aircraft- carrier killer "ballistic missile, Agni-P, which has left Beijing wondering whether New Delhi has found an equaliser to its once feared DF-21 D missile.

The Hong Kong based South China Morning Post (SCMP), while raising the question on whether India's nuclear capable Agni-P medium range ballistic missile test-fired from an island in the Bay of Bengal matches China's DF-21D "aircraft carrier killer" weapon, it has, nevertheless, also sought to underplay its significance.

The daily pointed out that the Agni-P would not be able to target major Chinese cities, Beijing or Shanghai. But citing Indian media reports, it said that the new weapons could, nevertheless, strike enemy armadas in the Indo-Pacific region.

Analysts point out that so far China has self-congratulated itself for developing two unrivalled "aircraft carrier killer" ballistic missiles—the DF-21D and DF-26B. The DF-26D, said to be the world's first anti-ship ballistic missile, can target aircraft carriers within a range of 1800 kilometres with conventional warheads. But the more potent DF-26 B, with a reach of around 5000 kilometres, can attack with atomic warheads. Not only can it target aircraft carrier task forces, it can also strike the US concentration of forces in the island of Guam. Netizens therefore also call the DF-26 B as "Guam killer" or "Guam Express".

But the testing of the Agni-P missile overturns the strategic equation. The Agni-P has a range of between 1,000 and 2,000km (621-1,242 miles). It can be transported on trucks or by rail, greatly increasing its mobility and response time.

The SCMP quoted former PLA instructor Song Zhongping, as saying that the Agni-P "probably does not aim at the big cities of China or Pakistan, but tactical targets like armoured vehicle clusters or airports, for which it could do a better job."

Yet, he did not doubt India's will to turn the Agni-P into its full-fledged "carrier-killer" role. "Hitting a warship with a ballistic missile is a complex systematic project. It takes not only the missile itself, but also many other support systems – such as satellite navigation, terminal target identification, guidance and manoeuvring systems," he said. "I believe India has this demand and willingness to work hard towards this goal, but it will take time."

China has developed the DF-21D and DF26-B to undermine the US domination in the Indo-Pacific region on account of its much larger fleet of aircraft carriers, which can carry out offensive missions and exercise "sea control" in the region.

Unsurprisingly, the US, with the support of Russia, wants these two weapons to be scrapped under a new Intermediate Nuclear Force (INF) treaty, by drawing arms control commitments from China. The previous INF treaty, now defunct, was an arms control agreement between the US and Russia to eliminate all missiles below the range of 5000 kilometres. But with China now developing its own arsenal of intermediate missiles, and a new cold war on the horizon, the US insists that China should also be a party to a new INF treaty.

A conversation of a new INF treaty is likely to be a part of future talks between the US and Russia following last month's meeting between President Joe Biden and his Russian counterpart Vladimir Putin in Geneva.

https://theshillongtimes.com/2021/07/02/china-takes-notice-of-indias-test-of-carrier-killer-agni-p-ballistic-missile/

FINANCIAL EXPRESS
Read to Lead

Sat, 03 July 2021

Indian Railways' big achievement towards sanitation; Equips all passenger coaches with bio-toilets

As many as 73,078 passenger train coaches have been fitted with 2,58,906 bio toilets

By Devanjana Nag

Bio-Toilets in Indian Railways: In line with Prime Minister Narendra Modi's mission of Swacch Bharat, Piyush Goyal-led Indian Railways has fulfilled the pledge of bio toilets in passenger trains. According to the national transporter, 100 per cent of passenger coaches have been fitted with bio toilets. This has ensured that no human waste is discharged from coaches of passenger trains on rail tracks. With this effort of the Railway Ministry, around 2,74,000 litres per day of excreta on rail tracks are being avoided. Indian Railway had said that with this move, human waste led corrosion of rails and fittings costing an amount of Rs 400 crore per annum, is also avoided. As many as 73,078 passenger train coaches have been fitted with 2,58,906 bio toilets.

100 per cent of passenger coaches have been fitted with bio toilets.

Further, the national transporter has planned to supplement the existing system of bio toilet with vaccum flushing system toilet (bio vaccum toilets), which substantially reduces the requirement of water for flushing, while ensuring effective flushing of fecal matter from the pans. According to Indian Railways, bio vaccum toilets have been provided in a total of 1,372 LHB (Linke Hofmann Busch) coaches and also, it has been decided to provide bio vaccum toilets in air-conditioned LHB train coaches. Besides, sanctions for 8,500 coaches are also available, Indian Railways said.

Earlier, the Railway Ministry had said that the Indian Railways Bio-Toilet project is an innovative and indigenous development of technology. According to the ministry, this technology is a first of its kind, that has been used by any rail road in the world for on-board accelerated digestion of human waste. The bio toilets' technology has been innovated, designed and developed under the Modi government's 'Made in India' initiative. It has been created jointly by Indian Railways' engineers and Defence Research and Development Organisation's (DRDO) scientists. The adaption and deployment of the bio toilet technology in large scale has been facilitated by collaboration between RDSO, DRDO and Indian Railways' field units.

https://www.financialexpress.com/infrastructure/railways/indian-railways-big-achievement-towards-sanitation-equips-all-passenger-coaches-with-bio-toilets/2282624/

COVID 19: DRDO's Contribution

THE TIMES OF INDIA

Sat, 03 July 2021

Hyderabad: Laurus Labs gets DRDO licence to make and market 2-DG

By Swati Bhardwaj

Hyderabad: Hyderabad-based pharma player Laurus Labs on Friday said it has received a licence from the Defence Research & Development Organisation (DRDO) for manufacturing and marketing Covid-19 drug 2-Deoxy-D-Glucose (2-DG) in India.

Scientists at Institute of Nuclear Medicine & Allied Sciences (INMAS), a DRDO lab, developed the drug in collaboration with Dr Reddy's for cancer but last year decided to repurpose it for Covid-19. (Representative image)

The company also said it has applied to the Central Drugs Standard Control Organisation (CDSCO) for emergency use authorisation (EUA) for the drug. Dr Reddy's Laboratories, which was the first to tie up with DRDO, has already received an EUA from the Drugs Controller General of India (DCGI) for use of the drug for moderate to severe hospitalised Covid-19 patients.

Scientists at Institute of Nuclear Medicine & Allied Sciences (INMAS), a DRDO lab, developed the drug in collaboration with Dr Reddy's for cancer but last year decided to repurpose it for Covid-19.

The licence to Laurus Labs has been granted by DRDO as part of efforts to make 2-DG affordable and accessible to patients. DRDO had recently invited expression of interest (EoI) from pharma companies for manufacturing this drug.

Dr Reddy's rolled out the drug recently under the 2DG brand at Rs 990 per sachet. The oral drug comes in a powder form in a sachet and has to be taken by dissolving in water. It works by accumulating in virus infected cells and prevents growth of the virus by stopping energy production and viral synthesis.

Meanwhile, Council of Scientific & Industrial Research institution Indian Institute of Chemical Technology (CSIR-IICT) has been licencing the knowhow for 2-DG synthesis to other companies, including Lee Pharma, Suven Pharma, Anthem Biosciences and Nosch Labs.

https://timesofindia.indiatimes.com/city/hyderabad/hyderabad-laurus-labs-gets-drdo-licence-to-make-and-market-2-dg/articleshow/84085099.cms

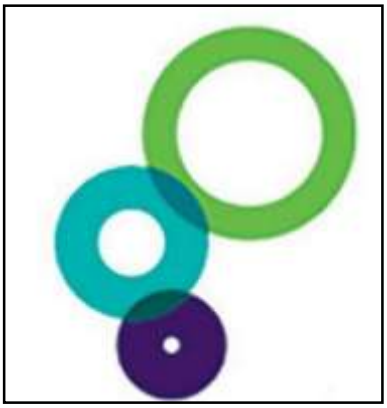
THE HINDU

Sat, 03 July 2021

Laurus Labs gets DRDO licence to make anti-COVID drug 2DG

Drugs Controller General of India (DCGI) had on May 1 accorded emergency approval for use of 2DG on COVID-19 patients

Hyderabad: Drugmaker Laurus Labs has received licence from Defence Research and Development Organisation (DRDO) to manufacture and market 2-Deoxy-D-Glucose (2DG), an oral drug indicated as an adjunct therapy for hospitalised COVID-19 patients.



Announcing this, the company said it has already applied for emergency use authorisation for the product with the Central Drugs Standard Control Organization. The Drugs Controller General of India (DCGI) had on May 1 accorded emergency approval for use of 2DG on COVID-19 patients.

Laurus Labs is among a clutch of companies that have been issued licence to manufacture and market 2-DG, sources said. DRDO had last month invited expression of interest, from pharma companies, offering transfer of technology of the process for manufacturing 2-DG.

Developed by DRDO lab INMAS (Institute of Nuclear Medicine and Allied Sciences), the product during clinical trial showed that the molecule helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence. An official release, issued at the time of DCGI approval, said being a generic molecule and analogue of glucose, 2-DG can be easily produced and made available in plenty in the country.

Dr. Reddy's Laboratories in association with INMAS became the first company to roll out 2-DG. The Hyderabad-based pharma major earlier this week had announced the commercial launch of 2-DG, with the maximum retail price fixed at ₹990 per sachet. The company had said it will be supplied at a subsidised rate to government institutions. Last week, Shilpa Medicare had also announced receipt of an in-principle approval from DRDO for manufacture and sale of 2DG.

