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समाचार पत्रों से चयित अंश Newspapers Clippings

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CONTENTS

S. No.	TITLE	Page No.
DRDO News		1-3
COVID 19: DRDO's Contribution		1-3
1.	ऑक्सीजन से जुड़ेगा जिला अस्पताल का प्रत्येक बेड	1
2.	उन्नाव जिला अस्पताल को आज से मिलेगी अपनी ऑक्सीजन	2
3.	कैथलैब कोविड सेंटर के लिए अलग बनेगा ऑक्सीजन प्लांट	2
4.	नालंदा डीएम ने आक्सीजन प्लांट के स्थल का किया मुआयना	3
Defence News		4-22
Defence Strategic: National/International		4-22
5.	Defence Secretary launches website on 75th Independence Day celebrations	4
6.	रक्षा सचिव ने 75 वें स्वतंत्रता दिवस समारोह पर वेबसाइट का शुभारंभ किया	5
7.	Army Chief on transformation imperatives for Indian Army in coming decades	7
8.	Indian Air Force Chief RKS Bhadauria reaches Israel on official visit	12
9.	इजरायल दौरे पर पहुंचे वायुसेना प्रमुख RKS भदौरिया, दोनों देशों के एयरफोर्स के द्विपक्षीय आदान-प्रदान पर होगी चर्चा	13
10.	Modern counter drone systems – challenges for the forces and the Indian dilemma	14
11.	India gearing up to deploy its much-awaited S-400 Missiles by early next year to neutralize PLAAF's stealth advantage?	16
12.	US approves its 'game-changer' over-the-horizon missiles to the Indian Navy to counter China in IOR	18
13.	Explained: The importance of the anti ship missile Harpoon	20
14.	Germany's warship to conduct military exercise with India, allies in South China Sea	21
Science & Technology News		23-26
15.	Acquisition of channel state information for mmWave MIMO: Traditional and machine learning approaches	23
16.	New viable means of storing information for quantum technologies?	24
17.	Mott insulator exhibits a sharp response to electron injection	25
COVID-19 Research News		26-26
18.	New research: Long-lasting Covid-19 symptoms rare in kids	26

अमर उजाला

Wed, 04 Aug 2021

ऑक्सीजन से जुड़ेगा जिला अस्पताल का प्रत्येक बेड

सोलन: जिले अस्पताल का हरेक बेड अब जल्द ऑक्सीजन पाइपलाइन से जुड़ेगा। 200 बिस्तर वाले अस्पताल में इस वक्त करीब 190 बेड उपलब्ध हैं।

अस्पताल में पीएसए ऑक्सीजन प्लांट पहुंचने के बाद इन सभी बिस्तरों को ऑक्सीजन पाइपलाइन से जोड़ने की कवायद है। जिला अस्पताल प्रशासन ने विभाग को इस बाबत 96 लाख 56 हजार का प्रस्ताव भेजा है। जिसे मंजूरी मिलने के बाद पाइपलाइन लगाने का कार्य शुरू किया जाएगा।

जानकारी के मुताबिक जिले के पहले सरकारी ऑक्सीजन प्लांट का एक सप्ताह के भीतर ट्रायल किया जाएगा।

गौर हो कि क्षेत्रीय अस्पताल में बीते शुक्रवार को हाइटेक पीएसए ऑक्सीजन जनरेटर प्लांट पहुंचा है। डीआरडीओ की ओर से तैयार किए गए इस प्लांट को टाटा कंपनी ने तैयार किया है। इसमें ऑक्सीजन उत्पादन की क्षमता एक मिनट में एक हजार लीटर की होगी। इससे जिले के अन्य अस्पतालों में भी ऑक्सीजन की कमी को दूर किया जा सकेगा।

जिला अस्पताल के चिकित्सा अधीक्षक डॉ. एसल वर्मा ने बताया कि अस्पताल प्रशासन ने इस कार्य के लिए 96 लाख 56 हजार का प्रस्ताव बनाकर उच्च अधिकारियों को भेजा है। अनुमति के बाद यह कार्य भी जल्द पूरा होगा। इसी के साथ अस्पताल प्रशासन को ऑक्सीजन सिलिंडर रिफिल करवाने के लिए बार-बार ऑक्सीजन प्लांट के लिए नहीं जाना पड़ेगा। गौर हो कि कोविड की दूसरी लहर में लोगों को ऑक्सीजन की कमी से जूझना पड़ा था।



सोलन अस्पताल में स्थापित पीएसए ऑक्सीजन प्लांट - फोटो : SOLAN

<https://www.amarujala.com/himachal-pradesh/solan/every-bed-of-the-hospital-will-be-connected-to-the-oxygen-supply-pipeline-solan-news-sm1379164043>

उन्नाव जिला अस्पताल को आज से मिलेगी अपनी ऑक्सीजन

जिला अस्पताल में 1500 लीटर प्रति मिनट की क्षमता का ऑक्सीजन प्लांट बनकर तैयार हो गया है। जिला अस्पताल में आज से प्लांट का संचालन शुरू हो जाएगा। प्लांट के जरिए ट्रामा सेंटर, इमरजेंसी और जनरल वार्ड को ऑक्सीजन की आपूर्ति की जाएगी।

कोरोना संक्रमण काल की दूसरी लहर में जिले को ऑक्सीजन की कमी से जूझना पड़ा था। मरीजों को समय से ऑक्सीजन नहीं मिल पाई थी। भविष्य में दोबारा ऐसे हालात न बने इसके लिए जिले में ही ऑक्सीजन प्लांट लगाने के निर्देश दिए थे। जिला अस्पताल में डीआरडीओ को प्लांट लगाने का ठेका दिया गया था। डीआरडीओ ने 95 लाख की लागत से जिला अस्पताल में डेढ़ माह में ऑक्सीजन प्लांट बनाकर तैयार कर दिया है। सीएमएस डा. पवन कुमार ने बताया कि ऑक्सीजन प्लांट बनकर तैयार हो गया है।

बुधवार से प्लांट से गैस की आपूर्ति शुरू हो जाएगी। उन्होंने बताया कि जनरल वार्ड, इमरजेंसी वार्ड, ऑपरेशन थियेटर, कार्डियोलॉजी वार्ड, बर्न यूनिट तक सेंट्रलाइज्ड ऑक्सीजन आपूर्ति की व्यवस्था की गई है। उन्होंने बताया कि डीआरडीओ ने प्लांट और एनएचएआई ने शेड तैयार किया है। स्वतंत्र फीडर से फिलहाल प्लांट को विद्युत आपूर्ति दी जाएगी। आपातकालीन स्थिति के लिए जेनरेटर खरीद की प्रक्रिया भी शुरू हो गई है।

<https://www.livehindustan.com/uttar-pradesh/unnao/story-unnao-district-hospital-will-get-its-own-oxygen-from-today-4290702.html>

कैथलैब कोविड सेंटर के लिए अलग बनेगा ऑक्सीजन प्लांट

धनबाद: एसएनएमएमसीएच (पीएमसीएच) कैथलैब कोविड सेंटर से लिए अलग से ऑक्सीजन प्लांट (पीएसए) बनेगा। इसकी तैयारी शुरू कर दी गई है। 1000 एलएमपी का यह प्लांट जिला प्रशासन द्वारा बनवाया जाएगा। कोरोना संक्रमण की तीसरी लहर की आशंकाओं को देखते हुए यह व्यवस्था की जा रही है ताकि दूसरी लहर की तरह संक्रमित लोगों को ऑक्सीजन की किल्लत नहीं झेलनी पड़े।

बता कि कि एसएनएमएमसीएच में दो ऑक्सीजन प्लांट बनकर तैयार है। 600 एलपीएम क्षमता का एक प्लांट प्रधानमंत्री केयर फंड से बनवाया गया है। इसका काम पूरा हो चुका है। उदघाटन का इंतजार हो रहा है। इसके अलावा डीआरडीओ मद से एनएचएआई द्वारा भी एक प्लांट बनाया गया है। इसकी क्षमता 1000 एलपीएम है। इसका काम भी पूरा हो चुका है। सिर्फ बिजली कनेक्शन किया जाना बाकी है। अधिकारियों की मानें तो इन दोनों प्लांटों को एसएनएमएमसीएच की जरूरत के अनुसार बनाया गया है। इससे यहां के 360 बेड पर ऑक्सीजन आपूर्ति की जाएगी। कैथलैब कोविड सेंटर के लिए अलग प्लांट लगाया जाएगा।

तो जोड़ा जाएगा कनेक्शन

कैथलैब का अलग प्लांट बनने तक वहां वर्तमान व्यवस्था के तहत जंबो ऑक्सीजन सिलेंडर से ऑक्सीजन की आपूर्ति की जाएगी। बावजूद वहां वैकल्पिक रूप से इन दोनों प्लांटों से ऑक्सीजन की

आपूर्ति की व्यवस्था भी की जा सकती है। इसके लिए प्लांट से कैथलैब तक ऑक्सीजन पाइपलाइन बिछाने की योजना पर विचार चल रहा है।

एसएनएमएमसीएच का तीसरा और जिला का पांचवा प्लांट होगा

जिला प्रशासन द्वारा कैथलैब के लिए लगाया जाने वाला ऑक्सीजन प्लांट मेडिकल कॉलेज का तीसरा और जिला का पांचवा प्लांट होगा। मेडिकल कॉलेज में प्रधानमंत्री केयर फंड और डीआरडीओ से लगाए गए दो अलग अलग प्लांटों के अलावा सदर अस्पताल में भी दो प्लांट लगाए गए हैं। दोनों की क्षमता 300-300 एलपीएम है। इसका निर्माण हर्ल सिंदरी द्वारा कराया गया है। इन दोनों का काम भी पूरा हो चुका है।

