

July  
2020

# समाचार पत्रों से चयित अंश Newspapers Clippings

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

Volume: 45 Issue: 157 07 July 2020

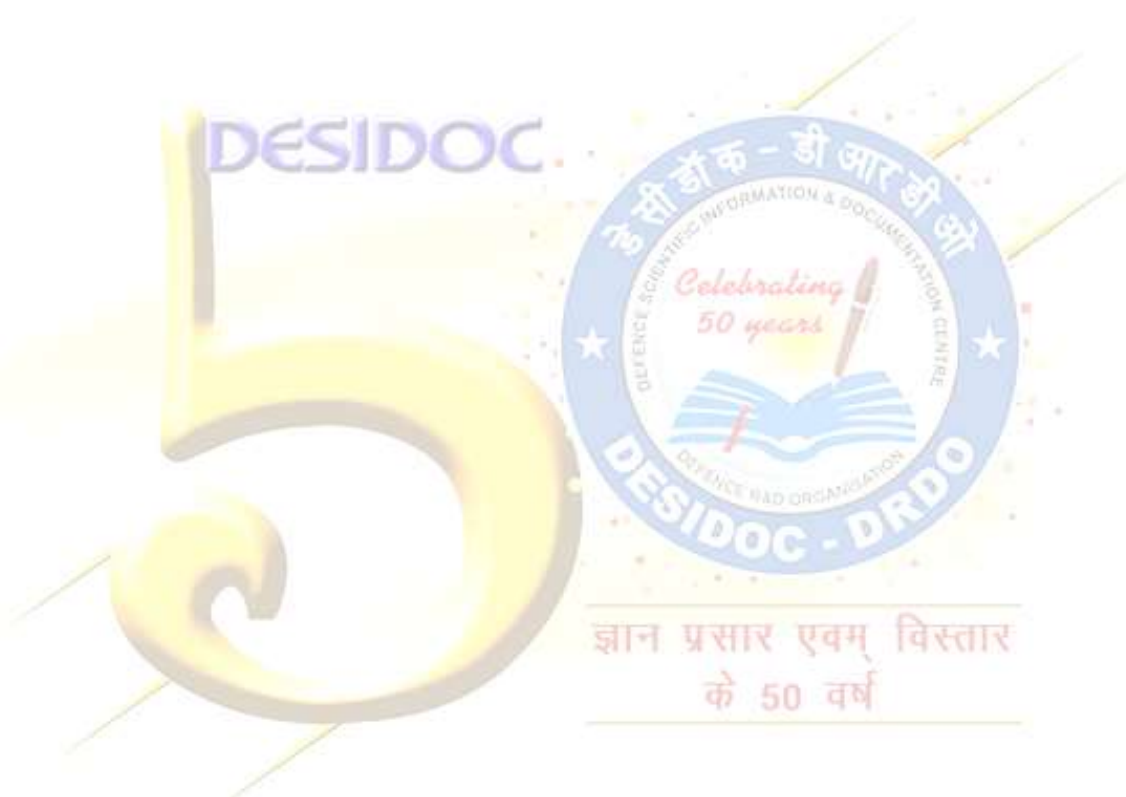


रक्षा विज्ञान पुस्तकालय  
Defence Science Library  
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र  
Defence Scientific Information & Documentation Centre  
मेटकॉफ हाउस, दिल्ली - 110 054  
Metcalf House, Delhi - 110 054