Like Shilpa Medicare, Laurus Labs too did not specify the time frame by when it intends to launch 2DG and the price it will set for the product.

https://www.thehindu.com/business/Industry/laurus-labs-gets-drdo-licence-to-make-anti-covid-drug-2dg/article35096318.ece

नवभारत टाइम्स

Sat, 03 July 2021

Coronavirus Drug: यह कंपनी भी बनाएगी कोविड-19 की दवा '2डीजी', मिल गया लाइसेंस

लॉरस लैब्स (Laurus Labs) ने 2डीजी के आपातकालीन उपयोग प्राधिकरण (ईयूए) के लिए केंद्रीय औषधि मानक नियंत्रण संगठन (सीडीएससीओ) के समक्ष पहले ही आवेदन कर दिया है।

नई दिल्ली: Coronavirus Drug: **दवा कंपनी लॉरस लैब्स** (Laurus Labs) **ने शुक्रवार को कहा कि उसे रक्षा अनुसंधान और विकास संगठन** (DRDO) **से कोविड**-19 **की दवा** 2-**डीऑक्सी-डी-ग्लूकोज** (2**डीजी**) **की मैन्युफैक्चरिंग और मार्केटिंग के लिए लाइसेंस मिला है। लॉरस लैब्स ने शेयर बाजार को बताया कि देश में कोविड**-19 **रोगियों के इलाज के लिए भारतीय दवा महानियंत्रक** (**डीसीजीआई**) **ने** 2**डीजी के आपातकालीन उपयोग की इजाजत दी है।**

कंपनी ने बताया, ''लॉरस लैब्स ने 2**डीजी के आपातकालीन उपयोग प्राधिकरण** (**ईयूए**) **के लिए केंद्रीय औषधि मानक नियंत्रण संगठन** (**सीडीएससीओ**) **के समक्ष पहले ही आवेदन कर दिया है।'' इससे पहले डॉ रेड्डीज ने** 28 **जून को** 990 **रुपये प्रति पाउच के अधिकतम खुदरा मूल्य पर** 2**डीजी को बाजार में उतारने की घोषणा की थी।**

https://navbharattimes.indiatimes.com/business/business-news/laurus-labs-gets-license-from-drdo-for-manufacturing-marketing-of-kovid-19-drug-2dg/articleshow/84062738.cms

हिन्दुस्तान

Sat, 03 July 2021

डीआरडीओ लगाएगा छावनी अस्पताल में ऑक्सीजन प्लांट

- *प्लांट की क्षमता 450 लीटर प्रति मिनट ऑक्सीजन उत्पादन का रहेगी*
- *अस्पताल के 60 बेड को मिलेगी सीधे पाइप से ऑक्सीजन*
- *संस्था की टीम ने किया सर्वे*

लखनऊ:छावनी क्षेत्र के लोगों को कोरोना की तीसरी लहर से बचाने के लिए छावनी परिषद अस्पताल में ऑक्सीजन उत्पादन प्लांट लगेगा। इसकी क्षमता 450 लीटर प्रति मिनट होगी। डीआरडीओ की टीम ने शुक्रवार को छावनी अस्पताल का निरीक्षण किया। जल्द ही प्लांट लगाने की कार्रवाई शुरू होने की उम्मीद है।

छावनी क्षेत्र के लोगों के लिए छावनी परिषद अस्पताल ही एक मात्र सहारा है। लगभग 40 हजार आबादी इसी अस्पताल पर निर्भर है। इसे अब ऑक्सीजन की क्षमता से युक्त किया जाएगा। लिक्विड ऑक्सीजन के बजाए ऑक्सीजन उत्पादन प्लांट लगाया जाएगा जिससे ऑक्सीजन सिलेंडर का झंझट न रहे। पीएम केयर फंड से यहां ऑक्सीजन उत्पादन प्लांट लगाने का फैसला हुआ है। इससे यहां पर 60 बेड को पर्याप्त ऑक्सीजन हर वक्त उपलब्ध रहेगी। ऑक्सीजन प्लांट लगाने का जिम्मा डीआरडीओ को दिया गया है।

बढ़ रहीं सुविधाएं

छावनी अस्पताल में सुविधाओं में लगातार वृद्धि हो रही है। यहां पर विशेषज्ञ चिकित्सकों की ओपीडी शुरू हो चुकी है। लगभग हर तरह की बीमारियों का इलाज शुरू हो गया है। छावनी परिषद के सीईओ विकास कुमार ने कहा कि छावनी के लोगों को इलाज की बेहतर सुविधाएं देने का प्रयास है। ऑक्सीजन प्लांट लगने से कोरोना की तीसरी लहर में बड़ी सुविधा मिल सकेगी। ऑक्सीजन के लिए इंतजार नहीं करना पड़ेगा।

https://www.livehindustan.com/uttar-pradesh/lucknow/story-drdo-will-set-up-oxygen-plant-in-cantonment-hospital-4181499.html

Sat, 03 July 2021

अच्छी खबर: सिवान सदर अस्पताल में ऑक्सीजन प्लांट लगाने का काम शुरू, DRDO इंस्टॉल करेगा प्लांट

सिविल सर्जन ने बताया कि भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (NHAI) द्वारा अस्पताल में प्लांट बनवाने का कराया जा रहा है। जबकि प्लांट को रक्षा अनुसंधान एवं विकास संगठन (DRDO) द्वारा इंस्टॉल किया जाएगा।

By कैलाश कश्यप

सिवान: कोरोना संक्रमण की दूसरी लहर के दौरान अस्पतालों में हुई मेडिकल ऑक्सीजन की कमी से सीख लेते हुए सिवान सदर अस्पताल में ऑक्सीजन प्लांट लगाने का काम शुरू किया गया है। ऑक्सीजन प्लांट लग जाने के बाद सिवान और आस-पास के जिलों के मरीजों को ऑक्सीजन की कमी नहीं होगी।

अस्पताल की तस्वीर

पीएम केयर फंड से लगाया जा रहा है प्लांट

इस संबंध में सिविल सर्जन यदुवंश कुमार शर्मा ने बताया कि पीएम केयर फंड से अस्पताल में ऑक्सीजन प्लांट लगाया जा रहा है। इस प्लांट की क्षमता 1000 लीटर प्रति मिनट होगी, जिससे प्रतिदिन 500 ऑक्सीजन सिलेंडर भरे जा सकेंगे। उन्होंने बताया कि सिवान सदर अस्पताल के अलावा महाराजगंज अनुमंडल अस्पताल में भी एक ऑक्सीजन प्लांट स्थापित किया जा रहा है, जिसकी क्षमता 500 लीटर प्रति मिनट होग, जिससे प्रतिदिन 250 सिलेंडर भरे जा सकेंगे।

डीआरडीओ इंस्टॉल करेगा प्लांट

सिविल सर्जन ने बताया कि भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (NHAI) द्वारा अस्पताल में प्लांट बनवाने का कराया जा रहा है। जबकि प्लांट को रक्षा अनुसंधान एवं विकास संगठन (DRDO) द्वारा इंस्टॉल किया जाएगा। जुलाई के अंतिम सप्ताह तक काम पूरा करने का लक्ष्य है। लेकिन ऑक्सीजन के लिए अभी भी इंतजार करना पड़ेगा क्योंकि सदर अस्पताल के पुराने भवन को तोड़कर नये भवन का निर्माण होना है। उसके बाद ही प्लांट में काम शुरू हो पाएगा।

पहले ही दिन से मिलने लगेगा ऑक्सीजन

उन्होंने बताया कि सिवान के महाराजगंज अनुमंडल अस्पताल में ऑक्सीजन प्लांट के इंस्टॉल होने के दिन से ऑक्सीजन मिलना शुरू हो जाएगा क्योंकि वहां हाल ही में नए भवन का निर्माण हुआ है, जो आधुनिक सुविधाओं से लैस है। उन्होंने कहा कि कोरोना की दूसरी लहर में हुई ऑक्सीजन की कमी से सबक लेते हुए ऑक्सीजन प्लांट लगाया जा रहा है। तीसरी लहर आने के पहले ही यह कार्य करने लगेगा, जिससे ऑक्सीजन की दिक्कत नहीं होगी।

https://www.abplive.com/states/bihar/good-news-oxygen-plant-installation-work-started-in-siwan-sadar-hospital-ann-1935223

अमर उजाला

Sun, 04 July 2021

सीएचसी मोतीपुर में डीआरडीओ के कर्मचारी लगाएंगे ऑक्सीजन प्लांट

बहराइच: सामुदायिक स्वास्थ्य केंद्र मोतीपुर में डीआरडीओ की ओर से ऑक्सीजन प्लांट लगाया जाएगा। पीएम केयर फंड से 250 एलपीएम का ऑक्सीजन प्लांट स्थापित किया जाएगा। इसके लिए जिला प्रशासन द्वारा वार्ता की जा रही है। प्लांट स्थापना के लिए एनएचएआई की ओर से परिसर में फाउंडेशन का निर्माण किया जाएगा। 10 जुलाई से निर्माण शुरू होने की संभावना है। प्लांट स्थापना से 50 बेड तक ऑक्सीजन आसानी से पहुंच सकेगा।

कोरोना संक्रमण की दूसरी लहर जिले में मार्च माह में शुरू हुई। देखते ही देखते अप्रैल माह में काफी संक्रमित आने लगे। कोरोना संक्रमितों में ऑक्सीजन की काफी कमी सामने आ रही थी। इसको देखते हुए जिला प्रशासन ने शासन को पत्र लिखा था। मुख्य चिकित्साधिकारी डॉ. राजेश मोहन श्रीवास्तव ने बताया कि शासन की संस्तुति पर मोतीपुर सीएचसी में ऑक्सीजन प्लांट की स्थापना के लिए हरी झंडी मिली है। उन्होंने बताया कि पीएम केयर फंड से डीआरडीओ ऑक्सीजन प्लांट की स्थापना करेगा। इसके लिए सामुदायिक स्वास्थ्य केंद्र परिसर में जमीन चिन्हित कर ली गई है। सीएमओ ने बताया कि एनएचएआई की ओर से सीएचसी परिसर में प्लांट के लिए फाउंडेशन बनाया जाएगा। मुख्य चिकित्साधिकारी के मुताबिक 250 एलपीएम का ऑक्सीजन प्लांट स्थापित होगा। जिससे क्षेत्र के मरीजों को ऑक्सीजन के लिए भटकना नहीं पड़ेगा। उन्होंने बताया कि लगभग 10 जुलाई के बाद से फाउंडेशन निर्माण शुरू हो जाएगा। इसके बाद डीआरडीओ के कर्मचारी सीएचसी अस्पताल पहुंचकर ऑक्सीजन प्लांट की स्थापना करेंगे। ऑक्सीजन प्लांट स्थापना के लिए पत्राचार भी चल रहा है।