<https://www.livehindustan.com/jharkhand/dhanbad/story-a-separate-oxygen-plant-will-be-built-for-the-cathlab-covid-center-4290794.html>



Wed, 04 Aug 2021

नालंदा डीएम ने आक्सीजन प्लांट के स्थल का किया मुआयना

बिहारशरीफ: डीएम योगेंद्र सिंह ने सदर अस्पताल बिहारशरीफ में नव स्थापित आक्सीजन प्लांट का मंगलवार को स्थलीय निरीक्षण किया। उन्होंने बताया कि जिले के चिकित्सा महाविद्यालय सहित विभिन्न अस्पतालों में कुल सा आक्सीजन प्लांट स्थापित किए जा रहे हैं। चिकित्सा महाविद्यालय पावापुरी में कुल तीन आक्सीजन प्लांट, सदर अस्पताल बिहारशरीफ में एक, अनुमंडलीय अस्पताल हिलसा व राजगीर में एक-एक तथा रेफरल अस्पताल कल्याण बिगहा में एक आक्सीजन प्लांट स्थापित किए जा रहे हैं। सदर अस्पताल बिहारशरीफ में पीएम केयर फंड से लार्सन एंड टुब्रो द्वारा निर्मित तथा डीआरडीओ द्वारा विकसित 1000 लीटर प्रति मिनट आपूर्ति क्षमता वाली प्लांट स्थापित की गई है।



स्वास्थ्य विभाग के जिला कार्यक्रम प्रबंधक ने बताया कि प्लांट स्थापित हो चुके हैं तथा आगामी तीन से चार दिनों में ट्रायल रन किया जाएगा। प्लांट से जुड़े तकनीकी विशेषज्ञों ने बताया कि एसएनसीयू यूनिट सहित कई यूनिटों में एक ही समय समानांतर रूप से आक्सीजन की आपूर्ति की जा सकेगी तथा किसी यूनिट में आपूर्ति बाधित होने की स्थिति में दूसरे यूनिट की आपूर्ति बाधित नहीं होगी।

<https://www.jagran.com/bihar/nalanda-nalanda-dm-inspected-the-site-of-oxygen-plant-21893110.html>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 03 Aug 2021 5:48PM

Defence Secretary launches website on 75th Independence Day celebrations

- *Platform to connect Indians from world over to celebrate Independence Day*
- *To provide all information regarding activities of the celebrations*
- *Live streaming of main event from Red Fort; Live feed in VR 360 degrees format*
- *Other key features include Special IDC Radio, Gallery, Interactive filters, E-books & Blogs*

India is celebrating 'Azadi ka Amrit Mahotsav', marking the 75th year of Independence from the foreign rule. The whole country is gripped into patriotic fervour. To mark this momentous occasion, Defence Secretary Dr Ajay Kumar launched a website on the 75th Independence Day Celebrations 2021 (IDC 2021), <https://indianidc2021.mod.gov.in>, in New Delhi on August 03, 2021. It is a platform to connect Indians from world over to celebrate the National Festival. The mobile app of the IDC 2021 platform will be launched in the coming days.

The platform is freely accessible to all and provides update & information regarding activities centred around the IDC 2021. It encompasses the entire Indian diaspora as if they were a part of the celebrations in person. It is an attempt to engage people of all ages, especially the youth.

For the first time ever, the platform will live stream the Independence Day Celebrations from the majestic Red Fort on August 15, 2021 in Virtual Reality (VR) 360 degree format. People can use this feature with or without VR Gadget.

The platform also provides features like a special IDC Radio, Gallery, Interactive filters, E-books on deeds of Gallantry, 50 years of 1971 victory and Blogs on the Freedom Movement, Wars and War Memorials. Netizens can also logon to know the information related to the Independence Day event including minute-to-minute programme, route map, parking details, RSVP and details of other activities. The programme calendar for all initiatives taken by various ministries to mark the occasion is also available on the platform.

Around 40 events are being organised across the country by the Armed Forces and various other segments of Ministry of Defence, including Border Roads Organisation (BRO), National Cadet Corps (NCC) and Indian Coast Guard (ICG).

Under the unique web-based RSVP system, a QR code will be affixed on each invitation card which is to be scanned by the invitee using his/her smart phone. On scanning the QR code, a web link will be generated through which the invitee will be directed to the web portal. On the portal, invitees can submit their willingness to attend the function.

Speaking on the occasion, Defence Secretary Dr Ajay Kumar said, the platform aims to imbibe the culture of togetherness among the masses so that they can celebrate this landmark occasion and unite under common identity of being Indians. He shed light on the number of activities planned in the run up to IDC 2021, including all women mountaineering expedition at Mount Manirang, 75

Medical Camps being organised by BRO and statue cleaning activities to be carried by NCC cadets at 75 places across the country.

Dr Ajay Kumar added that people will soon be able to pay online tribute to the fallen heroes at the National War Memorial (NWM) in New Delhi. Interactive kiosks are being set up at NWM where people can pay homage to the bravehearts through digital means, he stated. The Defence Secretary also said that motivational talks with gallantry awardees or their next-to-kin and Veer Naris are also being organised as part of the IDC 2021. The details of the events are available on the website.



<https://pib.gov.in/PressReleasePage.aspx?PRID=1741960>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Tue, 03 Aug 2021 5:48PM

रक्षा सचिव ने 75 वें स्वतंत्रता दिवस समारोह पर वेबसाइट का शुभारंभ किया

- ➡ दुनिया भर के भारतीयों को स्वतंत्रता दिवस मनाने के लिए जोड़ने वाला मंच
- ➡ समारोह से जुड़ी सभी गतिविधियों की जानकारी देने के लिए
- ➡ लाल किले से मुख्य घटना की लाइव स्ट्रीमिंग; वीआर 360 डिग्री में लाइव फीड
- ➡ अन्य प्रमुख विशेषताओं में विशेष आईडीसी रेडियो, गैलरी, इंटरएक्टिव फिल्टर, ई-बुक और ब्लॉग शामिल

भारत विदेशी शासन से आजादी के 75वें वर्ष पूरे होने पर 'आजादी का अमृत महोत्सव' मना रहा है। पूरा देश देशभक्ति के जोश में सराबोर है। इस महत्वपूर्ण अवसर को मनाने के लिए रक्षा सचिव डॉ. अजय कुमार ने दिनांक 3 अगस्त, 2021 को नई दिल्ली में 75वें स्वतंत्रता दिवस समारोह 2021 (IDC 2021) पर एक वेबसाइट <https://indianidc2021.mod.gov.in> लॉन्च की। यह हमारे राष्ट्रीय उत्सव को मनाने के लिए दुनिया भर से भारतीयों को जोड़ने वाला एक मंच है। आने वाले दिनों में आईडीसी 2021 प्लेटफॉर्म का मोबाइल एप लॉन्च किया जाएगा।

यह मंच सभी के लिए स्वतंत्र रूप से सुलभ है और आईडीसी 2021 के इर्द गिर्द केंद्रित गतिविधियों के बारे में अद्यतन जानकारी प्रदान करता है। इसमें समस्त भारतीय प्रवासी शामिल हैं ठीक ऐसे जैसे वह व्यक्तिगत रूपसे समारोह का हिस्सा हों। यह सभी उम्र के लोगों खासकर युवाओं को जोड़ने का एक प्रयास है।

यह प्लेटफॉर्म पहली बार दिनांक 15 अगस्त, 2021 को भव्य लालकिले पर आयोजित स्वतंत्रता दिवस समारोह को वर्चुअल रियलिटी (वीआर) 360 डिग्री प्रारूप में लाइव स्ट्रीम करेगा। लोग इस सुविधा का उपयोग वीआर गैजेट के साथ या उसके बिना कर सकते हैं।

यह मंच विशेष आईडीसी रेडियो, गैलरी, इंटरएक्टिव फिल्टर, वीरता के कारनामों पर ई-पुस्तकें, 1971 की जीत के 50 साल तथा स्वतंत्रता आंदोलन पर ब्लॉग्स, युद्ध और युद्ध स्मारक जैसी सुविधाएँ भी प्रदान करता है। इंटरनेट के उपयोगकर्ता मिनट-टू-मिनट कार्यक्रम, रूट मैप, पार्किंग विवरण, आरएसवीपी और अन्य गतिविधियों के विवरण सहित स्वतंत्रता दिवस कार्यक्रम से संबंधित जानकारी जानने के लिए लॉग ऑन भी कर सकते हैं। इस अवसर को मनाने के लिए विभिन्न मंत्रालयों द्वारा की गई सभी पहलों के लिए कार्यक्रम कैलेंडर भी इस प्लेटफॉर्म पर उपलब्ध है।

सीमा सड़क संगठन (बीआरओ), राष्ट्रीय कैडेट कोर (एनसीसी) और भारतीय तटरक्षक (आईसीजी) समेत सशस्त्र बलों और रक्षा मंत्रालय के विभिन्न अंगों द्वारा देश भर में लगभग 40 कार्यक्रम आयोजित किए जा रहे हैं।