## CONTENT

S. No.	TITLE	Page No.
<b>DRDO News</b>		<b>1-14</b>
<b>COVID-19: DRDO's Contribution</b>		<b>1-5</b>
1.	उद्घाटन / डीआरडीओ ने 12 दिन में तैयार किया 1 हजार बेड का अस्थाई कोविड अस्पताल, गृहमंत्री और रक्षामंत्री ने किया उद्घाटन	1
2.	DRDO ने 12 दिन में तैयार किया 1000 बिस्तरों की क्षमता वाला COVID-19 का अस्थाई अस्पताल, शाह-राजनाथ ने किया दौरा	2
3.	Just within 12 days Sardar Patel Covid Hospital started functioning, Amit Shah and Rajnath Singh visited hospital (Kannada News)	4
4.	World's biggest Corona Hospital inaugurated in Delhi (Telugu News)	5
5.	DRDO का कारनामा, सिर्फ 12 दिन में बनाया 1000 बेड वाला कोविड अस्पताल	6
<b>DRDO Technology News</b>		<b>7-14</b>
6.	Akash Missile: BDL signs contract for licence agreement & ToT with DRDO	7
7.	DRDO to establish research cell at IIT Hyderabad to meet future defence technological needs	8
8.	DRDO to set up research cell at IIT-Hyderabad	9
9.	DRDO to establish research cell at IIT Hyderabad to meet future defence technological needs	10
10.	DRDO to set up research cell at IIT Hyd for defence tech requirements	12
11.	आईआईटी हैदराबाद में अनुसंधान प्रकोष्ठ स्थापित करेगा डीआरडीओ	13
12.	DRDO to set up research cell at IIT Hyderabad to meet defence tech requirements	14
<b>Defence News</b>		<b>15-37</b>
<b>Defence Strategic National/International</b>		<b>15-37</b>
13.	PM Narendra Modi's stand prevails, Indian Army stands firm, isolated China to move back from LAC	15
14.	LAC stand-off: India, China agree to expeditiously complete disengagement of troops, says MEA	17
15.	India-China Galwan Valley faceoff: Chinese Army moves back as disengagement begins after Modi's Leh visit	18
16.	Disengagement process: Why Army is cautious, will verify each step on the ground before taking next	19
17.	They can come back: Indian Army cautious after China's 'Baby Steps' towards LAC disengagement	20
18.	India-China ties in complex situation, says Beijing after Doval-Wang icebreaker	22
11.	Both Indian, Chinese troops retreat 2km each in Galwan	23
19.	The Indian Air Force is ramping up deployment in LAC	24
20.	For Ladakh stand-off, how India readied its fleet of Apache attack choppers	25
21.	चीन से मुकाबले को तैयार Indian Army, लद्दाख में तैनात किए 30,000 जवान	26
22.	Three new bridges by BRO help Indian Army move tanks to Eastern Ladakh border	27
23.	अमेरिका से मिसाइल और लेजर गाइडेड बम से लैस ड्रोन खरीदने की तैयारी में भारत, LAC पर सेना की बढ़ेगी ताकत	28
24.	List of 10 latest defence deals of India 2020	29
25.	Ladakh Scouts should be given major role along LAC: Veterans	32
26.	India has slain more than 100 Chinese soldiers in Galwan Valley, claims former Chinese military official	33

27.	This Israeli system can beat Chinese S-400 as well as S-300 for India	34
28.	China sees Indo-Pacific idea in terms of balance of power, not for advancing common interests	35
29.	Logistics pact to be cornerstone of military coop, says Barry O'Farrell	37
<b>Science &amp; Technology News</b>		<b>38-44</b>
30.	Order from noise: How randomness and collective dynamics define a stem cell	38
31.	Scientists develop next-gen Red-light LEDs, could revolutionize optical tech	39
32.	COVID-19: Mitigate airborne spread, scientists urge WHO	41
<b>COVID-19 Research</b>		<b>42-44</b>
33.	Bharat Biotech's Covaxin: key facts as India races towards a covid-19 vaccine	42
34.	Covid-19 vaccine highly likely by 2021: WHO	44



## उद्घाटन / डीआरडीओ ने 12 दिन में तैयार

### किया 1 हजार बेड का अस्थाई कोविड

### अस्पताल, गृहमंत्री और रक्षामंत्री ने किया उद्घाटन

- दिल्ली इस समय संक्रमित राज्यों में महाराष्ट्र के बाद दूसरे नंबर पर है
- द. दिल्ली स्थित 10 हजार बेड वाले दुनिया के सबसे बड़े कोविड केयर सेंटर का एलजी ने किया उद्घाटन
- दिल्ली कैंट इलाके में डीआरडीओ द्वारा तैयार किए अस्पताल में 230 आईसीयू बेड्स की सुविधा
- एलजी अनिल बैजल ने आईटीबीपी को सेंटर का जिम्मा संभालने के लिये दी बधाई