उप स्वास्थ्य सूचना व शिक्षा अधिकारी बृजेश सिंह ने बताया कि मोतीपुर सीएचसी में 50 बेड तक ऑक्सीजन पहुंचेगा। जिसमें 10 बेड बाल मरीजों के लिए व 40 बेड बड़े लोगों के लिए आरक्षित किया गया है। जिससे ऑक्सीजन के अभाव में मरीजों को भटकना पड़े।

मोतीपुर सामुदायिक स्वास्थ्य केंद्र के अधीक्षक डॉ. अनुराग वर्मा ने बताया कि सीएचसी परिक्षेत्र और आबादी के हिसाब से प्रदेश की सबसे बड़ी स्वास्थ्य केंद्र है। यहां पर ऑक्सीजन प्लांट के लिए सात मीटर चौड़ाई और 10 मीटर लंबाई की जमीन चिन्हित हुई है। एनएचएआई के कर्मचारियों से वार्ता हो रही है। जल्द ही फांडेशन निर्माण शुरू हो जाएगा।

पीएम केयर फंड से मोतीपुर सीएचसी में ऑक्सीजन प्लांट की स्थापना तीसरे चरण में होगी। द्वितीय चरण में बाराबंकी और श्रावस्ती में प्लांट की स्थापना हो रही है। इसके बाद तीसरे चरण में मोतीपुर में प्लांट की स्थापना की जाएगी। इसकी तैयारी पूरी है।

- डॉ. राजेश मोहन श्रीवास्तव, सीएमओ

https://www.amarujala.com/uttar-pradesh/bahraich/bahraich-bahraich-news-lko5853332118

जागरण

Sun, 04 July 2021

कोरोना संक्रमण की तीसरी लहर के लिए तैयार होने लगा जम्मू कश्मीर

मेडिकल कालेजों में जहां बच्चों के लिए पेडियाट्रिक वेंटीलेटर लगाए जा रहे हैं। वहीं डीआरडीओ अस्पताल जम्मू में भी बच्चों के इलाज के लिए विशेष सुविधा तैयार होगी। इसमें बच्चों के लिए 25 बेड अलग से लगाए जाएंगे। इसके लिए इन दिनों तैयारी चल रही है।

By Lokesh Chandra Mishra, रोहित जंडियाल

जम्मू: कोरोना की संभावित तीसरी लहर के लिए जम्मू-कश्मीर तैयार होने लगा है। अस्पतालों में बच्चों के इलाज के लिए सुविधाएं बढ़ाई जाने लगी हैं। मेडिकल कालेजों में जहां बच्चों के लिए पेडियाट्रिक वेंटीलेटर लगाए जा रहे हैं। वहीं डीआरडीओ अस्पताल जम्मू में भी बच्चों के इलाज के लिए विशेष सुविधा तैयार होगी। इसमें बच्चों के लिए 25 बेड अलग से लगाए जाएंगे। इसके लिए इन दिनों तैयारी चल रही है।

कोरोना की संभावित तीसरी लहर में बच्चों और गर्भवती महिलाओं के अधिक संक्रमित होने की आशंका जताई जा रही है। इसे देखते हुए स्वास्थ्य एवं चिकित्सा शिक्षा विभाग किसी भी तरह की लापरवाही नहीं बरतना चाहते हैं। जम्मू संभाग के तीन नए मेडिकल कालेजों कठुआ, राजौरी और डोडा में दो-दो पेडियाट्रिक वेंटीलेटर लगाए जा रहे हैं। वहीं गांधीनगर के जच्चा-बच्चा अस्पताल में भी पेडियाट्रिक वेंटीलेटर लगाए जा रहे हैं। इसके अलावा श्री महाराजा गुलाब सिंह अस्पताल के लिए दस पेडियाट्रिक वेंटीलेटर खरीदे गए हैं। इसके अलावा बीस और पेडियाट्रिक वेंटीलेटर खरीदे जा रहे हैं।

इन अस्पतालों के अलावा जम्मू के भगवती नगर में डिफेंस रिसर्च और डेवलपमेंट आर्गेनाइजेशन की ओर से तैयार किए गए पांच सौ बिस्तरों की क्षमता वाले कोविड अस्पताल में भी 25 बिस्तर बच्चों के लिए होंगे। श्रीनगर के डीआरडीओ अस्पताल में पहले से ही 25 बिस्तर बच्चों के इलाज के लिए बनाए गए हैं। जम्मू के कोविड अस्पताल में यह व्यवस्था नहीं थी। इस कारण अब इस अस्पताल में भी बदलाव होगा। इसके अलावा जिला स्तर पर बच्चों के इलाज के लिए सुविधाएं तैयार की जा रही है।

हर जिला अस्पताल के लिए एक-एक पेडियाट्रिक बाइपेप मशीन लगाने का प्रस्ताव है। इसके लिए मेडिकल सप्लाई कारपोरेशन को लिखा भी गया है। स्वास्थ्य निदेशक जम्मू डा. रेनू शर्मा का कहना है कि सुविधाओं का विस्तार तो जिला स्तर पर हो ही रहा है। अगर किसी भी अस्पताल में कोई मरीज आता है तो उसका वहीं पर इलाज संभव हो, इसके लिए तैयारियां की जा रही है। इसी को देखते हुए हर जिला अस्पताल में एक पेडियाट्रिक बाइपेप मशीन भी लगाई जाएगी। स्टाफ को प्रशिक्षित किया जा रहा है ताकि अगर किसी मरीज को हाई फ्लो आक्सीजन की जरूरत पड़े तो कोई भी परेशानी न हो। उन्होंने कहा कि विभाग का पूरा प्रयास है कि मरीजों को बेहतर सुविधाएं मिले।

वहीं न्यू मेडिकल कालेज के डायरेक्टर और जम्मू-कश्मीर मेडिकल सप्लाई कारपोरेशन के प्रबंध निदेशक डा. यशपाल शर्मा का कहना है कि नए मेडिकल कालेजों में पेडियाट्रिक वेंटीलेटर लगाए जा रहे हैं। उन्होंने कहा कि इससे बच्चों की बेहतर देखभाल होगी। अन्य अस्पतालों में भी वेंटीलेटर लगाए जा रहे हैं।

https://www.jagran.com/jammu-and-kashmir/jammu-jammu-and-kashmir-started-getting-ready-for-the-third-wave-of-corona-infection-21796039.html

जागरण

Sat, 03 July 2021

डीआरडीओ का आक्सीजन प्लांट पहुंचा काशीपुर

कोरोना की तीसरी लहर की तैयारियों को लेकर काशीपुर के अस्पतालों में तैयारी पूरी हो गई है।

काशीपुर: कोरोना की तीसरी लहर की तैयारियों को लेकर अस्पतालों में ऑक्सीजन की कमी को दूर करने के लिए डीआरडीओ की तरफ से आक्सीजन प्लांट शुक्रवार को यहां पहुंच गया। प्लांट से प्रति मिनट 500 लीटर उत्पादन हो सकेगा। इसके लिए स्थानीय स्तर पर सभी तैयारियां पूरी कर ली गई है। भवन तैयार हो गया है जबकि बिजली सप्लाई के साथ-साथ पाइपलाइन की व्यवस्था शुरू कर दी गई। आगामी दो-तीन दिन में प्लांट सुचारू कर दिया जाएगा।

प्रदेश सरकार कुमाऊं के प्रमुख शहरों रुद्रपुर, खटीमा, हल्द्वानी आक्सीजन प्लांट लगा रही है। काशीपुर में इसकी स्वीकृति मिलने के बाद 15 मई से स्थानीय स्तर पर जरूरी निर्माण शुरू कर दिया गया। सीएमएस पीके सिन्हा ने बताया कि इस प्लांट से 100 बेड पर एक साथ पाइपलाइन के जरिये सीधे आपूर्ति दी जा सकेगी। प्लांट पांच एलपीएम की प्रवाह दर पर 100 रोगियों को आक्सीजन देने में सक्षम होगा।

https://www.jagran.com/uttarakhand/udhamsingh-nagar-drdo-chr39-s-oxygen-plant-reached-kashipur-21793529.html

The Tribune

Mon, 05 July 2021

Karnal CHCs to have Oxygen plants

Karnal**:** Amid the fear of a third wave of Covid, the Health Department has decided to establish oxygen plants at all community health centres (CHC) in the district.

Civil Surgeon, Karnal, Dr Yogesh Sharma said in the first phase, two oxygen plants would be set up at the Gharaunda and Assandh CHCs under the CSR initiative by two private companies. Another plant would be established at the Nilokheri CHC by the DRDO. There are a total of eight CHCs in the district. The remaining would be covered in the second phase.

Besides, each bed at the CHCs would have oxygen supply. A budget for the same had also been sanctioned by the state government, he said.

The Civil Surgeon said the PWD (electrical) division had been entrusted with the installation of oxygen gas manifolds.

He said at present, the Covid situation was under control in the district and only one case was reported on Tuesday. In the past week, the positivity rate had fallen to less than 1 per cent from 30 per cent during the peak days of the second wave.

https://www.tribuneindia.com/news/haryana/karnal-chcs-to-have-oxygen-plants-278382

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Sun, 04 July 2021 12:35PM

Chief of Army Staff proceeds on a visit to the United Kingdom and Italy

General MM Naravane, the Chief of Army Staff (COAS) has proceeded on a visit to the United Kingdom and Italy from 05 to 08 July 2021. During the four day visit, he will be meeting his counterparts and senior military leaders of these countries with an aim of enhancing India's defence cooperation.

Visit to United Kingdom is scheduled for two days (05 and 06 July 2021) during which the COAS will interact with the Secretary of State for Defence, Chief of Defence Staff, Chief of General Staff and other dignitaries. He will also be visiting various army formations where he will exchange ideas on issues of mutual interest.