एक अनूठी वेब आधारित आरएसवीपी प्रणाली के तहत प्रत्येक निमंत्रण कार्ड पर एक क्यूआर कोड अंकित किया जाएगा जिसे आमंत्रित व्यक्ति द्वारा अपने स्मार्ट फोन का उपयोग करके स्कैन किया जाना है। क्यूआर कोडको स्कैन करने पर एक वेब लिंक जनरेट होगा जिसके माध्यम से आमंत्रित व्यक्ति को वेब पोर्टल पर निर्देशित किया जाएगा। पोर्टल पर आमंत्रित व्यक्ति समारोह में भाग लेने के लिए अपनी इच्छा प्रकट कर सकते हैं।

इस अवसर पर बोलते हुए रक्षा सचिव डॉ. अजय कुमार ने कहा कि इस प्लेटफॉर्म का उद्देश्य जनता के बीच एकजुटता की संस्कृति को आत्मसात करना है ताकि वे इस ऐतिहासिक अवसर का जश्न मना सकें और भारतीय होने की आम पहचान के तहत एकजुट हो सकें। उन्होंने आईडीसी 2021 तक नियोजित गतिविधियों की संख्या पर प्रकाश डाला, जिसमें माउंट मणिरंग में सभी महिला पर्वतारोहण अभियान, बीआरओ द्वारा आयोजित किए जा रहे 75 चिकित्सा शिविर और देश भर में 75 स्थानों पर एनसीसी कैडेटों द्वारा की जाने वाली प्रतिमा की सफाई संबंधी गतिविधियों पर प्रकाश डाला गया।

डॉ अजय कुमार ने कहा कि लोग जल्द ही नई दिल्ली में राष्ट्रीय युद्ध स्मारक (एनडब्ल्यूएम) में शहीद हुए वीरों को ऑनलाइन श्रद्धांजलि दे सकेंगे। उन्होंने कहा कि एनडब्ल्यूएम में इंटरएक्टिव कियोस्क स्थापित किए जा रहे हैं जहां लोग डिजिटल माध्यमों से बहादुरों को श्रद्धांजलि दे सकते हैं। रक्षा सचिव ने यह भी कहा कि आईडीसी 2021 के अंतर्गत वीरता पुरस्कार विजेताओं या उनके परिजनों और वीर नारियों के साथ प्रोत्साहित करने वाली वार्ता भी आयोजित की जा रही है। आयोजनों का विवरण वेबसाइट पर उपलब्ध है।



<https://pib.gov.in/PressReleasePage.aspx?PRID=1742056>



Wed, 04 Aug 2021

Army Chief on transformation imperatives for Indian Army in coming decades

‘Transformation Imperatives for the Indian Army in the Coming Decades’ is a necessity that is already upon us. ‘Transform or Perish’ is more relevant today than at any time in the past. Consider this, our neighbourhood which has been volatile in the best of times, is witnessing unprecedented changes in terms of security implications for our country. These challenges are testing the strength and resilience of our pillars of National Power. With every crisis comes opportunity, and as Churchill said “Never let a good crisis go to waste”.



Throughout history there have been profound developments, geo-political, technological and even doctrinal that have brought about transformative changes in the character of conflict and prosecution of war. The strong and mighty, those who have remained rooted to old forms and convictions, have been too slow to change. They have made way for the nimble and fleet footed, both in thought and action. These are the realities of the changing world order, the rise and fall of nations. Much the same is mirrored in the corporate world as well, wherein renowned MNCs who failed to transform have become extinct.

So what has really changed and is this change transformative or merely evolutionary development over time?

Consider a scenario....sitting at home, watching the World Cup finals, checking WhatsApp messages, sipping your favourite brew while also listening to your wife. The TV screen turns blue and displays the message “Your Set-Up Box is not receiving any Signal. This could be due to bad weather or bad connectivity”. The WhatsApp hangs. Now, only the wife is audible.

You pick-up the landline phone, since the network is out, to lodge a complaint, but there is no dial tone. You curse the weather and start fiddling about with various cables and switches, trying to get the TV going again – after all it is the World Cup Finals. A half-hour has passed.

With little to cheer in your efforts, you hear the sound of the DR’s motorcycle downstairs. You tell yourself – “Good, now at least I can get someone to repair my TV”. But wait, it is the Duty Officer from the Military Operations Directorate urgently requesting you to the Ops Room. All he can tell you, is that some channels are reporting kinetic strikes on the border areas as well as significant disruptions in the rail and air traffic. As you head out, your wife asks you from behind if you will be back for lunch.

The social media is rife with conflicting, misleading and sensational messages. In this haze and confusion, it is near impossible to distinguish the real from the fake. Up on the frontline, Commanders are wondering what to do and awaiting orders. The battalions are battle ready and good to go. But alas, oblivious to everything, you were sitting repairing your TV. Though the tensions had been building up, such is the innocuous start to the War.

Even while the troops at the forward defended localities (FDLs) are all primed and in a state of high alert, it is the command and control centres, airfields, depots and strategic communication nodes in depth that take the first hit from stand-off vectors with precision targeting. Swarms of low flying autonomous drones breach or overwhelm the Air Defence cover in the second wave,

targeting the artillery guns, missile bases and tank concentrations. Rocket and missile attacks from stand-off distances join battle to degrade conventional capabilities and soften the targets. Operations will unfold in 'Reverse Linearity' with the FDLs possibly being the last to be addressed, if at all.

Such situations of loss of access to networks and paralysis due to totally unexpected pattern of unfolding events are being wargamed by many Armed Forces across the world. For example, the US Military, during a recent war gaming exercise realised that the Blue Forces suffered a brutal loss from an aggressive Red Team that had been studying their warfighting concept for past many years, with the Red Team targeting information networks right at the beginning itself, resulting in total paralysis of the Blue Team.

Technology Boom Altering Character of warfare

Various versions of this scenario have been played out, in different forms, in recent conflicts. In September 2019, we saw the Aramco air strikes – the fascinating drone/missile combination that penetrated some of the most sophisticated Air Defence Systems of the world to strike with 95% accuracy. Then again, first in Idlib and later in Armenia – Azerbaijan, we witnessed the imaginative and offensive employment of drones that sent the prima donnas of conventional warfare, the tanks, guns and large combat systems scurrying for cover. One key lesson that emerged was that the concentration of aircraft, ships and other forces to reinforce each other's combat power made them sitting ducks. The tendency to converge to fight, makes you vulnerable to the precision fires available to the adversary. There is therefore, a need to aggregate fires rather than platforms.

More recently, the Israel – Hamas conflict has been a demonstration in the use of disruptive technologies to exponential effects. Operation Guardian of The Walls, the 11 day offensive by Israel against Hamas in the Gaza strip, was driven majorly by capacities in niche technologies including Artificial Intelligence. An Advanced AI-platform was created by the Israeli Defence Forces that integrated all data of the adversary into one system – a combination of super cognition, lethality and sophistication. It led to superior analysis and extraction of intelligence and precision targeting of the Hamas Operational Posture. Satellites were deployed to detect changes in dispositions in real time. Facial recognition techniques were exploited to target Commanders. With fusion of latest technologies, the Iron Dome yet again emerged as a remarkable system for Israel.

These precursor events can well be extrapolated to draw out the contours of future wars. So the impact of technologies on strategic – military affairs, in recent times, has been profoundly disruptive. This Technology Boom is altering the very character of warfare, it is impacting the combined – arms balance and the combat framework of Tactics, Techniques and Procedures. Technology is increasingly becoming a Core Combat Capability and even a key Principle of War.

It is already making unequal's on the battlefield equal, as also impacting the very mechanics of the company and squadron assaults and the nature of the physical fight. The Ends, Ways and Means construct has been turned on its head which was the primary methodology for evolving doctrines and concepts. Today, technology has become the driver for formulating doctrines and concepts.

It is already being acknowledged that these transformative technologies will create new digital colonies and satellite states; new winners and losers in the strategic competition, new power centres, new haves and have-nots amongst nation states. By way of impact and influence, it will exceed the Industrial Revolution by several orders of magnitude.

Technology: Vital Tool to Address Military Asymmetry at Northern Borders

Technology as a vital tool in addressing power and military asymmetries is a very useful proposition, especially in our strategic competition with our Northern neighbour. With a large gap in defence spending, it is the suitable utilisation of technology that can enable us to temper and even out the military imbalance.

This Technology Boom comes at a time of significant changes in the global power calculus, the shift in balance of power to Asia, a contest for the global commons and threat to the Rules Based

Order. This challenge to accepted norms and agreements has manifested in a notion of superiority or lawlessness, the expansionist agenda resulting in unilateral actions on our Northern Borders to change the status quo.

In fact the developments on our Northern Borders indeed reflect the complexity of the challenges we face. On one side, there are new threats on the horizon, but on the other, the legacy challenges with regard to our unsettled borders, and therefore the threats to the preservation of our territorial integrity and sovereignty, cannot be wished away. This is the hard reality that needs to be factored in all our future calculations.

So what are the imperatives that flow out from our appraisal of the future operational environment?

To answer that, I would like to draw an analogy, with a game of Football being played between two teams. This example, I had also given in my address at the Vivekanand International Foundation, which I would like to reiterate. Visualise, that on one side they are playing European style Soccer. An orderly game, where the rules are pretty stringent. Deliberate physical contact earns you a red card. The second team though, is preparing for a totally different kind of Football, American style Rugby. The game, unlike the earlier one, is intensely physical and complex. Even the shape of the ball is different, as is the goal and the scoring system. Not to mention the scantily clad cheer-leaders to distract attention – classic Information Warfare!

In such a contest, there is little doubt as to who will win. Do I need to emphasize, that the first team better change- and change fast!