नई दिल्ली: देश में कोरोना के लगातार तेजी से मामले सामने आ रहे हैं। आज कोरोना के आंकड़े सबसे अधिक चौकाने वाले थे। पिछले 24 घंटे में कोरोना के करीब 25 हजार नए मामले सामने आए। दिल्ली इस समय कोरोना संक्रमित राज्यों में महाराष्ट्र के बाद दूसरे नंबर पर है। राजधानी दिल्ली में इस समय करीब एक लाख कोरोना संक्रमित लोग हैं। भविष्य में दिल्ली की हालत और अधिक न बिगड़े इसके लिए केंद्र और राज्य सरकार दोनों से लगातार कोशिश कर रही हैं।

इसी कड़ी में राजधानी में कोरोना से जंग की आज दो बड़ी तैयारियों सामने आईं। रक्षा मंत्री राजनाथ सिंह और केंद्रीय गृह मंत्री अमित शाह ने रविवार को डीआरडीओ अस्पताल का उद्घाटन किया तो दिल्ली के एलजी ने सरदार पटेल कोविड सेंटर का उद्घाटन किया। राजधानी में कोरोना के प्रसार को रोकने के लिए केंद्र और दिल्ली सरकार तेजी से अस्थाई बेड वाले अस्पताल भी तैयार करवा रही हैं। इस बीच रक्षा



संस्थान डीआरडीओ ने दिल्ली कैंट इलाके में एक हजार बेड वाला अस्थाई अस्पताल तैयार किया है।

**राजधानी दिल्ली में इस समय करीब एक लाख कोरोना संक्रमित लोग हैं**

**यह केन्द्र महामारी से निपटने में महत्वपूर्ण भूमिका निभाएगा: एलजी**

दिल्ली के उपराज्यपाल अनिल बैजल ने रविवार को राधा स्वामी सत्संग ब्यास में 10,000 बिस्तर वाले सरदार पटेल कोविड केयर सेंटर का उद्घाटन किया। इस मौके पर सांसद हंस राज हंस और जिले के डीएम बीएम मिश्रा, एडीएम अरुण गुप्ता के उपस्थिति रहे। आपको बता दें कि ये दुनिया में अपनी तरह का 'सबसे बड़ा' सेंटर है। इस मौके पर बैजल ने कहा कि यह केन्द्र महामारी से निपटने में महत्वपूर्ण भूमिका

निभाएगा। एलजी ने छतरपुर में स्थापित इस केंद्र में बिस्तरों, ऑक्सीजन सिलेंडर, संकेंद्रकों, वेंटिलेटर्स, आईसीयू और चिकित्सा कर्मचारियों की उपलब्धता की समीक्षा की। उन्होंने आईटीबीपी को सेंटर का जिम्मा संभालने के लिये बधाई भी दी।

इस केंद्र के संचालन के लिए नोडल एजेंसी भारत-तिब्बत सीमा पुलिस होगी जबकि दिल्ली सरकार प्रशासनिक मदद दे रही है। बैजल ने कहा कि केंद्रीय गृह मंत्री अमित शाह के मार्गदर्शन और समर्थन से दिल्ली को दुनिया के सबसे बड़े कोविड-19 देखभाल केन्द्र में से एक केन्द्र मिला है, जो महामारी के खिलाफ जंग में महत्वपूर्ण भूमिका निभाएगा। उन्होंने ट्वीट किया, 'गंभीर रूप से बीमार रोगियों का विशेष ध्यान रखने और यदि आवश्यक हो तो उन्हें कोविड अस्पतालों में स्थानांतरित करने की सलाह दी है।

एसडीएमसी को केंद्र में स्वच्छता सुनिश्चित करने का निर्देश दिया है। आईटीबीपी द्वारा कोविड केंद्र का प्रबंधन किया जाना सराहनीय है।'