During the second leg of his tour (07 and 08 July 2021), the Army Chief will be holding important discussions with the Chief of Defence Staff and Chief of Staff of the Italian Army. Additionally, the COAS will also inaugurate the Indian Army Memorial in the famous town of Cassino and will be briefed at the Italian Army's Counter IED Centre of Excellence at Cecchingola, Rome.

https://pib.gov.in/PressReleasePage.aspx?PRID=1732598

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Sun, 04 July 2021 12:35PM

थल सेना प्रमुख यूनाइटेड किंगडम और इटली की यात्रा पर रवाना

सेना प्रमुख (सीओएएस) जनरल एम. एम. नरवणे दिनांक 05 से 08 जुलाई 2021 तक यूनाइटेड किंगडम और इटली की यात्रा पर रवाना हुए हैं। चार दिवसीय यात्रा के दौरान वह भारत से रक्षा सहयोग बढ़ाने के मकसद से इन देशों के अपने समकक्षों और वरिष्ठ सैन्य नेताओं से मुलाकात करेंगे।

यूनाइटेड किंगडम की यात्रा दो दिन (05 और 06 जुलाई 2021) के लिए निर्धारित है, जिसके दौरान सेना प्रमुख वहां के रक्षा सचिव, रक्षा प्रमुख, चीफ ऑफ जनरल स्टाफ एवं अन्य गणमान्य व्यक्तियों के साथ बातचीत करेंगे। वह सेना के विभिन्न फॉर्मेशन्स का भी दौरा करेंगे जहां वह आपसी हित के मुद्दों पर वैचारिक आदान-प्रदान करेंगे।

अपने दौरे के दूसरे चरण (दिनांक 07 और 08 जुलाई, 2021) के दौरान सेना प्रमुख इटली के रक्षा प्रमुख यानी सीडीएस और सेना के चीफ ऑफ स्टाफ के साथ महत्वपूर्ण विचार-विमर्श करेंगे। इसके अतिरिक्त सेना प्रमुख प्रसिद्ध शहर कैसिनोमें भारतीय सेना के स्मारक का भी उद्घाटन करेंगे और रोम के सेचिंगोला में इतालवी सेना के काउंटर आईईडी सेंटर ऑफ एक्सीलेंस में उन्हें जानकारी प्रदान की जाएगी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1732605

Press Information Bureau
Government of India

Ministry of Defence

Fri, 02 July 2021 9:11PM

Indian Naval Ship (INS) Sarvekshak Departs Colombo on completion of survey assistance

Indian Navy's Hydrographic Survey Ship Sarvekshak successfully completed survey action around the site of ill-fated MV X-Press Pearl on 02 July and handed over the survey data to the Sri Lankan authorities. The ship equipped with the state of the art survey equipment including the Side Scan Sonar, was deployed on 25 June at the request of Government of Sri Lanka.

The survey operations in three search areas around the wreck was progressed in coordination with Sri Lanka Navy and Sri Lanka's National Aquatic Resources Research and Development Agency (NARA). The ship undertook a total of 807 miles of Side Scan Sonar survey and identified 54 prominent underwater debris from MV X-Press Pearl and also one additional uncharted wreck. The survey of the wreckage area would facilitate issuance of advisory to both mariners and fishermen, and subsequent removal of debris by Sri Lankan authorities, thereby ensuring safety of navigation for marine traffic operating through Colombo port.

INS Sarvekshak, is based at Southern Naval Command at Kochi and is fitted with state-of-the-art survey equipment like Deep Sea Multibeam echo sounder system, Side Scan Sonar, Sound Velocity Profilers, and a fully automated digital surveying and processing system. In addition, the ship carries a Chetak helicopter which was extensively deployed during the survey for aerial recce. In the past, INS Sarvekshak has also undertaken foreign cooperation surveys in Sri Lanka, Mauritius, Seychelles, Tanzania and Kenya.

India and Sri Lanka share a strong bond and partnership, and this survey operation undertaken has been another milestone in strengthening cooperation and understanding between the two countries and reinforcing the shared values.

https://pib.gov.in/PressReleasePage.aspx?PRID=1732390

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 02 July 2021 9:11PM

भारतीय नौसेना का जहाज (आईएनएस) सर्वेक्षक सर्वे सबंधी सहायता का कार्य पूरा कर कोलंबो से रवाना

भारतीय नौसेना के हाइड्रोग्राफिक सर्वेक्षण जहाज सर्वेक्षक ने दिनांक 02 जुलाई को खराब एमवी एक्स-प्रेस पर्ल जहाज़ के स्थान के आसपास सर्वेक्षण का कामकाज सफलतापूर्वक पूरा किया और श्रीलंकाई अधिकारियों को सर्वेक्षण के आंकड़े सौंपे। साइड स्कैन सोनार सहित अत्याधुनिक सर्वेक्षण उपकरणों से लैस इस जहाज को श्रीलंका सरकार के अनुरोध पर दिनांक 25 जून को तैनात किया गया था।

मलबे के आसपास के तीन खोजबीन क्षेत्रों में सर्वेक्षण अभियान श्रीलंकाई नौसेना और श्रीलंका की राष्ट्रीय जलीय संसाधन अनुसंधान और विकास एजेंसी (नारा) के समन्वय से चलाया गया। जहाज ने साइड स्कैन सोनार सर्वेक्षण के कुल 807 मील की दूरी तय की और पानी के अंदर एमवी एक्स-प्रेस पर्ल के 54 मुख्य मलबे और एक अतिरिक्त अज्ञात मलबे की भी पहचान की। मलबे वाले क्षेत्र का सर्वेक्षण करने से नाविकों और मछुआरों दोनों को परामर्श जारी करने में और बाद में श्रीलंकाई प्राधिकारियों द्वारा मलबा हटाने में आसानी होगी, जिससे कोलंबो बंदरगाह से संचालित समुद्री यातायात के लिए नौवहन की सुरक्षा सुनिश्चित होगी।

आईएनएस सर्वेक्षक कोच्चि में दक्षिणी नौसेना कमान के अंतर्गत आने वाला जहाज़ है और इसमें डीप सी मल्टीबीम इको साउंडर सिस्टम, साइड स्कैन सोनार, साउंड वेलोसिटी प्रोफाइलर्स और एक पूरी तरह से स्वचालित डिजिटल सर्वेक्षण और प्रसंस्करण प्रणाली जैसे अत्याधुनिक सर्वेक्षण उपकरण लगे हुए हैं। इसके अलावा जहाज में चेतक हेलीकॉप्टर होता है जिसे हवाई टोह के लिए सर्वेक्षण के दौरान बड़े पैमाने पर तैनात किया गया था। पूर्व में आईएनएस सर्वेक्षक ने श्रीलंका, मॉरीशस, सेशेल्स, तंज़ानिया और केन्या में विदेशी सहयोग सर्वेक्षण भी किए हैं।

भारत और श्रीलंका के बीच एक मजबूत संबंध एवं साझेदारी है और दोनों देशों के बीच सहयोग और समझ को मजबूत करने और साझा मूल्यों को सुदृढ बनाने में शुरू किया गया यह सर्वेक्षण अभियान एक और मील का पत्थर रहा है।

https://pib.gov.in/PressReleasePage.aspx?PRID=1732455

THE TIMES OF INDIA

Sat, 03 July 2021

India to retaliate at a time, place of its choosing: CDS Rawat on drone attacks

By Rajat Pandit

New Delhi: India will strongly retaliate at a time and place of its choosing if Pakistan attempts to use drones or indulges in `hybrid warfare' of any kind to target Indian civilian or military assets, chief of defence staff General Bipin Rawat warned on Friday.

Investigative agencies are probing whether the small explosive-laden drones used in the terror attack on the Jammu air force station on June 27 were launched from Pakistan or from within the region, and whether the intent was to deliver a message of a new capability or actually cause damage on the ground, said Gen Rawat.

"We do not yet know the ultimate intention. But let them (Pakistan) attempt to do something to damage our assets, and the reaction from our armed forces will be very different. The political will is there. Our armed forces are ready," he said, speaking at a webinar here.

"A strong message has to be sent that anything of this nature, grey-zone tactics or hybrid warfare, if it damages our assets and affects our national security, we reserve the right to respond at a time and place of our choosing and the manner in which we wish to respond," he added.

Referring to the border truce with Pakistan since February, the CDS said the mere stopping of cross-border firing on the Line of Control was not enough. "If you (Pakistan) are going to use indirect systems to disrupt harmony and cause damage, it amounts to a violation of the ceasefire," he said.

Air Chief Marshal R K S Bhadauria, on his part, said IAF did have a limited number of "soft kill" jammers to disrupt the command-and-control links of small drones and "hard kill" counter-drone systems but they had not been deployed at the Jammu air station because it did not have "critical assets" like fighter jets.

"What happened at Jammu was essentially a terrorist act which attempted to target our assets (Mi-17 V5 helicopters) there. The attempt failed. Two explosives, one HE (high explosive) in nature and the other fragmentation, were used," said the IAF Chief.

IAF is closely working with DRDO on its anti-drone systems, which have directed energy weapons like lasers and will soon finish their trials. "It's a new kind of threat. Many of the projects have already been undertaken and some of the systems were already fielded," he said.

Gen Rawat said the armed forces will have to dynamically keep on adapting to new threats because the next attack could well be through rockets, as was seen in the recent Israel-Hamas conflict, and not drones. "Grey-zone warfare can involve anything and we have to be prepared for it," he said.

https://timesofindia.indiatimes.com/india/india-ready-to-retaliate-says-cds-rawat/articleshow/84083679.cms

THE HINDU

Sat, 03 July 2021

Foundation stone laid at BDL for Environmental Testing Facility

'This will be a state-of-the-art facility in the country'

Visakhapatnam: Vice Admiral Biswajit Dasgupta, Chief of Staff, Eastern Naval Command, on Friday laid the foundation stone for establishing Environmental Testing Facility at the Visakhapatnam unit of Bharat Dynamics Limited (BDL).