Indian Army Needs to Transform

For years, our adversaries have studied the attributes, especially the weaknesses of Western style militaries in war-fighting. The Indian Army too is schooled in many of those Western precepts. In order to counter our operational experience and preparedness in hard core kinetics, our adversaries have developed stratagems and focused their energies in the ambiguous grey zone. They have sought to out manoeuvre us in the spectrum short of all out conflict, taking the battle to the newer domains of space, cyber, and informatics, drawing us out into areas where they enjoy a natural advantage and are significantly better equipped.

With Western militaries focusing on amassing massive combat power through the aggregation of large military platforms like tanks, guns and aircraft carrier led huge naval armadas, our adversaries have invested in creating a formidable stand-off enterprise in the form of long range precision fires, hypersonic vehicles and robust air defence capacities, apart from an impressive array of space, cyber and information operations tools.

So with all these developments we cannot continue with European style Soccer, we too need to transform our game.

Macro Determinants for Transformation

Let me now touch upon some Macro Determinants of this transformation as I see it:

Human Capital

The first and the foremost is our most capable and valuable asset, the Human Capital: the Officers and Soldiers who serve the Nation. From a young soldier or a Lieutenant of 20 plus years to the senior leadership between 50 to 60 years, there is a span of 3-4 decades. The aspirations, perceptions and outlook have generational gaps.

With rapid urbanisation, societal norms too have undergone significant changes. While that has always been so, what makes this gap more formidable is the rapid, almost exponential change brought about by technology. There is no denying that the younger lot is a product of the information age and therefore more adept at handling technology. “The new generation is different, not indifferent. It is for the older generation to adapt, rather than try to mould the younger generation into versions of themselves”.

This Human Resource will need to develop an understanding of the current environment and own the change that is in the offing. A Directive Style of leadership with greater freedom of action

at each level and decentralised control is the only way to develop the capability in commanders at all levels to act in consonance with the larger objective, in the absence of orders.

While raising the technical threshold, there is also the need to concurrently develop multi-domain competencies than are currently present, for effective integration. These new skills are required to handle modern technologies and systems in Cross-Domain Operations.

Commanders will have to be comfortable using AI enabled systems while taking decisions. They would need to understand the limitations of these machines and the mistakes that they may commit. Therefore, these intelligent and autonomous systems will have to be complemented with carefully calibrated levels of human control for legal and ethical assurance.

There is lot of work underway to train, reorient and empower this human capital to new age warfare. The Shimla based Army Training Command has restructured the training curriculum of various courses. We are working towards Domain Specialisation in niche areas. There is focus on providing cross-domain exposure and multi-skilling for optimal employment. Plausible scenarios are regularly war-gamed to adapt and orient.

Realign Doctrinal Precepts

That brings me to the next imperative, that of reappraisal of our Doctrine, Tactics, Techniques and Procedures to adapt to the realities of the contemporary battlefield environment. Militaries have long been accused of training to fight the last war. The reality is, that it is not easy to anticipate the contours of the next war, especially in the context of the scenario outlined earlier.

Our own Design of Battle must flow out from the envisaged Enemy Pattern of Operations. If our adversary has shown greater inclination for Non-Contact Warfare, we too need to develop greater prowess in the new domains of Space, Cyber and the Digital Spaces to shape the battlefield. While being prepared for war, we must also be equally adept at countering competition and confrontation, below the threshold of hostilities, in the Grey Zone. The spectrum of conflict is not restricted to only the first quadrant i.e., plus – plus on the x – y scale but may lie anywhere, and in the worst case, we may be in a state of conflict without even knowing it, in the minus – minus quadrant.

Concentration of effects through synergised and cumulative application of capabilities for desired outcomes will have to be achieved at the point of decision without physical concentration of forces. In order to execute a strategy that flows from our doctrinal precepts, we must have the right structures and organisations. Force Structuring therefore becomes the next operational imperative that I shall briefly touch upon.

Force Structuring

We cannot hope to fight and win the next war with legacy structures evolved from the past. Our force structures must be agile, flexible, modular and networked. They should reflect the realities and challenges of the contemporary battlefield. While being organised as we fight, we should be able to strike the right balance between the combat and the support elements, more frequently referred to as the teeth to tail ratio.

Our structures must support faster decision making. The ongoing transformation into Integrated Battle Groups or IBGisation not only configures the structure to its operational task but also shortens the OODA loop by removing a layer from the existing hierarchy of command and control.

At the Joint Services level, the transition to Theatre Commands is already going through initial considerations. All changes will be carried out after detailed deliberations and war-gaming to bring in greater operational efficiency and transform the Armed Forces into lean, agile and battle winning forces.

However, I must confess here that what we have achieved thus far, is merely jointness for the industrial era; we need to transit rapidly to full scale integration for digital era combat as also in the pursuit of greater interoperability. It is hard enough to be joint, the difficulties in interoperability will be many times greater. We need to recognise the scale and magnitude of the challenge, and move with greater rapidity towards integration in combat, cross governmental fusion and complete dissolution of inter-agency as also civil and military silos.

That brings me to the last point, that of Capability Development.

Capability Development

There is a dynamic relationship between evolving security threats and capability development, each trying to outsmart the other. Thus, to remain current and relevant, capability development must foresee future threats, and evolve accordingly.

Military capability development today is not the sole preserve of the Defence Industry alone. The race for dual use cutting edge technology the world over, has led to an unprecedented civil-military fusion not seen in the past. Military, technology entrepreneurs and traditional centres of excellence in science, are coming together for the larger military good. Let me illustrate this with a few examples.

Civil-Military Fusion

China's National University of Defence Technology, as part of its Thousand Talent Plan, has recruited ten top of the line Professors from across the world, to drive cutting edge military projects. The US Army Futures Command, has signed MoUs with 300 top colleges and universities to propel cutting edge R & D in defence. These examples are largely to give you a flavour of which way the world is headed.

In the Indian context, the twin challenges of COVID, and the belligerence of our adversary on the Northern Borders, have brought to fore the vulnerability of global supply chains, underscoring the critical need for self-reliance. However, it must be appreciated, that the dual requirement of fast-tracking modernization, and simultaneously promoting self-reliance, are indeed challenging objectives, for a developing nation like India. Considering the quick pace of defence modernization, being undertaken by our adversaries, we cannot afford to be lagging behind.

What Are We Doing?

In the last few years, we have tried to reduce our reliance on exports by boosting indigenization and focusing on dual purpose, high end technology. This approach, will not only ensure self-reliance, but will also hold good, during times of emergency. We are committed towards all-out support, to enable our industry, especially in the domain of R&D, which will afford cutting edge technology, to win the wars of tomorrow. It may be noted that 75% of Priority 1 projects of the 13th Army Plan, costing over `Rs 1,50,000 crore are supporting our efforts towards indigenization.

The Army Design Bureau, since its inception in 2017, is harnessing the potential of the local industry and academia, for addressing the requirements of the Indian Army. It has undertaken pan-India mapping of institutions including the Indian Institutes of Technology. The huge potential of technological research offered by the IITs and the Start-up Incubation Centres established by these premier Institutes is being tapped for progressing indigenous development of niche technologies.

Hand holding of Industry by providing Firing Ranges, Testing Facilities, Equipment and Weapon System, Innovation Competitions, 'Def-Expo' etc, have resulted in coherent development of capabilities, aligned to the requirements of the Indian Army. Various initiatives have been undertaken under iDEX. Recently, iDEX4 Fauji was launched along with Defence India Start-up Challenge IV (DISC IV) to generate futuristic ideas for innovations in defence manufacturing.

The outreach to Industry by the Indian Army has enabled local players & start-ups to showcase their equipment. Many of these have been demonstrated and evaluated in actual operational areas. Supply orders have been placed and deliveries, delayed due to COVID, are likely to begin within the month. A very effective interface has been created with the academia and the defence industry through ARTECH (Army Tech) Seminars to synergize efforts aligned to our felt needs.

We have also brought about major structural changes in our organisation by aligning both the revenue and capital routes of procurement under the Deputy Chief of Army Staff (Capability Development and Sustenance).

However, this alone is not enough. Our procurement process unfortunately has not kept pace with the requirements of time. Many procedural lacunae have crept into the acquisition process which due to the over bearing nature of our rules & regulations, leading to a 'Zero Error Syndrome'. This is further aggravated by our own interpretation of rules. We end up not being able

to fast track the process of acquisition, because we try to cater for every contingency and plug every loophole. This results in the acquisition process being tied up in knots. The needs of Information Era Warfare cannot be hamstrung by the procedures of the Industrial Age.

The need of the hour is to have a metamorphosis here too, perhaps even doing away with the concept of the L1 vendor altogether. As I keep saying, for real transformation to take place, we require a Revolution in Bureaucratic Affairs.

Conclusion

Towards the end, I would like to conclude by saying, that the Indian Army is undergoing a silent transformation, to remain a potent and capable instrument, of the Nation to face future challenges. Rebalancing of Forces, Organisational Restructuring, and Capability Development in new domains of warfare, are concurrently taking place alongside investment in Human Capital.

Wars today, more than ever before, require a Whole of Nation effort. The transformation of the Indian Army and indeed of the Armed Forces needs to be resource informed. I wish to assure you that efforts to remain at the cutting-edge are ongoing. On its part the Indian Army shall continue to deliver, as it has in the past, and live up to the trust and faith reposed in us by the Nation.

(Note: "Full text of the talk delivered by Army Chief Gen MM Naravane at the United Services Institution on 3 August, 2021".)