### अस्थाई अस्पताल को डीआरडीओ व दूसरे कई संगठनों की मदद से तैयार किया

रविवार को रक्षा मंत्री राजनाथ सिंह और गृह मंत्री अमित शाह ने डीआरडीओ द्वारा तैयार सरदार बल्लभ भाई पटेल कोविड-19 अस्पताल का दौरा किया। निरीक्षण के दौरान गृहमंत्री और रक्षा मंत्री के साथ मुख्यमंत्री अरविंद केजरीवाल, केंद्रीय स्वास्थ्य मंत्री डॉ. हर्षवर्धन, केंद्रीय गृहराज्य मंत्री जी किशन रेड्डी और डीआरडीओ चीफ जी सतीश रेड्डी भी मौजूद रहे।

गौरतलब है कि डीआरडीओ तैयार किए गए इस अस्पताल में कोरोना मरीजों के लिए एक हजार बेड्स का इंतजाम किया गया है। रक्षा मंत्री राजनाथ सिंह ने जानकारी देते हुए कहा कि इस अस्थाई अस्पताल को डीआरडीओ और दूसरे कई संगठनों की मदद से एक हजार बेड के अस्पताल का निर्माण किया गया। जिसमें 230 आईसीयू बेड्स की सुविधा है। इस अस्पताल को मात्र 12 दिनों में तैयार किया गया है।

<https://www.bhaskar.com/local/delhi-ncr/news/drdo-prepared-1-thousand-beds-in-12-days-temporary-kovid-hospital-home-minister-and-defense-minister-inaugurated-127482023.html>



Tue, 07 July 2020

## DRDO ने 12 दिन में तैयार किया 1000 बिस्तरों

### की क्षमता वाला COVID-19 का अस्थाई

### अस्पताल, शाह-राजनाथ ने किया दौरा

नई दिल्ली: केंद्रीय गृह मंत्री अमित शाह और रक्षा मंत्री राजनाथ सिंह ने कोविड-19 के मरीजों के इलाज के लिए 1,000 बिस्तर वाले नव-निर्मित अस्थायी अस्पताल का रविवार को दौरा किया। अधिकारियों ने बताया कि इस अस्पताल में 250 बिस्तर आईसीयू में हैं। इंदिरा गांधी अंतरराष्ट्रीय हवाईअड्डे के पास रक्षा मंत्रालय की जमीन पर यह अस्पताल महज 12 दिनों के अंदर तैयार किया गया।

शाह ने एक ट्वीट में कहा, 'रक्षा मंत्री राजनाथ सिंह के साथ 1000 बिस्तरों वाले सरदार पटेल कोविड अस्पताल का दौरा किया जिसमें आईसीयू में 250 बिस्तर हैं। डीआरडीओ ने गृह मंत्रालय, स्वास्थ्य मंत्रालय, सशस्त्र बलों और टाटा ट्रस्ट की सहायता से 12 दिन के रिकॉर्ड समय में इसे तैयार किया।'

केंद्रीय स्वास्थ्य मंत्री हर्ष वर्धन, गृह राज्य मंत्री जी किशन रेड्डी और दिल्ली के मुख्यमंत्री अरविंद केजरीवाल भी इस दौरान शाह व सिंह के साथ थे। शाह ने कहा कि सशस्त्र बल चिकित्सा सेवा का दल इस अस्पताल का संचालन करेगा जबकि इसके रखरखाव का जिम्मा रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) का होगा।

गृह मंत्री ने कहा कि प्रधानमंत्री नरेंद्र मोदी इस चुनौती पूर्ण समय में दिल्ली के लोगों की मदद के लिए पूरी तरह प्रतिबद्ध हैं और यह कोविड अस्पताल एक बार फिर उसी संकल्प को दर्शाता है। उन्होंने डीआरडीओ, टाटा और सशस्त्र बल चिकित्सा कर्मियों का शुक्रिया अदा किया जो इस मौके पर आगे आए और इस आपदा को संभालने में मदद की।



गृह मंत्रालय के एक बयान में कहा गया कि प्रधानमंत्री नरेंद्र मोदी के नेतृत्व में गृह मंत्री ने दिल्ली-एनसीआर में कोविड-19 के प्रबंधन और उससे निपटने के तरीकों की समीक्षा के लिए 14 जून से कई बैठकें कीं।