Speaking on the occasion, Commodore (Retd) Siddharth Mishra, CMD, BDL, stated, "The facility will be first of its kind in the country and will contribute towards the further realisation of 'Atmanirbharta' in the Defence sector. The facility, once operational, will enhance BDL's capability in the testing infrastructure for torpedoes and underwater weapons."

The facility will consist of a vibration testing facility, thermal chamber and walking chamber for a whole torpedo.

This will be a state-of-the-art facility in India, wherein the vibration test of the whole torpedo of 8 meter length and 2 tonnes of weight can be carried out at a time. The Visakhapatnam Unit of BDL has been set up exclusively to manufacture torpedoes and other underwater weapons for the Indian Navy.

The manufacturing process involves various environmental tests, including vibration tests, which are carried out in a real-time simulated condition to assess the functionality.

N.P. Diwakar, Director (Technical), Commodore A Madhava Rao (Retd), Executive Director (KBU & PSG), S.V. Kameswar, General Manager & Visakhapatnam Unit Head, and senior officials from CINA, NSTL & Indian Navy, were present.

https://www.thehindu.com/news/national/andhra-pradesh/foundation-stone-laid-at-bdl-for-environmental-testing-facility/article35110961.ece

The Statesman

Mon, 05 July 2021

GRSE Kolkata bags order for supply of patrol boats to Bangladesh

GRSE has the distinction in exporting the first 'Made in India' warship when the shipyard delivered a multipurpose offshore patrol vessel (OPV), 'CGS Barracuda' to the Mauritius Coast Guard

At a time when the security of water bodies have gained utmost importance, be it due to illegal fishing or terrorist activities, the Garden Reach Shipbuilders and Engineers Ltd. (GRSE) Kolkata have yet again managed to further strengthen the ties between India and Bangladesh by bagging an order to manufacture six patrol boats for Bangladesh.

The GRSE, a mini-Ratna category- I defence PSU and a leading warship building company, bagged an order to build six patrol boats for sustainable coastal and marine fisheries projects under the Department of Fisheries, Government of Bangladesh.

The order has been awarded to GRSE through international competitive bidding where other international players from Europe and Asia were in the fray, said the spokesperson.

The 13 metres surveillance patrol boats for Marine Fisheries Surveillance Check-post (MFSC), Government of Bangladesh, will be used in surveillance activities, shallow water operations and patrolling fishing grounds day and night for illegal fishing gear and retrieval of survivors. The patrol crafts will be fitted with a water jet drive, suitable for shallow water operation up to 0.60 metres.

It may be noted that GRSE has the distinction in exporting the first 'Made in India' warship when the shipyard delivered a multipurpose offshore patrol vessel (OPV), 'CGS Barracuda' to the Mauritius Coast Guard.

In recent times, the shipyard had also delivered a Fast Patrol Vessel (FPV) to the Government of Seychelles and bagged an order on competitive bidding for construction and supply of one ocean-going passenger & cargo vessel for the Republic of Guyana.

The shipbuilding company has been an exporter of prefabricated steel bridges to friendly countries like Nepal, Bhutan, Myanmar and Sri Lanka for use in disaster management.

GRSE has made a significant contribution towards 'Atmanirbhar Abhiyaan' through advancement in state-of-the-art warship design and construction by achieving over 90 per cent indigenous content onboard ASW Corvettes and Landing Craft Utility ships. The company said, "Having modernized our infrastructure facilities, today GRSE is in a position to construct 20 warships concurrently using advanced modular integrated shipbuilding technology in line with the best in the world.

With the adoption of new advanced technology and 'Industry 4.0 practices', The shipyard is on its way to becoming a global leader in warship construction.

https://www.thestatesman.com/india/grse-kolkata-bags-order-supply-patrol-boats-bangladesh-1502978627.html

WION

Mon, 05 July 2021

Opinion | Theatre Commands: Is India on right path, at right time?

By Major General S B Asthana

Story highlights

Today, India is facing a 'Two Front Threat' in real terms, in a manner that it is already in standoff with the largest military in the world, and the other adversary is also devising new ways to disturb peace through drones/terror attacks

New Delhi: In a major restructuring like reorganising Indian Military into Theatre Commands, there will be variation of views between stakeholders and many rounds of discussions on merits and demerits of the existing force structure vis-a-vis the proposed one; hence it may not be appropriate to call it a 'turf war' as has been referred in some media reports.

Is the timing right?

Today, India is facing a 'Two Front Threat' in real terms, in a manner that it is already in standoff with the largest military in the world, and the other adversary is also devising new ways to disturb peace through drones/terror attacks. Irrespective of merits and demerits of theaterisation, strategically, it is not the right time to go through such a major apex level restructuring, when the largest military

force is knocking at Line of Actual Control. Such major restructuring takes at least few years of teething problems; hence it will bring turbulence in time tested command structure during the intervening period, a risk which the country must avoid. In an overdrive to minimise cost of defence, or meet certain personality oriented deadlines, the restructuring should not compromise operational effectiveness of Indian Military.

What needs to be restructured?

Regarding implementation of Indian model of Theatre Commands, I endorse Air Defence Command, Defence Space Agency (DSA), Armed Forces Special Operations Division (AFSOD), integration in logistics and recommend up-gradation of Defence Cyber Agency (DCA) to "Information Warfare Command" as explained in my detailed analysis.
The critical shortage of air and other assets is a concern, too serious to be overlooked. The Maritime Command accruing advantage of unity of command, will have to be weighed against manageability of increased span of control, as Indian definition of Indo-Pacific and area of maritime interest has grown from eastern coasts of Africa to northern Pacific, up to Japan. With tri-service structure, reporting to single Service Chief has its own problems. Reporting to CDS may be difficult for him to manage them in operations, (unmanageable span of control), and he not being tasked and organised for it. The first priority of India should be to do capability development over restructuring of apex level restructuring.

The Air Power Debate!

The Indian Air Force is an offensive component of Indian Military. It has national role besides synergising with other services to contribute to national combat power. For comprehensive air battle, with inadequate air resources, switching assets between operational commands of same service is much more effective than trying to do so between integrated theatre commands with dedicated resources, through CDS/ COSC Committee System.

It also needs to be noted that with the current speed of fighter aircrafts and high intensity of lethal air defence systems, globally, the close air support role is being performed better by attack helicopters and variety of artillery assets due to safety concerns. New generation aircrafts are mostly multi-role, increasingly employed for long and short-range interdiction, creating favourable air situation, degradation, offensive air missions and strategic national missions.

Indianised Model

US and China have laid down expeditionary role for their military away from mainland; hence their theatre commands like Indo-Pacific Command can't be supported from air assets from mainland, which justifies separate allocation of air assets.

Both these countries have done so after reaching self-reliance in defence production. In case of India, expeditionary role doesn't hold good for considerable period, when it finds raising of much needed mountain strike corps to threaten immediate adversary too costly. India must first bring up its asset availability up to a point that they can be distributed as first priority, with indigenous technology and hardware by self-reliance, which is a work in progress.

Everyone needs focus on capacity building at this time under discernible 'Two Front Threat', rather than igniting debates on apex level restructuring, which doesn't improve combat capability very much at cutting edge, where we need more military assets like aircrafts and drones.

(Disclaimer: The views of the writer do not represent the views of WION or ZMCL. Nor does WION or ZMCL endorse the views of the writer.)

https://www.wionews.com/opinions-blogs/opinion-theatre-commands-is-india-on-right-path-at-right-time-395789

THE TIMES OF INDIA

Mon, 05 July 2021

Scramble for cyber space: India needs urgently to formulate its National Cyber Strategy

By SD Pradhan

Two critical aspects of cyber space were explained by the Indian National Cyber Security Coordinator Lt. Gen. (Dr) Rajesh Pant at a conference organised by the Public Affairs Forum of India, which merit attention of all. First, the cyber space is witnessing technological bipolarity like in the geopolitical world. It is mainly split between US and its allies on the one side and China and its allies on the other. While the US has come up with its concept of 'clean network with trusted equipment, China has evolved a new internet protocol and has released the Global Initiative on Data Security (GIDS) for the world. The GIDS examined by some experts have come to the conclusion that it is actually aimed at wresting control of the data security narrative away from the US. In essence, a scramble for cyberspace has already begun. Nations are building their cyber warfare capabilities and are increasingly acquiring 'cyber weapons'. Scientific innovations are drastically increasing their destructive power and resulting in increasing cyber threats in geometrical progression. Second, he stressed the urgent need for India to formulate its approach towards this issue. In view of the growing contest for control over the cyberspace, India cannot afford to be lax in this sphere. Hence, a clear understanding at the emerging cyber environment and threats is pertinent.

While cyberspace belongs to all stakeholders, efforts by several nations are on to dominate it as the cyberspace now occupies the pivotal position in the global governance and is an important instrument for coercion and influence operations with remarkable efficacy. No wonder, China places the cyberspace at an equal footing to nuclear weapons and missiles for achieving deterrence. This explains why the Chinese are assiduous making efforts to dominate it. Though US had taken steps earlier in this regard, yet China has made substantial gains in this sphere. It is not only depending on legal steps but is ruthlessly pursuing all illegal methods for this purpose. Its hackers are getting support and directions from the PLA Unit 69010-a specialised cyber-attack organisation. Actually, this is the Military Unit Cover Designator of Second Technical Reconnaissance Bureau (MUCD). The Unit has emerged as the most important cyber-attack entity in the PLA. Under it several groups operate to attack the targets, acquire information and relevant data, and destroy the critical infrastructure. One of the groups has been recently identified as the RedFoxtrot, which is specifically targeting India's governmental organisation and critical infrastructures. Besides RedFoxtrot, other prominent groups involved in the cyber espionage activities of the PLA are Tonto Team, Tick, and Naikon.

Beijing is using the cyber space as a tool for gathering intelligence on military technology and national security issues as well as political developments and foreign relations. In March, Cert-In had identified a China linked group conducting an espionage campaign against the transport sector.

Earlier, a China linked firm was reported to have collected big data from India for analysis. It is well known that China is aggressively launching especially designed influence operations on selected targets to get their favourable response for China.