<https://bharatshakti.in/army-chief-on-transformation-imperatives-for-indian-army-in-coming-decades/>

Business Standard

Wed, 04 Aug 2021

Indian Air Force Chief RKS Bhadauria reaches Israel on official visit

Indian Air Force chief RKS Bhadauria on Tuesday reached Israel in an official visit on the invitation from his counterpart Major General Amikam Norkin

Indian Air Force chief RKS Bhadauria on Tuesday reached Israel in an official visit on the invitation from his counterpart Major General Amikam Norkin.

"Indian Air Force chief RKS Bhadauria reached Israel yesterday on an official visit on an invitation from his counterpart Major General Amikam Norkin," tweeted Indian Air Force (IAF).

Both sides will be discussing enhancement in depth and scope of bilateral exchanges between the two Air Forces.

"As strategic partners, India & Israel enjoy strong, multi-dimensional ties, an important pillar of which is defence cooperation & military level exchanges. Both sides will discuss enhancement in depth & scope of bilateral exchanges between the two Air Forces," added the IAF tweet.

Earlier, Bhadauria visited UAE at the invitation from Major General Ibrahim Nasser M Al Alawi Cdr UAE Air Force and Air Defence (UAE AF & AD) on Monday.

(Only the headline and picture of this report may have been reworked by the Business Standard staff; the rest of the content is auto-generated from a syndicated feed.)

https://www.business-standard.com/article/current-affairs/indian-air-force-chief-rks-bhadauria-reaches-israel-on-official-visit-121080400161_1.html



इजरायल दौरे पर पहुंचे वायुसेना प्रमुख RKS भदौरिया, दोनों देशों के एयरफोर्स के द्विपक्षीय आदान-प्रदान पर होगी चर्चा

इससे पहले एयर चीफ मार्शल शनिवार को संयुक्त अरब अमीरात पहुंचे। इस यात्रा का मकसद भारत के खाड़ी देशों के साथ बढ़ते रणनीतिक संबंधों को और मजबूत करना रहा। उनकी यह यात्रा सेना प्रमुख जनरल एम एम नरवणे की UAE की यात्रा के करीब आठ महीने बाद हुई।

Edited By: अमृत सिंह

भारत के एयर चीफ मार्शल आर के एस भदौरिया (RKS Bhadauria) तीन अगस्त को इजरायल (Israel) पहुंचे। वायुसेना प्रमुख (Indian Air Force chief) इजरायली एयर फोर्स (Israel Air Force) के कमांडर मेजर जनरल अमीकम नोकिन (Major General Amikam Norkin) के बुलावे पर इजरायल के आधिकारिक दौरे पर गए। इससे पहले, भारतीय वायुसेना प्रमुख शनिवार को संयुक्त अरब अमीरात (UAE) की यात्रा पर रवाना हुए। यह यात्रा भारत के खाड़ी देश के साथ बढ़ते रणनीतिक संबंधों का परिचायक रही।



भारतीय वायुसेना प्रमुख आरकेएस भदौरिया (फाइल फोटो)

वहीं, वायुसेना प्रमुख की इजरायल यात्रा को लेकर भारतीय वायुसेना ने कहा, 'सामरिक भागीदारों के रूप में भारत और इजरायल के बीच मजबूत और बहु-आयामी संबंध हैं। इसमें एक महत्वपूर्ण स्तंभ रक्षा सहयोग और सैन्य स्तर पर आदान-प्रदान है। भारत और इजरायल दोनों वायुसेनाओं के बीच द्विपक्षीय आदान-प्रदान की गहराई और दायरे में बढ़ोतरी को लेकर चर्चा करेंगे।' बता दें कि भारत और इजरायल के बीच काफी अच्छे संबंध हैं। ये संबंध रक्षा सहयोग से लेकर राजनयिक तक हैं। भारत इजरायल से उन्नत हथियारों को भी खरीदता रहता है।

रक्षा सहयोग मजबूत करने के लिए UAE पहुंचे वायुसेना प्रमुख

इससे पहले, एयर चीफ मार्शल आर के एस भदौरिया शनिवार को संयुक्त अरब अमीरात (UAE) पहुंचे। इस यात्रा का मकसद भारत के खाड़ी देशों के साथ बढ़ते रणनीतिक संबंधों को और मजबूत करना रहा। उनकी यह यात्रा सेना प्रमुख जनरल एम एम नरवणे की UAE की यात्रा के करीब आठ महीने बाद हुई। पिछले साल दिसंबर में नरवणे ने संयुक्त अरब अमीरात और सऊदी अरब की छह दिवसीय यात्रा की थी। किसी भी भारतीय सेना प्रमुख द्वारा दो महत्वपूर्ण खाड़ी देशों की अपनी तरह की यह पहली यात्रा थी। एक आधिकारिक विज्ञप्ति में बताया गया कि भारतीय वायु सेना प्रमुख की संयुक्त अरब अमीरात की यह 'सद्भावना यात्रा' है और इससे द्विपक्षीय रक्षा सहयोग को मजबूती मिलेगी।

2015 से काफी बेहतर हुए हैं भारत-इजरायल संबंध

भारत और इजरायल के बीच 1990 के दशक के बाद से रिश्ते काफी अच्छे रहे हैं। दोनों देशों के नेता एक-दूसरे के मुल्कों में यात्रा करते रहते हैं। इसके अलावा, भारत और इजरायल के शीर्ष रक्षा अधिकारी भी एक-दूसरे के लगातार संपर्क में रहते हैं। 2015 के बाद से ही दोनों मुल्कों के रिश्ते काफी अच्छे हुए हैं। प्रधानमंत्री नरेंद्र मोदी ने भी 2017 में इजरायल का दौरा किया था। 2018 में बेंजामिन नेतन्याहू ने 6 दिनों

का भारत का विस्तृत दौरा किया। हालांकि, इन सब के बाद भी संयुक्त राष्ट्र में भारत ने यरुशलम को इजरायल की राजधानी के तौर पर मान्यता संबंधी प्रस्ताव के विरोध में वोट किया।

<https://www.tv9hindi.com/world/middle-east-news/rks-bhadoria-israel-trip-indian-air-force-chief-rks-bhadoria-reached-israel-major-general-amikam-norkin-765730.html>

india.com

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Modern counter drone systems – challenges for the forces and the Indian dilemma

In the current asymmetric scenario where small commercially available drones are being used to drop small payloads, there are challenges which need to be addressed

By Amit Bansal

New Delhi: Last one month has been full of events on our western border where a large number of intrusions reported by Unmanned Aerial Platforms or aerial drones from our western neighbour. On the 27th of June this year, India's Jammu Air Force Station was rocked by two low-intensity blasts which were result of improvised explosive devices dropped by Unmanned Aerial vehicles.

Since then, India has been trying hard to get a robust counter-drone technology and finally, the Indian Air Force is inviting responses from various indigenous and foreign vendors for supply of the Counter Drone Systems for Indian Security Forces. In the current asymmetric scenario where small commercially available drones are being used to drop small payloads, there are challenges which need to be addressed.



Modern Counter Drone Systems – Challenges for the Forces and the Indian Dilemma

1. Difficult to detect- Since these drones are small having very small radar cross-section (RCS) & do not produce significant acoustic, they are difficult to detect for modern Radars. Even if we use Infrared or optical camera, their heat signatures and optical visibility is so less that detection by commonly available means is near impossible unless they come close to the potential target.

2. Easy availability & low cost- These drones are available off the shelf across the world and there is no control over their proliferation. Their cost is so low that any terrorist organisation can have them in large numbers. Our neighbour China is producing several million of small or big drones every year and sending them to across world as toys.

3. Can be improvised easily- These drones do not need specialist approach to modify them for any destructive task which makes them furthermore dangerous & hence a counter drone system becomes more inevitable.

4. Improved technology – The current scientific development in the field of drones is very fast. We have drones which are easily available in the market and can carry even a 100-pounder bomb. These drones can be equipped with Infrared, Smart optics & even synthetic aperture radars and can hover for several hours in the air. We even have drones with Artificial intelligence-based interface readily available online which makes them a favourite tool of terrorists.

Requisites of Modern Counter Drone Systems

As already brought out, the Indian Airforce has invited interest from manufacturers and is planning to commence the procurement procedure in the next few months. Keeping in view of the

challenges as mentioned above, there are some technological necessities which are must for a counter-drone system. These are detection, Identification and destruction or neutralisation of drones.

Detection Necessities- Since it is difficult to detect these drones, a multi-layer detection system is necessary which should include Phased Array Radars, Millimetric wave radars, Infra-Red Sensor, Optical Sensor, Radio Frequency sensor (To detect the communication line of drone) etc. Having a system in place where they work in tandem with the identification systems is a challenge too.

Identification- Once an object is detected, it must be identified well. An object can be a bird, a balloon or any other object which may not be a real threat. For an effective drone neutralisation system, identification can be done by means of analysis of data obtained by sensors, analysis of radio frequency, Acoustic signatures or by optical and visual identification. Multi sensor data can also be analysed using AI for a fool proof detection and identification.

Neutralisation of Drones- The destruction or neutralisation of these drones can be carried out by two methods – Soft Kill and hard Kill. Usually, soft kill methods can be adopted when the concerned drone is away from the target area. Soft kill will include jamming of its operating frequency, Black out its navigation system, Blocking its sensors and various other means of electronic warfare.

In case of hard kill, there are various options to include Laser Beam, Guided Machine guns, Quick reaction weapons, Electromagnetic pulse and even small radar guided projectiles.