बयान में कहा गया कि मोदी सरकार के इन उपायों से रिकॉर्ड समय में 1000 बिस्तरों वाला सरदार पटेल कोविड अस्पताल तैयार किया गया। दिल्ली में अभी कोविड-19 संक्रमण के मामले बढ़ रहे हैं और मरीजों को चिकित्सा देखभाल की जरूरत है।

बयान में कहा गया कि इस अस्पताल का संचालन सशस्त्र बल चिकित्सा सेवा (एफएमएस) के डॉक्टर, नर्स और सहायक स्टाफ की मेडिकल टीम द्वारा किया जाएगा, जबकि डीआरडीओ इसका रख रखाव करेगा। अस्पताल में मरीजों के मानसिक स्वास्थ्य का भी ध्यान रखा जाएगा और डीआरडीओ द्वारा प्रबंधित एक मनोवैज्ञानिक परामर्श केंद्र भी यहां है। जिला प्रशासन द्वारा यहां भेजे गए मरीजों का मुफ्त में इलाज होगा। गंभीर मामलों को अखिल भारतीय आयुर्विज्ञान संस्थान (एम्स) भेजा जाएगा।

बयान के मुताबिक इस परियोजना को टाटा संस के प्रमुख योगदान के साथ वित्त पोषित किया गया है। इसके अलावा मैसर्स बीईएल, मैसर्स बीडीएल, एएमपीएल, श्री वेंकटेश्वर इंजीनियर्स, ब्रह्मोस प्राइवेट लिमिटेड और भारत फोर्ज ने भी निर्माण में योगदान किया तथा डीआरडीओ के कर्मचारी स्वेच्छा से इसमें एक दिन के वेतन का योगदान कर रहे हैं।

केजरीवाल ने एक ट्वीट में कहा, 'डीआरडीओ का 1,000 बिस्तर का कोरोना अस्पताल बनकर तैयार हो गया। दिल्ली वालों की ओर से केंद्र सरकार का शुक्रिया। इसमें 250 बिस्तर आईसीयू में हैं। इसकी दिल्ली में इस वक्त बहुत जरूरत है।'

### विद्युतीकरण का काम रिकॉर्ड समय में पूरा हुआ

दुनिया के 'सबसे बड़े' कोविड-19 देखभाल केंद्र में बिजली की निर्बाध आपूर्ति सुनिश्चित करने के लिए विद्युतीकरण का काम रिकॉर्ड समय में पूरा किया गया। कंपनी के प्रवक्ता ने रविवार को कहा कि डिस्कॉम बीआरपीएल के 100 से अधिक कर्मचारी एवं अधिकारी 22 किलोमीटर लंबा भूमिगत तार बिछाने और 24 ट्रांसफॉर्मर स्थापित करने के लिए 24 घंटे काम में लगे रहे।

उन्होंने कहा कि 23 मेगावाट लोड के लिए 22 किलोमीटर लंबा भूमिगत तार बिछाने के साथ ही 24 ट्रांसफॉर्मर लगाए गए। शुरुआत में बीआरपीएल को 18 मेगावाट लोड की बिजली आपूर्ति उपलब्ध कराने को कहा गया था, लेकिन बाद में आवश्यकता को देखते हुए इसे बढ़ाकर 24 मेगावाट कर दिया गया।

प्रवक्ता ने कहा कि परिसर की सुरक्षा सुनिश्चित करने के मद्देनजर अधिकतर 'ड्राई टाइप' वाले ट्रांसफॉर्मर लगाए गए हैं, जिसमें तेल और मरम्मत की कोई आवश्यकता नहीं होती है।

[https://hindi.webdunia.com/national-hindi-news/drdo-set-up-1000-bedded-covid-19-temporary-hospital-in-11-days-120070500028\\_1.html](https://hindi.webdunia.com/national-hindi-news/drdo-set-up-1000-bedded-covid-19-temporary-hospital-in-11-days-120070500028_1.html)