Experts point out that with the increasing use of Artificial Intelligence for cyber-attacks, China intends to shift the nature of warfare from 'Informatised' to 'Intelligentised" warfare. Significantly, in Beijing's strategy, the cyber power would be central in warfare. Importantly their concept of warfare is similar to Clausewitz's perception: 'war is merely the continuation of politics by other means.' Thus, the distinction between the traditional concept of warfare and the use of other means during the peace time to compel the opponent vanishes. China's use of cyber power to impose its will on

other countries, follows the Sun Tzu's concepts: "Supreme excellence consists in breaking the enemy's resistance without fighting," and "All warfare is based on deception." These sum up the Chinese strategy of 'three warfares' in which cyberspace and cyber power are critical.

The threats in cyber space are not merely coming from China but from other states and non-state actors. In our neighbourhood, Jihadists supported by the deep state of Pakistan, are increasingly using cyber space for attacking our sensitive and critical infrastructures. The cyber-attack on the Kudankulum Nuclear Power Plant, power outage in Mumbai and use of drones raise important questions about the security of our critical infrastructure and more importantly the adequacy of our response. Notwithstanding that some steps have been taken by India, the need to do more cannot be underestimated particularly when our adversaries are constantly trying to improve their capabilities for causing harm to our critical infrastructure. Preparation of a positive list for telecom sector is indeed a historic move as indicated by the National Cyber Security Coordinator.

One important factor that needs to be kept in view is that most advanced nations have developed cyber strategies based on offensive operations for which they have created specialised units. We would need to counter them when the situation arises. Not doing so on the plea that we are not US, China or Russia would keep us weak and an easy victim of coercion. In fact, we should not hesitate to adopt the best practices of others- though taking in view our peculiar conditions.

A study of the national cyber strategies of US, China, Russia, France and UK points out certain common elements in their strategies. Three elements are common in the strategies of the above-mentioned countries. First, the cyber security is perceived as a part of national security and all consider that cyber-attacks can be very disasterous. USA's National Cyber Security Strategy states that security of cyberspace is fundamental for national security and prosperity of its people. China considers that the national security is closely linked with cyber security. "No national security without cyber security", said President Xi Jinping. The Russian cyber security strategy identifies cyber-security, privacy and information security as vital to the national interests of Russia. UK's cyber security strategy aims at making UK as one of the most secured nation to do business.

The second is the use of cyber capabilities to deter the adversaries. Cyber operations are not merely seen as supplementing military operations but are also used as a deterrent. And the third element is the greater thrust on developing domestic capabilities to produce necessary IT products. They are doing away with their reliance on the foreign equipment and systems.

India which is finalising its National Cyber Strategy could take the important elements to make it effective. Though attribution remains a problem, a declaratory message with emphasis on deterrence can dissuade to some extent the key adversaries and groups supported by them from launching attacks on our critical infrastructure or on our core national interests. The National Cyber Security Strategy should indicate in clear terms that any breach of India's cyberspace from foreign actor would be treated at par with violations of our sovereign territory, airspace or territorial waters.

We could indicate that our cyber strategy would be based on "Forward Active Defence" i.e. could take steps to neutralise the source and could use any means at our disposal to inflict unacceptable damage on the attacker.

It may be mentioned that an overarching National Cyber Strategy also demands a high-powered organisation to take decisions to deter key adversary, to launch operations, if required, to neutralise the source of threat for the protection of national critical infrastructure and core national interests, to task different entities in government including armed forces and civil organisations as also private sectors and ensure their compliance of directions. And importantly, India needs to take a firm position on the international norms for the governance of the cyberspace.

(Disclaimer: Views expressed above are the author's own.)

https://timesofindia.indiatimes.com/blogs/ChanakyaCode/scramble-for-cyber-space-india-needs-urgently-to-formulate-its-national-cyber-strategy/

THE TIMES OF INDIA

Sun, 04 July 2021

Army gears up for exercise 'Indra'

Jaisalmer: To increase cooperation in defence areas and to exchange strategic activities in the armies of India and Russia, both the countries will organise a joint army exercise from August 1 to 15 in Russia. To take part in the exercise 'Indra', troops of the Indian army have started preparations at the Pokhran field firing range. To take stock of the preparations, Konark Corps core commander Lt Gen PS Minhas has been visiting various areas in Jaisalmer for the last two days. On Saturday, he visited the desert area and boosted the morale of the jawans preparing for the exercise.

India and Russia will hold joint exercise 'Indra' From August 1-15. The drill to be held in Russia aims at boosting defence ties between both the countries

According to information from army official sources, a troupe of the Indian army falling in the Konark corps, is preparing for the joint exercise, in desert areas in Pokhran field firing range of Jaisalmer district. Around 250 soldiers will take part in it and the Indian army troops at Jaisalmer military station are involved in training activities.

Sources said, "About 250 Indian military personnel from the army, navy and air force will leave for Russia for the tactical bilateral 'Indra-2021' exercise with the Russian military, slated from August 1 to 15. It will be followed by another exercise within a month when the Indian and Pakistani armies will jointly participate."

The 'Indra' series of exercises began in 2003 and the first joint Tri-Services Exercise was conducted in 2017. The last joint, tri-services exercise between India and Russia was conducted in India from December 10 to 19, 2019. It was held simultaneously at Babina (near Jhansi), Pune, and Goa."

A source said, "The exercises involving India and Russia are aimed at further strengthening mutual confidence, interoperability and enabling the sharing of best practices between the armed forces of both countries." The source said, "The 'Indra-2021' drills will involve about 250 servicemen of the armed forces of India and around 250 personnel of the Russian Army's Southern Military District. The dates were decided at a conference of military representatives of Russia and India."

Sources added, "The 'Indra-2021' drills will take place at the Southern Military District's Prudboi training ground in Volgograd Region."

https://timesofindia.indiatimes.com/city/jaipur/army-gears-up-for-exercise-indra/articleshow/84103735.cms

TIMES of SAN DIEGO

Mon, 04 July 2021

Top Indian Navy Officer meets with U.S. 3rd Fleet Commander in San Diego

By Chris Jennewein

Top Naval officers from the two most populous democracies in the world met in San Diego this week to discuss cooperation on undersea warfare.

Vice Adm. G. Ashok Kumar, the vice chief of staff for the Indian Navy, met with Vice Adm. Steve Koehler, commander of U.S. 3rd Fleet, during a visit to San Diego on June 28.

The meeting focused on U.S. and Indian Navy cooperation in the area of undersea domain awareness, and was part of a larger visit which included various stops throughout San Diego and the Pacific Northwest.

Indian Navy Vice Adm. G. Ashok Kumar tours primary flight control aboard the aircraft carrier USS Theodore Roosevelt. Navy photo

"The US-India strategic partnership is one of our most critical relationships in the Indo-Pacific," said Koehler. "Open discussion of shared and complimentary capabilities not only strengthens our relationship, it increases our naval effectiveness as we work together to ensure a free and open Indo-Pacific."

The meeting comes amid growing tensions between the United States, India, Japan and Australia on one hand and the autocratic regimes of Russia and China on the other.

While in San Diego, Kumar visited the Undersea Warfighting Development Center, Submarine Squadron 11, the Undersea Rescue Command, the Fleet Anti-Submarine Warfare Training Center, and the aircraft carrier USS Theodore Roosevelt.

He also met with Indian Navy personnel training at Naval Base Coronado.

In the Pacific Northwest, Kumar visited with elements of Submarine Development Squadron 5 and the commander of undersea surveillance.

The U.S. and Indian Navies have been reinforcing their partnership to maintain a rules-based international order in the Indo-Pacific as China fortifies tiny islands in the region and threatens Taiwan.

https://timesofsandiego.com/military/2021/07/03/top-indian-navy-officer-meets-with-u-s-3rd-fleet-commander-in-san-diego/

THE ECONOMIC TIMES

Sat, 03 July 2021

China allegedly constructing more than 100 new 'nuclear' missile silos: US think-tank

By Dipanjan Roy Chaudhury

Synopsis

Leading US-daily The Washington Post, citing a study of commercial satellite images by a California-based think tank, James Martin Center for Non-proliferation Studies, reported on Thursday that the silos were being built in a desert near the northwestern Chinese city of Yumen.

China, which celebrated the 100th anniversary of its Communist Party on Thursday, is allegedly constructing more than 100 new 'nuclear' missile silos in a desert area around the western part of the country that could be a security nightmare for Asia, including India.

Leading US-daily The Washington Post, citing a study of commercial satellite images by a California-based think tank, James Martin Center for Non-proliferation Studies, reported on Thursday that the silos were being built in a desert near the northwestern Chinese city of Yumen.

The James Martin Center for Nonproliferation Studies in Monterey said the 119 construction sites in Gansu province were similar to existing Chinese launch facilities for nuclear-tipped ballistic missiles.

The United States expressed concern over this. State Department spokesman Ned Price said, "I think what is fair to say is that these reports and other developments suggest that the PRC's (People's Republic of China) nuclear arsenal will grow more quickly, and to a higher level, than perhaps previously anticipated."

"This build-up, it is concerning," Price said. "It raises questions about the PRC's intent."

"And for us it reinforces the importance of pursuing practical measures to reduce nuclear risks," he added.

"Despite what appears to be PRC obfuscation, this rapid build-up has become more difficult to hide," Price said. "And it highlights how the PRC appears again to be deviating from decades of nuclear strategy based around minimum deterrence."

Beijing, on the other hand, has insisted that its military or nuclear arsenal is insignificant compared to that of the United States or Russia and has called for bilateral dialogues on strategic security that respects "equality."

Notably, the Pentagon estimated last year that China's nuclear warhead stockpile was somewhere in "the low 200s" and could double in size with the country's recent push to develop fuel for a new generation of nuclear reactors. The US stockpile of nuclear weapons, in contrast, consisted of around 3,800 warheads, of which 1,357 have already been deployed, a factsheet issued by the US state department stated.