The Indian Dilemma

In case of India, there are massive challenges. First and foremost is the large frontier of India which constitutes snow clad peaks to tiny islands & from Barren deserts to impregnable forests. Establishing a robust system across such terrain or our borders will not only be much expensive but very difficult to establish and execute.

Furthermore, there is always a debate in India for Indigenous vs foreign technology. Past experiences of indigenisation have not been very successful due to red tapism & bureaucratic mindset of our defence PSUs. This need to be addressed well and we have no time to wait.

Cost factor is another challenge. While foreign technologies are expensive, Indian technologies are still in the nascent stage and there is no indication of their likely cost.

Drone swarms are a big challenge, while it may be easy to handle a handful of such rogue drones, India need a comprehensive system capable enough to handle hundreds or even thousands of such drones swarming a place of tactical or strategic importance.

In India, the legal framework to own and operate a drone just do not exist. Anyone can own a drone and operate it. This makes the entire country vulnerable to any kind of drone attacks. Imagine a rogue bird dropping a small bomb on an oil storage or an Ammunition dump of Forces which could lead to a catastrophe. Getting sale and purchase as well as scrapping out of these drones under a robust legal framework is an extreme necessity so that all the drones in the country are accountable for.

We have a long way to go and unfortunately the enemies are advancing much faster than us. It is the need of the day to move fast & move in the right direction.

<https://www.india.com/news/india/modern-counter-drone-systems-challenges-for-the-forces-and-the-indian-dilemma-4861120/>

India gearing up to deploy its much-awaited S-400 Missiles by early next year to neutralize PLAAF's stealth advantage?

By Anupama Ghosh

India could deploy its much-awaited S-400 missile defense system against China as early as the beginning of 2022, if the latest reports are anything to go by.

Earlier, various reports suggested that China has set up two squadrons of S-400 batteries at the Hotan airbase in Xinjiang and Nyingchi airbase in Tibet, close to the disputed Line of Actual Control (LAC).

India and China have been locked in a border standoff in eastern Ladakh for more than a year now. Their militaries got engaged in a violent clash in June last year, resulting in the death of 24 soldiers from both sides.

Russian firm Almaz Antey Corporation has reiterated that deliveries of the S-400 missile systems would begin from the end of this year, Mikhail Podvyaznikov, Deputy Director-General of the state-owned company, was quoted as saying.

He said the Covid-19 pandemic has not affected the work. "Not a single enterprise or workshop suspended their operations for even a single day," Podvyaznikov told reporters.

The final assembly and testing of the S-400 system are currently underway at the North-Western Regional Centre (NWRC) of the Almaz Antey Corporation. It is believed that each of the systems is being tested in a variety of climates, such as heat and cold, moisture and dust, along with different ranges of air pressure and elevations.

In order to prepare for the effective use of the systems once delivered, a group of Indian military specialists were sent to Russia earlier this year, The Hindu had reported.

Referring to the long history of military cooperation between the two countries, the Russian Ambassador Nikolay R. Kudashev had termed the supply of the Russian S-400 missile systems to India as "one of the flagship projects in the Russian-Indian military and military-technical cooperation".

It seems that the training of the Indian military personnel is progressing smoothly, as Podvyaznikov said, "the Indian officers have experience dealing with Russian equipment and therefore, they mastered new equipment during the training program quite easily".

The S-400 Deal

An inter-governmental agreement was signed between Russia and India for the supply of five S-400 missile systems on October 15, 2016. A \$5.43 billion deal was subsequently signed in October 2018.

India had decided to go ahead with the deal despite objections by the US. A similar deal with Russia has cost Turkey dearly after Washington punished the NATO member under Countering America's Adversaries Through Sanctions Act (CAATSA) and kicked it of the F-35 Joint Strike Fighter program.

The S-400 Triumf is an air defense missile system, an upgrade of the earlier versions of S-300P and S-200. First deployed in combat roles by the Russian army in August 2007, the S-400 system



The S-400 Triumf. (Via Twitter)

combines a multifunction radar, autonomous detection and targeting system. With anti-aircraft missile systems and launchers, it can create a layered defense by firing three types of missiles.

The system can be used to target aircraft, unmanned aerial vehicles (UAV), ballistic, and cruise missiles. It has a range of hitting targets within 400 km and at an altitude of up to 30 km.

Apart from the missiles of the earlier S-300P system, the S-400 has four new missiles. It can also launch 9M96E and 9M96E2 medium ground-to-air missiles. These missiles have a maximum range of 120 km and can hit mobile targets such as fighter aircraft with precision.

The command and control system has LCD consoles, which process air surveillance data of individual batteries. It can track and control long-range surveillance radar, track airborne threats and coordinate with the other batteries. It can also exchange data with other defense systems like the SA-12, SA-23, and S-300.

Russia recently tested its S-500 missile defense system firing it at a high-speed ballistic target at a training ground in the Astrakhan Region. According to Moscow, the S-500 missile system has no comparison in the world and can intercept an array of current and future weapons at all altitudes and speeds.

Why the US Hates S-400 So Much

The US' discomfort with its allies buying the S-400 system perhaps stems from the fact that the Russian air defense system has a powerful radar, which according to some experts, can detect even high-end stealth jets like the US' F-35.

The S-400 radars will be able to observe the F-35 "in all its flight profiles, thus being able to identify weak spots in stealth capability," David Stupples, a professor of electronic and radio systems at City, University London, was quoted as saying by DefenseOne.

Earlier this year, the outgoing US Ambassador Kenneth Juster had urged India to reconsider its decision to acquire the Russian defense systems, stating that such acquisition by India may impede future "technology transfers" as well as defense cooperation between India and the US.

During his visit to India in March this year, US Defence Secretary Llyod Austin had also discussed the acquisition of the Russian S-400 systems, reported Reuters. "We certainly urge all our allies, our partners to move away from Russian equipment, and really avoid any kind of acquisitions that would trigger sanctions on our behalf," had said.

At the time, he had also stated that since no S-400 systems have been delivered to India yet, any discussions on sanctions had not been initiated.

The US relation with its NATO ally Turkey has been strained since the latter had gone ahead with its decision to acquire the S-400 systems despite US objections. The US had urged its allies to boycott the use of the Russian missile system, highlighting it as a threat to NATO defense systems.

In 2019, Turkey received its first four S-400 batteries, which led the US to exclude the country from its F-35 fighter jet program. Further, Turkey's military procurement was also reduced through a sanction on export licenses.

The CAATSA prevents American companies from entering into any business deals with the countries facing US sanctions. Some analysts are of the opinion that while the US has imposed the CAATSA on Turkey, the case with India may be different.

According to an earlier report by The EurAsian Times, Turkey is a NATO ally and its acquisition of the Russian system may threaten the NATO defense systems. Further, Turkey has been predominantly a buyer of US armaments over the years.

On the other hand, New Delhi and Moscow are traditional defense partners and India acquires about 60 percent of its arms from Russia.

With regard to the US warnings, India maintained that the S-400 deal was its sovereign decision based on the entire spectrum of security challenges facing the country.

Further, the increasing security and trade relations between India and the US may also make the latter overlook India's acquisition of the Russian systems.

India's weapon procurement has increased from \$6.2 million in 2019 to \$3.4 billion in 2020. And any curbs under CAATSA will impact potential deals with US companies like Boeing, which is pitching its fighter jets to the Indian military.

<https://eurasianimes.com/india-gearing-to-deploy-its-much-awaited-s-400-missiles-by-early-next-year-to-neutralize-plaafs-stealth-advantage/>



Wed, 04 Aug 2021

US approves its ‘game-changer’ over-the-horizon missiles to the Indian Navy to counter China in IOR

In a big boost to the Indian Navy, the US has approved the sale of Harpoon over-the-horizon anti-ship missile test kit to India, the Defense Security Cooperation Agency (DSCA) said

By Jayanta Kalita

The Harpoon is expected to enhance the combat capability of the Indian Navy at a time when China is making forays into the Indian Ocean Region. The two nuclear-armed neighbors have been locked in a border standoff in the Himalayas for more than a year now.

“The State Department has made a determination approving a possible Foreign Military Sale to the Government of India of Harpoon Joint Common Test Set (JCTS) and related equipment for an estimated cost of \$82 million,” the DSCA said in a press release.

The DSCA delivered the required certification notifying US Congress of this possible sale on August 2, the release said.

The Harpoon is an all-weather, over-the-horizon, anti-ship missile, developed and manufactured by McDonnell Douglas (later merged with Boeing) that uses active radar homing and flies just above the water to evade air defenses.

The missile can be launched from fixed-wing aircraft without a solid-fuel rocket booster, from surface ships when fitted with a solid-fuel rocket booster, and from submarines when fitted with a solid-fuel rocket booster and encapsulated in a container to enable submerged launch through a torpedo tube, according to reports.



US Navy launches a Harpoon missile from a warship. (Image: Flickr)

The Harpoon provides the Navy and the Air Force with a common missile for air, ship, and submarine launches. The weapon system uses mid-course guidance with a radar seeker to attack surface ships.

Its low-level, sea-skimming cruise trajectory, active radar guidance, and warhead design ensure high survivability and effectiveness. The Harpoon missile and its launch control equipment provide a capability to interdict ships at ranges well beyond those of other aircraft.

The major system components of the Harpoon Block II missile include a booster, launch support structure, and canisters, as well as a command and launch system.

The 500lb penetration, high-explosive blast warhead provides the missile with sufficient firepower to destroy coastal defense and surface-to-air missile sites, aircraft, port / industrial installations, and docked ships.