## Just within 12 days Sardar Patel Covid Hospital started functioning, Amit Shah and Rajnath Singh visited hospital

ಕೇವಲ 12 ದಿನಗಳಲ್ಲಿ ತಲೆಎತ್ತಿದ ಸರ್ದಾರ್ ಪಟೇಲ್ ಕೋವಿಡ್ ಆಸ್ಪತ್ರೆಗೆ ಅಮಿತ್ ಶಾ, ರಾಜನಾಥ್ ಭೇಟಿ



ಕೇವಲ 12 ದಿನಗಳಲ್ಲಿ ತಲೆಎತ್ತಿದ ಸರ್ದಾರ್ ಪಟೇಲ್ ಕೋವಿಡ್ ಆಸ್ಪತ್ರೆಗೆ ಅಮಿತ್ ಶಾ, ರಾಜನಾಥ್ ಭೇಟಿ

ನವದೆಹಲಿ, ಜು 5 (ಯುಎನ್‌ಐ) ನವದೆಹಲಿಯ ಕಂಟೋನ್ಮೆಂಟ್ ಪ್ರದೇಶದಲ್ಲಿ ಕೇವಲ 12 ದಿನಗಳಲ್ಲಿ ನಿರ್ಮಾಣವಾಗಿರುವ 1 ಸಾವಿರ ಹಾಸಿಗೆಗಳ ಸರ್ದಾರ್ ಪಟೇಲ್ ಕೋವಿಡ್ ಆಸ್ಪತ್ರೆಗೆ ಕೇಂದ್ರ ಗೃಹ ಸಚಿವ ಅಮಿತ್ ಶಾ ಮತ್ತು ರಕ್ಷಣಾ ಸಚಿವ ರಾಜನಾಥ್ ಸಿಂಗ್ ಭಾನುವಾರ ಭೇಟಿ ನೀಡಿ ಪರಿಶೀಲಿಸಿದರು.

ಈ ಸಂದರ್ಭದಲ್ಲಿ ಕೇಂದ್ರ ಆರೋಗ್ಯ ಸಚಿವ ಹರ್ಷ್ ವರ್ಧನ್, ದೆಹಲಿ ಮುಖ್ಯಮಂತ್ರಿ ಅರವಿಂದ್ ಕೇಜ್ರಿವಾಲ್, ಡಿಆರ್‌ಡಿಒ ಅಧ್ಯಕ್ಷ ಜಿ.ಸತೀಶ್ ರೆಡ್ಡಿ ಉಪಸ್ಥಿತರಿದ್ದರು.

250 ಐಸಿಯು ಹಾಸಿಗೆಗಳನ್ನು ಒಳಗೊಂಡಿರುವ ಈ ಆಸ್ಪತ್ರೆಯನ್ನು ಗೃಹ ಸಚಿವಾಲಯ, ಸಶಸ್ತ್ರ ಪಡೆ ಮತ್ತು ಟಾಟಾ ಸನ್ಸ್ ಸಹಯೋಗದೊಂದಿಗೆ ರಕ್ಷಣಾ ಸಂಶೋಧನೆ ಮತ್ತು ಅಭಿವೃದ್ಧಿ ಸಂಸ್ಥೆ (ಡಿಆರ್‌ಡಿಒ) ದಾಖಲೆಯ ಸಮಯದಲ್ಲಿ ನಿರ್ಮಿಸಿದೆ. ಸಶಸ್ತ್ರ ಪಡೆಗಳ ವೈದ್ಯಕೀಯ ಸೇವೆಗಳ ತಂಡವು ಈ ಆಸ್ಪತ್ರೆಯ ಕಾರ್ಯನಿರ್ವಹಣೆಯ ಜವಾಬ್ದಾರಿ ಹೊತ್ತಿದ್ದರೆ, ಡಿಆರ್‌ಡಿಒ ಅದನ್ನು ನಿರ್ವಹಿಸುತ್ತದೆ.