Non-proliferation experts said this year China's push to develop fuel for a new generation of nuclear power reactors will produce large amounts of materials that could be diverted to making nuclear weapons. Meanwhile, Price also said that Washington had "taken note" of remarks by Chinese President Xi Jinping at a ceremony marking the 100th anniversary of the founding of the Chinese Communist Party on Thursday but was "not going to comment on the specifics."

In his address, Xi warned that foreign forces attempting to bully China would "get their heads bashed" and pledged to build up its military. He also committed to the "reunification" of Taiwan and said social stability would be ensured in Hong Kong while protecting China's security and sovereignty.

https://economictimes.indiatimes.com/news/defence/china-allegedly-constructing-more-than-100-new-nuclear-missile-silos-us-think-tank/articleshow/84085500.cms?from=mdr

THE NATIONAL INTEREST

Mon, 04 July 2021

Future wars will be fought on the 'Hyperactive Battlefield'

Part of the lens through which futurists view warfare decades from now also pertains to certain enduring principles that remain as timeless pillars of thought fundamental to winning wars

By Kris Osborn

Precision weaponry, artificial intelligence-enabled data processing, electronic warfare, space-traveling hypersonic weapons, and borderless geographically unknown cyber-attacks continue to reshape modern war in ways that have not been anticipated, inspiring a massive Pentagon modernization push to include efforts to find the best and most impactful warfare innovations.

Future wars will likely be decided in the realm of "high-speed information-networking," software upgrades that include artificial intelligence, long-range sensing, stealth, precision weapons and, perhaps most of all, sensor-to-shooter decision cycles. Army Futures Command Commander Gen. John Murray has often said that the future of warfare is expected to be what he called a "hyperactive battlefield."

Part of the lens through which futurists view warfare decades from now also pertains to certain enduring principles which, despite technological change and the evolution of society, remain as timeless pillars of thought fundamental to winning wars. One of them is "mass." Sheer size. Ultimately an enemy force will need to be contained, subdued, destroyed, or demoralized to the point of losing a will to fight. Large formations may indeed always be necessary to accomplish this.

Retired Maj. Gen. Michael McGuire, former chairman of the Board of the National Guard Association of the United States, and former Adjutant General for Arizona is quite familiar with the importance of "mass-force" mobilization and expeditionary warfare, as he was largely responsible for the deployment of hundreds of thousands of Guardsmen during many years of war in Iraq and Afghanistan. He is of the clear view that, while technological advances such as artificial intelligence, cyber, electronic welfare, stealth airpower, and an entirely new arsenal of long-range, precision-guided and heavily networking weapons systems continue to massively transform modern war. There still is and may always be a critical need to "mass" force in order to ultimately prevail in war.

"I think Sun Tzu's principle of 'mass' is still a critical part of what we do, right, you still need to be able to mass," McGuire said in an interview. "I remember Gen. Milley. When he first came in, as the Chief of Staff of the Army, he talked about making sure we can grow back to a 1 million man Army and even get up to 1.2 million."

Sure enough, a look at Sun Tzu's famous and historical text, *The Art of War*, speaks directly to McGuire's point, if in a different historical context. In one interesting portion of the book, Tzu cites nine key principles of war, which include "objective, offensive, mass, the economy of force, maneuver, unity of command, security, surprise, and simplicity."

McGuire's belief in the significance of force size is also reinforced by the current threat landscape. A quick look at Globalfirepower.com's 2021 military force assessments report that China, for example, maintains an active force of 2.1 million soldiers, supported by an ability to flex to 3.3 million with reserves and paramilitary. While the United States focuses heavily upon innovations that will help forces fight and prevail while "outnumbered," a "mass" of numbers will

also, quite likely, to a large extent be necessary to prevail in warfare, despite whatever measure of technological superiority there may or may not be.

McGuire reflected on the ancient text in the context of discussing his tenure with the National Guard, during which there was a virtually unprecedented mobilization of Guard forces who fought alongside their active-duty brethren with no distinction between the two whatsoever.

"We mobilized over 80% of the National Guard last year highest level of mobilization since World War Two, and we did not miss a single deployment of overseas titled 10 duty in Central Command in Pacific Command in Southern Command in European command when the combatant commanders call on that, we're able to have others step up [and] fill the roles for those domestic missions and get those soldiers and airmen out the door," McGuire said.

Mass mobilization, McGuire emphasized, is something that needs to be supported by proper resourcing including equipment, supplies, weapons and next-generation technologies. This interest in resourcing the warfighter is likely one of many reasons McGuire has recently announced his run for an Arizona Senate seat in the U.S. Congress.

"And all of us know that to get to that size Army, it's going to actually require a rotation of forces from standing in an active component formation, and buying back three to one guard forces and formations," McGuire said. "So, I think we can make it on the personnel side. And I think we can do it cost-effectively. The issue always becomes the equipment piece: how do we arm these formations? We just need to make sure that we build in requirements. It is about making sure that the requirements are laid in for Congress so they can look at how to appropriate money to meet these requirements."

Interestingly, Sun Tzu's text makes a specific reference to the crucial importance of resourcing the military, showing yet another alignment between the text from antiquity and McGuire's thinking. While of course speaking about "swift chariots" and not tanks or helicopters, chapter two of Sun Tzu's Art of War talks about the crucial and much-needed "expenditures" needed to move heavy chariots and equip "a hundred thousand mail-clad soldiers."

"In the operations of war, where there are in the field a thousand swift chariots, as many heavy chariots, and a hundred thousand mail-clad soldiers, with provisions enough to carry them a thousand li, the expenditure at home and at the front, including entertainment of guests, small items such as glue and paint, and sums spent on chariots and armor, will reach the total of a thousand ounces of silver per day. Such is the cost of raising an army of 100,000 men."

Perhaps Sun Tzu may be referenced in upcoming budget deliberations, something quite likely one might say should McGuire be elected to the U.S. Senate.

(Kris Osborn is the defense editor for the National Interest. *Osborn previously served at the Pentagon as a Highly Qualified Expert with the Office of the Assistant Secretary of the Army—Acquisition, Logistics & Technology. Osborn has also worked as an anchor and on-air military specialist at national TV networks. He has appeared as a guest military expert on Fox News, MSNBC, The Military Channel, and The History Channel. He also has a Master's Degree in Comparative Literature from Columbia University.)*

https://nationalinterest.org/blog/buzz/future-wars-will-be-fought-%E2%80%98hyperactive-battlefield%E2%80%99-189096

जागरण

Sat, 03 July 2021

ISRO के तीन कम्युनिकेशन सैटेलाइट का अधिग्रहण करेगी NSIL- के सिवन

भारतीय अंतरिक्ष अनुसंधान संगठन (ISRO) प्रमुख सिवन ने शुक्रवार को बताया न्यू स्पेस इंडिया लिमिटेड (NSIL) तीन कम्युनिकेशन सैटेलाइट का अधिग्रहण करेगा। ये सैटेलाइट GSAT 20 GSAT 22 और GSAT 24 हैं। इसरो द्वारा निर्मित इन सैटेलाइटों का मालिक और ऑपरेटर कंपनी होगी।

By Monika Minral

नई दिल्ली: भारतीय अंतरिक्ष अनुसंधान संगठन (ISRO) प्रमुख सिवन ने शुक्रवार को बताया, ' न्यू स्पेस इंडिया लिमिटेड (NSIL) तीन कम्युनिकेशन सैटेलाइट का अधिग्रहण करेगा। ये सैटेलाइट GSAT 20, GSAT 22 और GSAT 24 हैं। इसरो द्वारा निर्मित इन सैटेलाइटों का मालिक और ऑपरेटर कंपनी होगी।' अंतरिक्ष विभाग के तहत नवगठित सार्वजनिक क्षेत्र की देश की पहली अंतरिक्ष इकाई NSIL को अन्य सैटेलाइटों के ट्रांसफर से जुड़े सवाल पर सिवन ने बताया, 'हम लीज पर ट्रांसफर करने के बारे में विचार कर रहे हैं।' उन्होंने बताया कि NSIL भी पोलर सैटेलाइट लॉन्च व्हिकल (PSLV) को प्राइवेट सेक्टर को ट्रांसफर करने को लेकर काम कर रहा है।

NSIL का निगमीकरण 06 मार्च 2019 में भारत सरकार के पूर्ण स्वामित्व वाली कंपनी के तौर पर किया गया। यह ISRO का वाणिज्यिक अंग है। भारतीय उद्योगों को उच्च प्रौद्योगिकी अंतरिक्ष संबंधित गतिविधियां शुरू करने के लिए सक्रिय बनाना इसका मुख्य काम है। इसके अलावा यह यह भारतीय अंतरिक्ष कार्यक्रमों के उत्पादों तथा सेवाओं के उन्नयन तथा वाणिज्यिक उपयोग की देखरेख करता है।

वर्तमान में 17 कम्युनिकेशन सैटेलाइट हैं और 8 नैविगेशन सैटेलाइट हैं और 17 अर्थ ऑब्जर्वेशन सैटेलाइट हैं। इसरो प्रमुख के अनुसार GSAT 24 सैटेलाइट यूरोपीयन स्पेस एजेंसी एरियनस्पेस के एरियन रॉकेट से लॉन्च किया जाएगा। उन्होंने कहा, 'GSAT24 इस साल के अंत तक या अगले साल जनवरी तक लॉन्चिंग के लिए तैयार हो जाएगा। अन्य दो सैटेलाइट GSAT20 और GSAT22 निर्माणाधीन है।' GSAT20 को भारतीय रॉकेट जियोसिंक्रोनस सैटेलाइट लॉन्च व्हिकल मार्क III के जरिए लॉन्च किया जाएगा। उल्लेखनीय है कि बजट 2021-22 के लिए अंतरिक्ष विभाग को 13,949 करोड़ रुपये आवंटित किए गए। NSIL के लिए 700 करोड़ रुपये का आवंटन किया गया है।