The ship-launched Harpoon Block II has a length of 4.62m, while the length of the air-launched missile is 3.84m. The diameter of the missile is 34.3cm, while its weight varies between 526kg and 690.8kg based on the launch configuration.

In April 2020, the US approved the sale of 16 MK 54 lightweight torpedoes and 10 AGM-84L Harpoon Block II air-launched missiles to India for \$155 million. As per the Defence Security Cooperation Agency's (DSCA) press release, the proposed sale was said to enhance India's interoperability with the United States and other allied forces.

How Will Harpoon Missiles Benefit India?

The DSCA further stated that "India will use the enhanced capability as a deterrent to regional threats and to strengthen its homeland defense" and that the deal will "improve the security of a major defensive partner, which continues to be an important force for political stability, peace, and economic progress in the Indo-Pacific and South Asia region".

According to many officers in the US Navy, the Harpoons were initially designed during the Cold War era. However, as the nature of the conflict changed and the Russian threat had also declined, the Harpoons were not as popular with the US defense establishment.

Instead, the US thought of investing in newer and better weapons, which were lighter, faster, and not easily detectable. Even so, it is a good weapon system for the Indian military as the Harpoons have reportedly displayed "satisfactory performance" many times.

During the RIMPAC (Rim of the Pacific) exercise in 2018, the Harpoons were able to hit all of the six targets successfully.

"No question... From my perspective, it worked flawlessly" was what Commander of US Pacific Fleet's Submarine Force Rear Admiral Daryl Caudle said of the Harpoon.

Currently, the Indian Navy faces a resource crunch and needs to make smart decisions. Harpoons offer an economical, more familiar alternative (India first purchased 24 AGM-84L Block II Harpoons in 2010 for the Indian Air Force), according to Nitin J Ticku, a defense analyst with the EurAsian Times.

Last year, India test-fired the naval variant of BrahMos supersonic cruise missile from the Andaman and Nicobar Islands territory. The BrahMos missile has now been inducted into all three services of the Indian military.

<https://eurasianimes.com/us-approves-its-game-changer-over-the-horizon-missiles-to-the-indian-navy-to-counter-china-in-ior/>

Explained: The importance of the anti ship missile Harpoon

New Delhi: The US has approved the sale of Harpoon Joint Common Test Set (JCTS) and related equipment to India for an estimated cost of USD 82 million, a decision which it said will help strengthen the bilateral strategic ties and improve the security of a major defensive partner in the Indo-Pacific region, PTI reported.

The Pentagon's Defense Security Cooperation Agency (DSCA) delivered the required certification notifying the US Congress of this possible sale on Monday, according to an official statement. Harpoon is an anti-ship missile.



"The Government of India has requested to buy one Harpoon Joint Common Test Set (JCTS). Also included is one Harpoon Intermediate Level maintenance station; spare and repair parts, support, and test equipment; publications and technical documentation; personnel training; US Government and contractor technical, engineering, and logistics support services; and other related elements of logistics and programme support. The estimated total cost is USD 82 million," it said.

"This proposed sale will support the foreign policy and national security of the United States by helping to strengthen the US-Indian strategic relationship and to improve the security of a major defensive partner, which continues to be an important force for political stability, peace, and economic progress in the Indo-Pacific and South Asia region," the DSCA release said.

During the visit of Prime Minister Narendra Modi to the US in June 2016, the US recognised India as a "Major Defence Partner", which commits the U.S. to facilitate technology sharing with India to a level commensurate with that of its closest allies and partners, and industry collaboration for defence co-production and co-development.

The proposed Foreign Military Sale, the State Department said, will improve India's capability to meet current and future threats by providing it with flexible and efficient Harpoon missile maintenance capabilities to ensure maximum force readiness.

Noting that India will have no difficulty absorbing this equipment into its armed forces, the Pentagon said the proposed sale of this equipment and support will not alter the basic military balance in the region.

"The principal contractor will be The Boeing Company, St. Louis, Missouri. There are no known offset agreements proposed in connection with this potential sale. Any offset agreement required by India will be defined in negotiations between the purchaser and the contractor(s)," it said.

The Harpoon, first deployed in 1977, is an all-weather, over-the-horizon, anti-ship missile system. It has a low-level, sea-skimming cruise trajectory with active radar guidance, according to Boeing.

The Harpoon missile is the world's most successful anti-ship missile and is in service with the armed forces of more than 30 countries, according to the US defence major.

<https://www.oneindia.com/india/explained-the-importance-of-the-anti-ship-missile-harpoon-3294476.html>

Germany's warship to conduct military exercise with India, allies in South China Sea

It would be the first time in almost two decades that a German warship has set its course for Indo-Pacific on orders of German Chancellor Angela Merkel

By Zaini Majeed

“Why is Germany sending a frigate through the South China Sea?” Chinese state media and leading newspapers ran headlines on Tuesday after German Chancellor Angela Merkel ordered the German Navy to divert the Brandenburg-class frigate Bayern warship into the South China Sea. It would be the first time in almost two decades that a German combat vessel has set its course for the Indo-Pacific and that the German military will be deployed in the hotly contested South China Sea in a mighty show of military alliance with India, Japan, Australia, UK and the US against People’s Republic of China’s belligerence and expansionist maritime claims.



France has also waded into the South China Sea with French nuclear attack submarine SNA Emeraude conducting patrols. SNA Emeraude was among two navy warships that sailed into the Pacific. “This extraordinary patrol has just completed a passage in the South China Sea. A striking proof of our French Navy's capacity to deploy far away and for a long time together with our Australian, American and Japanese strategic partners,” Defence Minister Florence Parly wrote on Twitter.

But the latest to enter the maritime hotbed this past week was the British aircraft carrier strike group led by the aircraft carrier HMS Queen Elizabeth that flew into the South China Sea to assist the US Marine Fighter Attack Squadron 211 for flight deck operations and conduct military exercises with Indian Navy. British Royal Navy's aircraft carrier caught the attention in the disputed South China Sea, sending Beijing's People's Liberation Army Navy on combat readiness. As China monitored HMS Queen Elizabeth's movement in the disputed waters, it accused Britain of "still living in its colonial days".

Britain's Defence Secretary Ben Wallace, who hailed the military exercise of the Royal Navy and Singaporean navy, reminded China of the so-called "freedom of navigation" exercise through the South China Sea in his remarks earlier last week. France's SNA Emeraude entered the 'Indo-Pacific zone' from the Gulf of Aden to "show that we are still present there militarily", research director at the Institute of International and Strategic Relations (Iris) Jean-Vincent Brisset said in a televised statement. France military will be in Indo-Pacific fulfilling “an old promise made by Jean-Yves Le Drian when he was still defence minister,” the expert said.

As the US Marine Corps F-35B stealth fighter jets, involved in operations off the British Type 45 destroyer, flew above the South China Sea, the People's Liberation Army (PLA) bolstered its military power indicating its sovereignty as military threat escalated despite UK and Germany clarifying that the combat vessels did not enter contested waters for 'military confrontation'. United States Navy posted photos of fighter jets with a caption: "A free and open Indo-Pacific region that is peaceful and stable is vital to ensuring greater prosperity for the region and the world,"

Pentagon spokesperson Ned Price congratulated Britain for its “commitment to an interconnected network of allies and partners, who mutually cooperate and support freedom of navigation and a rules-based order in the Indo-Pacific region.”

India's 4 warships to depart for South China Sea

As the German Navy prepared for deployment of its warship into the South China Sea, India announced that it will depart a task force of four warships for a joint military exercise with the German Navy and its Quad partners—United States, Japan and Australia. India's Defence Ministry announced that the Indian military's warships will depart in one of these days, although no specific date has been revealed by the Indian Defence. The warships will include a guided-missile destroyer, guided-missile frigate, anti-submarine corvette and guided-missile corvette.

The Indian Naval forces will conduct the Malabar 2021 naval exercise with the US, Japanese and Australian military forces over a two-month deployment, India's Defence Ministry said in a statement. India will also conduct joint military exercises with naval units of South China Sea littoral states Singapore, Vietnam, Indonesia and the Philippines.

"These maritime initiatives enhance synergy and coordination between the Indian Navy and friendly countries, based on common maritime interests and commitment towards Freedom of Navigation at sea," the Indian Defence ministry statement read.

In its first navy voyage to East Asia since 2002, Berlin is confirmed to conduct a joint military exercise with India as its Brandenburg-class frigate commenced mission on Monday to traverse into the Indo-Pacific region, a flashpoint between China, the US and its allies and partners. China meanwhile threatened should a port call request from a German warship to stop at Shanghai be made, it will not be considered without more information, according to a statement issued by China's foreign ministry.

<https://www.republicworld.com/world-news/europe/germanys-warship-to-conduct-military-exercise-with-india-allies-in-south-china-sea.html>

Acquisition of channel state information for mmWave MIMO: Traditional and machine learning approaches

Millimeter wave (mmWave) communications have attracted extensive interest from academia, industry, and government as they can make full use of abundant frequency resources at the high-frequency band to achieve ultra-high-speed data transmission. The mmWave communication systems are usually equipped with large antenna arrays, known as mmWave massive multiple-input multiple-output (MIMO), to generate highly directional beams and compensate for the severe path loss in the high frequency band. However, the performance of directional beamforming largely relies on the accuracy of channel state information (CSI) acquisition. Compared to the traditional MIMO systems, the CSI acquisition in mmWave massive MIMO systems is challenging. On one hand, the large antenna arrays form a high dimension channel matrix, whose estimation consumes more resources, e.g., pilot sequence overhead, sounding beam overhead, and computational complexity. On the other hand, the mmWave massive MIMO typically employs a hybrid beamforming architecture, where the radio frequency (RF) chains are much fewer than the antennas. Therefore, we can only obtain a low-dimension signal from the RF chains instead of directly getting a high-dimension signal from the frontend antennas, which makes CSI acquisition much more challenging than usual.