ದೆಹಲಿಯಲ್ಲಿ ಸದ್ಯಕ್ಕೆ ಆಸ್ಪತ್ರೆಯ ಹಾಸಿಗೆಗಳ ಕೊರತೆಯಿಲ್ಲ ಎಂದು ಮುಖ್ಯಮಂತ್ರಿ ಅರವಿಂದ್ ಕೇಜ್ರಿವಾಲ್ ಹೇಳಿದ್ದಾರೆ. 'ನಮ್ಮಲ್ಲಿ 15,000 ಕ್ಕೂ ಹೆಚ್ಚು ಹಾಸಿಗೆಗಳಿದ್ದು, ಅದರಲ್ಲಿ 5,300 ಹಾಸಿಗೆಗಳು ಭರ್ತಿಯಾಗಿವೆ. ಐಸಿಯು ಹಾಸಿಗೆಗಳ ಕೊರತೆಯಿತ್ತು. ಇನ್ನು ಮುಂದೆ ಕೋವಿಡ್ ಪ್ರಕರಣಗಳಲ್ಲಿ ಏರಿಕೆಯಾದಲ್ಲಿ, ಈ ಹೊಸ ಐಸಿಯು ಹಾಸಿಗೆಗಳು ನಿರ್ಣಾಯಕವಾಗುತ್ತವೆ' ಎಂದರು.

ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ರೋಗಿಗಳಿಗೆ ಉಚಿತವಾಗಿ ಎಲ್ಲಾ ಸೌಲಭ್ಯಗಳನ್ನು ಒದಗಲಾಗಿದ್ದು, ಇದರ ನಿರ್ವಹಣೆಗೆ ಮೊದಲ ತಿಂಗಳಲ್ಲಿ 600 ಸೇನಾ ಸಿಬ್ಬಂದಿಗಳ ತಂಡ, ವೈದ್ಯರು, ನರ್ಸ್‌ಗಳು ಮತ್ತು ಅರೆವೈದ್ಯಕೀಯ ಸಿಬ್ಬಂದಿಯನ್ನು ನಿಯೋಜಿಸಲಾಗುವುದು. ಈ ಆಸ್ಪತ್ರೆಯನ್ನು ತ್ಯಾಜ್ಯ ಸಂಗ್ರಹಿಸುವ ಭೂಮಿಯನ್ನು ತೆರವುಗೊಳಿಸಿ ನಿರ್ಮಿಸಲಾಗಿದೆ.

ಈ ಆಸ್ಪತ್ರೆ ಭೇಟಿ ನಂತರ ಟ್ವೀಟ್ ಮಾಡಿರುವ ಅಮಿತ್ ಶಾ, "ಈ ಸವಾಲಿನ ಸಮಯದಲ್ಲಿ ದೆಹಲಿಯ ಜನರಿಗೆ ಸಹಾಯ ಮಾಡಲು ಪ್ರಧಾನಿ ಮೋದಿ ಸಂಪೂರ್ಣ ಬದ್ಧರಾಗಿದ್ದಾರೆ ಮತ್ತು ಈ ಕೋವಿಡ್ ಆಸ್ಪತ್ರೆ ಮತ್ತೊಮ್ಮೆ ನಮ್ಮ ಸಂಕಲ್ಪವನ್ನು ಎತ್ತಿ ತೋರಿಸುತ್ತದೆ. ಡಿಆರ್‌ಡಿಒ, ಟಾಟಾ ಸಂಸ್ಥೆ ಮತ್ತು ನಮ್ಮ ಸಶಸ್ತ್ರ ಪಡೆಗಳ ವೈದ್ಯಕೀಯ ಸಿಬ್ಬಂದಿಗೆ ಧನ್ಯವಾದ ಅರ್ಪಿಸುತ್ತೇನೆ" ಎಂದಿದ್ದಾರೆ.

ಯುಎನ್‌ಐ ಎಸ್‌ಎಚ್ 1545

## World's biggest Corona Hospital inaugurated in Delhi

### దిల్లీలో ప్రపంచంలోనే అతిపెద్ద కరోనా చికిత్స కేంద్రం ప్రారంభం

పది రోజుల్లోనే అందుబాటులోకి..