पिछले साल ISRO ने श्रीहरिकोटा स्थित सतीश धवन अंतरिक्ष केंद्र के दूसरे लांच पैड से पीएसएलवी-सी50 रॉकेट के जरिये अपना 42वां संचार उपग्रह सीएमएस-01 (पूर्व नाम जीसैट-12आर) प्रक्षेपित किया था। पीएसएलवी (ध्रुवीय उपग्रह प्रक्षेपण यान) रॉकेट का यह 52वां मिशन था और सतीश धवन स्पेस सेंटर से इसरो का यह 77वां लांच मिशन था।

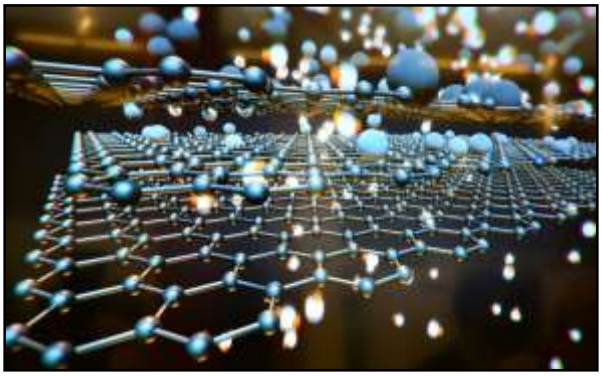
https://www.jagran.com/news/national-nsil-will-acquire-three-communication-satellites-made-by-isro-21792288.html

PHYS.ORG

Sat, 03 July 2021

Graphene additive manufacturing for flexible and printable electronics

Research led by Kansas State University's Suprem Das, assistant professor of industrial and manufacturing systems engineering, in collaboration with Christopher Sorensen, university distinguished professor of physics, shows potential ways to manufacture graphene-based nano-inks for additive manufacturing of supercapacitors in the form of flexible and printable electronics.



Credit: CC0 Public Domain

As researchers around the world study the potential replacement of batteries by supercapacitors, an energy device that can charge and discharge very fast—within few tens of seconds—the team led by Das has an alternate prediction. The team's work could be adapted to integrate them to overcome the slow-charging processes of batteries. Furthermore, Das has been developing additive manufacturing of small supercapacitors—called micro-supercapacitors—so that one day they could be used for wafer-scale integration in silicon processing.

"Additive manufacturing is fascinating, cost-effective and has versatile design considerations," Das said.

The team has developed supercapacitors that have been tested for 10,000 cycles of charging and discharging cycles, a number that is promising to evaluate the reliability of these devices, Das said The team is also studying the versatility of these micro-supercapacitors by printing on mechanically flexible surfaces. For this, they used 20-micrometer-hin polyimide—plastic—substrates with high reliability. Das is highly interested in translating emerging materials to devices.

"When you think about best materials and wish to make the best devices, it is not simple and straightforward," Das said. "One needs to then understand the underpinning physics and chemistry involved in devices."

Another advantage of Das' invention is the green aspects of the research that he visualized through constructive discussions with Sorensen. When Das met Sorensen, he realized he could use his expertise in additive manufacturing to transform these materials into useful things; in this case, making tiny energy storage devices.

A few months later, Das filed for a U.S. patent after developing a nano-ink technology and used it to demonstrate printed micro-supercapacitors.

Das is particularly interested in forming this synergistic collaboration with Sorensen because of the energy-efficient, highly scalable and chemical-free nature of the graphene production process and his own group's graphene ink manufacturing process. Both of these processes are patented/patent-pending technologies and are industrially relevant, Das said.

"We make high-quality, multilayer graphene by detonating fuel-rich mixtures of unsaturated hydrocarbons such as acetylene with oxygen in a multi-liter chamber," Sorensen said. "Our patented method is simple requires very little energy, hence is ecologically benign; requires no toxic chemicals; and has been scaled up to yield high-quality, inexpensive graphene."

Graphene has been recognized as a wonder material with much potential because of its many superlative physical properties Many graphene manufacturing methods have been developed across

the globe and graphene has been produced in ton quantities. Technologists, however, are well aware that graphene is not yet in the marketplace because none of these methods have had the right combination of economy, ecology and product quality to allow graphene to fulfill its potential. But both the methods of producing graphene and nano-inks pursued at Kansas State University are on target to address all of these requirements, according to Sorensen and Das.

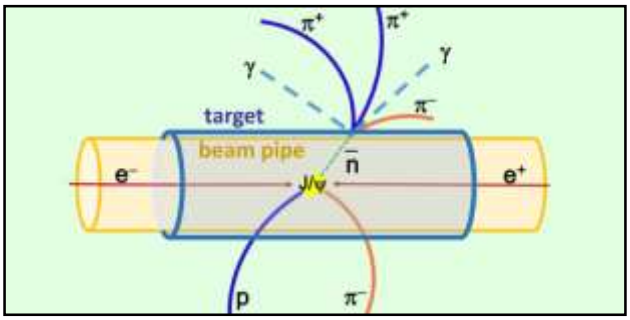
More information: Anand P. S. Gaur et al, Graphene Aerosol Gel Ink for Printing Micro-Supercapacitors, *ACS Applied Energy Materials* (2021). DOI: 10.1021/acsaem.1c00919

https://phys.org/news/2021-07-graphene-additive-flexible-printable-electronics.html

Sat, 03 July 2021

Scientists propose new source for rare subatomic particles

A paper based on joint research by Prof. Yuan Changzheng from Institute of High Energy Physics of the Chinese Academy of Sciences, and Prof. Marek Karliner from Tel Aviv University of Israel, was published in *Physical Review Letters*. It points out a new abundant source of antineutrons and hyperons. These rare subatomic particles are essential for studying forces governing the behavior of matter at the smallest distances, from atomic nuclei to neutron stars.



Schematic diagram of antineutron production and interaction with a proton in the target. Credit: IHEP

Physicists investigate the subatomic world by bombarding their subjects with a hail of tiny subatomic 'bullets'. Based on how these 'bullets' bounce off their target, one can infer a wealth of detailed information about the target's structure. This method was pioneered by Ernest Rutherford, who used it to discover the atomic nucleus more than 100 years ago.

Different kinds of subatomic 'bullets' probe different aspects of the target, just like X-rays, MRI and PET scanners reveal various essential features of a body part in medical imaging. Certain important aspects of the force holding atomic nuclei together can only be investigated by shooting particles called antineutrons and hyperons, which are currently very difficult to produce and control.

The paper points out that these usually rare particles can be produced in copious amounts and easily launched as a spinoff of a future "super J/y factory." This is a facility proposed for the detailed study of specific types of subatomic particles with a property called 'hidden charm', whose discovery has been recognized by a Nobel Prize in physics. This opens fresh research opportunities in particle and nuclear physics, as well as in astrophysics and medical physics.

Traditional setups need to produce many different kinds of beams for different dedicated experiments and need to share accelerator time among them. This requires substantial resources in terms of manpower and funding, thus impeding such experiments. In contrast, the approach proposed in this new research will allow experiments with different beams at the same time, requiring no additional infrastructure and minimal further investment.

More information: Chang-Zheng Yuan et al, Cornucopia of Antineutrons and Hyperons from a Super J/ψ Factory for Next-Generation Nuclear and Particle Physics High-Precision Experiments, *Physical Review Letters* (2021). DOI: 10.1103/PhysRevLett.127.012003

Journal information: *Physical Review Letters*

https://phys.org/news/2021-07-scientists-source-rare-subatomic-particles.html

Hindustan Times

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Who are 'highly protected' against Delta variant of Covid? ICMR study reveals

Covid recovered with even one dose of the vaccine have higher protection against Delta variant than those who have never been infected but have got vaccinated

By Poulomi Ghosh

Those who have recovered from Covid and have got either one or two doses of Covid-19 vaccine have the maximum protection against the Delta variant of SARS-CoV-2 Virus, an Indian study conducted by the scientists from the Indian Council of Medical Research, National Institute of Virology, Department of Neurosurgery, Command Hospital (Southern Command), Armed Forces Medical College, Pune, has revealed. The study was only on the impact of Covishield.

In the study, the immune response of 5 categories of people was evaluated-

1. One dose vaccinated
2. Two-dose vaccinated
3. Covid recovered plus one dose vaccinated
4. Covid recovered plus two doses vaccinated.
5. Breakthrough cases, which mean infection after one or two doses of vaccination.

The findings suggest that breakthrough cases and the cases where Covid-19 recovered individuals received one of two doses of vaccine have relatively higher protection against Delta variant in comparison with those who have never been infected but got either one or two doses of the vaccine. "Prior vaccination results in less severe disease against subsequent infection provide evidence that both humoral and cellular immune response play an important role in protection," the study said. The study also mentions Delta Plus (AY.1), the new variant of Delta, which has been reported from India and many other countries.

Explaining how variants might impact the efficacy of vaccines, the study said, "The worldwide endeavour of scientists to create a safe and effective COVID19 vaccine has resulted in the availability of 18 vaccines, which have received Emergency Use Authorization. The vaccines available against SARS-CoV-2, have shown efficacy ranging from 51 % to 94% against the original strain D614G in phase 3 clinical trials. Immune response to SARS-CoV-2 infection involves innate immune activation and antigen-specific responses of B and T cells. Particularly, the questions about the immune escape of, newly emerging VOCs in vaccinated individuals are still being explored. For example, the efficacy of AZD1222, which was reported to be 70% in the UK and Brazil, only reached 22% in South Africa."

Those who have once been infected are supposed to develop natural antibodies, for which the government has suggested that they should delay their vaccination. But the study reveals that the natural protection can be augmented by even one dose of vaccine against the Delta variant.

"Long-term follow-up of participants could help understand the impact of natural infection and vaccination on long-term protection from SARS-CoV-2 offered by Covishield. It is important to track the breakthrough infections to look for unexpected changes. Monitoring of breakthrough infection would make us understand the impact of new variant or VOC on the escape of vaccine-induced immunity. Data has shown again and again that if the individuals get infected post-vaccination, had been protected from severe disease," the study said.

https://www.hindustantimes.com/india-news/who-are-highly-protected-against-delta-variant-icmr-study-reveals-101625331724894.html