Credit: CC0 Public Domain

CSI acquisition includes beam training and channel estimation. Sometimes beam training is also called beam alignment. For the mmWave massive MIMO using electromagnetic lens that generally function as a DFT transformation from the angle space to the beamspace, beam training is also called beam selection. The beam training sounds the mmWave massive MIMO channel with analog transmit and receive beams to find the beam pairs best fitting for the transmission, which can avoid the estimation of a high-dimension channel matrix. Once the beam training is finished, classical methods such as least square or minimum mean squared error estimation, can be used to estimate the equivalent channel matrix with a small number of pilot symbols. The channel estimation focuses on estimating a high-dimension channel matrix, which flexibly exploits advanced signal processing techniques, such as compressed sensing (CS). Both beam training and channel estimation can exploit machine learning (ML) techniques in addition to the traditional approaches.

In this article, an overview of CSI acquisition for mmWave massive MIMO is provided. Firstly, the beam training approaches, including beam sweeping, hierarchical beam training, and ML-based beam training are investigated. With beam training, we only need to estimate a low-dimension equivalent channel matrix in the scale of the number of the RF chains. As the other category of CSI acquisition, channel estimation aims at accurately estimating the mmWave massive MIMO channels. Then the mainstream channel estimation methods including CS-based sparse channel estimation, array signal processing-based channel estimation, and ML-based channel estimation are

discussed. Finally, different approaches in terms of spectral efficiency (SE), computational complexity, and incurred overhead are compared in detail. Some open issues for future research work are also given.

More information: Chenhao Qi et al, Acquisition of channel state information for mmWave massive MIMO: traditional and machine learning-based approaches, *Science China Information Sciences* (2021).

DOI: [10.1007/s11432-021-3247-2](https://doi.org/10.1007/s11432-021-3247-2)

<https://phys.org/news/2021-08-acquisition-channel-state-mmwave-mimo.html>

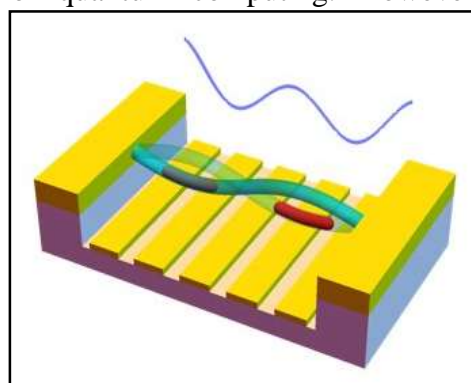


Wed, 04 Aug 2021

New viable means of storing information for quantum technologies?

Quantum information could be behind the next technological revolution. By analogy with the bit in classical computing, the qubit is the basic element of quantum computing. However, demonstrating the existence of this information storage unit and using it remains complex, and hence limited. In a study published on 3 August 2021 in *Physical Review X*, an international research team consisting of CNRS researcher Fabio Pistolesi and two foreign researchers used theoretical calculations to show that it is possible to realize a new type of qubit, in which information is stored in the oscillation amplitude of a carbon nanotube.

These nanotubes can perform a large number of oscillations without diminishing, which shows their low level of interaction with the environment, and makes them excellent potential qubits. This property would enable for greater reliability in quantum computation. A problem nevertheless persists with regard to the reading and writing of information stored in the first two energy levels² of these oscillators.



Representation of the flexural mode of a nanotube, represented here in turquoise blue, and of the location of electrons, in red and brown in the tube. Credit: Fabio

Scientists successfully proved that this information could be read by using the coupling between electrons, a negatively charged particle, and the flexural mode of these nanotubes. This changes the spacing between the first levels of energy enough to make them accessible independently from other levels, thereby making it possible to read the information they contain. These promising theoretical predictions have not yet been verified experimentally.

More information: F. Pistolesi et al, Proposal for a nanomechanical qubit, arXiv:2008.10524v2 [cond-mat.mes-hall] arxiv.org/abs/2008.10524

Journal information: *Physical Review X*

<https://phys.org/news/2021-08-viable-quantum-technologies.html>

Mott insulator exhibits a sharp response to electron injection

In a finding that will give theorists plenty to ponder, an all-RIKEN team has observed an unexpected response in an exotic material known as a Mott insulator when they injected electrons into it. This observation promises to give physicists new insights into such materials, which are closely related to high-temperature superconductors.

Neither a chunk of silicon nor a Mott insulator conduct electricity—but for very different reasons. In silicon, electrons are tightly bound to atoms and require a lot of energy to become mobile conduction electrons. In contrast, in a Mott insulator, electrons may not be strongly bound to the atoms, but their movement is instead curbed by their mutual repulsion.

The Mott state's emergence from interactions between electrons leads to unusual properties. "A small excess or deficit of electrons in a Mott insulator can lead to high-temperature superconductivity, which could be of enormous practical value in the future," says Christopher Butler of the RIKEN Center for Emergent Matter Science (CEMS). "In Mott-insulating tantalum disulphide, electrons are localized not at each atom, but instead on the crests of a pre-existing 'charge density wave.'" Because the charge density wave is rather delicate, the Mott state can easily be tweaked."

But to harness the potential of this Mott-insulating state and the charge density wave that hosts it, scientists need to better understand the physics connecting them.

Now, Butler and three colleagues, all at CEMS, have added excess electrons to a Mott insulator using the tip of a scanning tunneling microscope (Fig. 1) and observed a surprising response—tunneling spectra showed a sharp feature, a distinct state that set off vibrations in the ionic lattice.

The conventional theoretical model for Mott insulators predicts that the spectrum should be smooth and non-descript. "It was most surprising that we saw such sharp features in our tunneling spectroscopy measurements," says Butler. "They may indicate that something is going on that is outside the bounds of the usual theory."

Butler notes that some theoretical calculations do predict sharp features similar to those his team saw, but they involve particle-like entities known as quasiparticles, which are controversial since they are not thought to exist in true Mott insulators. "There are competing explanations for the observation that are less controversial," says Butler. "But if it eventually turns out that the calculation results indicating the existence of quasiparticles are right, it might shake up the theoretical understanding of Mott insulators."

More information: C. J. Butler et al, Doublonlike Excitations and Their Phononic Coupling in a Mott Charge-Density-Wave System, *Physical Review X* (2021). DOI: [10.1103/PhysRevX.11.011059](https://doi.org/10.1103/PhysRevX.11.011059)

Journal information: [Physical Review X](https://doi.org/10.1103/PhysRevX.11.011059)

<https://phys.org/news/2021-08-mott-insulator-sharp-response-electron.html>

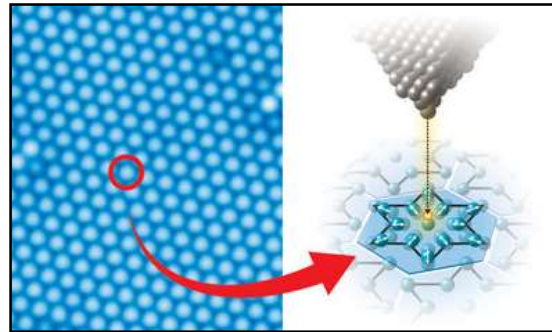


Figure 1: RIKEN physicists used the tip of a scanning tunneling microscope (gray inverted pyramid) to inject single electrons (gold sphere) into the surface of a Mott insulator. Credit: RIKEN Center for Emergent Matter Science

New research: Long-lasting Covid-19 symptoms rare in kids

Most children recovered within four weeks, with a minority experiencing symptoms after a month (77/1,734). Typically, they had only two symptoms remaining after four weeks

Pune: Children who develop symptoms of Covid-19 typically get better after six days, and the number who experience symptoms beyond four weeks is low (4.4%), a large UK study published in The Lancet Child and Adolescent Health journal has confirmed.

Professor Emma Duncan, lead and senior author of the study, from King's College London, UK, said in a statement: "It is reassuring that the number of children experiencing long-lasting symptoms of Covid-19 symptoms is low. Nevertheless, a small number of children do experience long illness with Covid-19, and our study validates the experiences of these children and their families."

The researchers used data collected through the ZOE COVID Study smartphone app, which includes data from more than 250,000 UK children aged five to 17 years.

Symptoms were reported through the app by their parents or carers (rather than assessed directly in children) and the team did not collect data regarding school attendance.

The team focused on reports collected between September 1, 2020 and February 22, 2021. Some 1,734 children developed symptoms of Covid-19 and received a positive PCR test result close to the onset of symptoms, with their symptoms reported regularly until they were healthy again.

Overall, these children were ill for an average of six days and experienced an average of three symptoms in the first week of illness, confirming that Covid-19 tends to manifest as a mild illness in children and that they usually recover quickly.

Most children recovered within four weeks, with a minority experiencing symptoms after a month (77/1,734). Typically, they had only two symptoms remaining after four weeks.

<https://indianexpress.com/article/explained/long-lasting-covid-symptoms-rare-in-kids-uk-study-confirms-7437199/>



A child and his mother at a Covid-19 care centre in New Delhi (Express Photo: Tashi Tobgyal, File)