దిల్లీ: పది వేల పడకలతో ప్రపంచంలోనే అతిపెద్ద కొవిడ్-19 చికిత్స కేంద్రాన్ని దక్షిణ దిల్లీలో అందుబాటులోకి తెచ్చారు. చృతర్పుర్ పట్టణ కేంద్రంలోని రాధా సోమి సత్సంగ్ బియాస్ క్యాంపస్లో ఆసుపత్రిని సిద్ధం చేశారు. సర్దార్ పటేల్ కొవిడ్ కేర్ సెంటర్ అండ్ హాస్పిటల్ (ఎన్పీసీసీహెచ్)గా నామకరణం చేసిన ఈ ఆసుపత్రిని దిల్లీ లెఫ్టినెంట్ గవర్నర్ అనిల్ బిజ్జాల్ ఆదివారం ప్రారంభించారు. కేంద్ర హోం శాఖ సహకారంతో దక్షిణ దిల్లీ జిల్లా యంత్రాంగం దీనిని కేవలం పది రోజుల్లోనే సిద్ధం చేయడం విశేషం. లక్షణాలు లేని, తేలికపాటి లక్షణాలు గల రోగులకు ఐసోలేషన్ కేంద్రంగా ఆసుపత్రి పనిచేయనుంది. రోగుల్లో ఒత్తిడి తగ్గించేందుకు, వారికి మానసిక స్థైర్యాన్ని అందించేందుకు ఆసుపత్రి ఉపయోగపడనుంది. కేంద్రాన్ని దీన్ దయాల్ ఉపాధ్యాయ, మదన్ మోహన్ మాలవ్యా ఆసుపత్రులతో అనుసంధానించారు. ఆసుపత్రిలోని వార్డులకు జూన్ 15న గల్ఫ్యాన్ వ్యాలీలో చైనాతో ఘర్షణలో మరణించిన భారత సైనికుల పేర్లు పెట్టాలని డిఫెన్స్ రీసెర్చ్ అండ్ డెవలప్‌మెంట్ ఆర్గనైజేషన్ (డీఆర్డీఓ) నిర్ణయించింది.

**ఇవీ ఆసుపత్రి విశేషాలు:**

\* 1,700 అడుగుల పొడవు, 700 అడుగుల వెడల్పుతో ఆసుపత్రిని సిద్ధం చేశారు. కేంద్రం దాదాపు 20 ఫుట్ బాల్ మైదానాల పరిమాణంతో ఉంటుంది. ప్రతి గదిలో 50 పడకలతో కేంద్రంలో మొత్తం 200 గదులు ఉన్నాయి.

\* ప్రస్తుతం రెండు వేల పడకల్లో ఉన్న పేషెంట్లకు చికిత్స అందించేందుకు 170 మంది వైద్యులు, 700 మంది నర్సులు అందుబాటులో ఉన్నారు.

\* రాధా సోమి బియాస్ వాలంటీర్లు కూడా ఈ కేంద్రం నిర్వహణకు సహకరించనున్నారు.

\* పది శాతం పడకల వద్ద ఆక్సిజన్ సౌకర్యం అందుబాటులో ఉంది. శ్వాస తీసుకోవడంలో ఇబ్బందిపడే రోగులకు ఈ ఆక్సిజన్‌ను ఉపయోగించనున్నారు.

\* రోగులు వారి వెంట ల్యాప్ ట్యాప్ తెచ్చుకునేందుకు కూడా అవకాశం కల్పించారు. ప్రతి పడక వద్ద ల్యాప్ ట్యాప్, మొబైల్ ఛార్జింగ్ పెట్టుకునేందుకు ఏర్పాట్లు చేశారు.

\* రోగులు స్వాంతన పొందేందుకు ఆసుపత్రిలో లైబ్రరీ, పలు ఆట వస్తువులను అందుబాటులో ఉంచారు.

\* ఆసుపత్రిలో 600ల మరుగుదొడ్లు ఉన్నాయి.

<https://www.eenadu.net/latestnews/Built-in-10-days-worlds-largest-Covid-19-care-facility-to-admit-patients-from-today/120082768>



## DRDO का कारनामा, सिर्फ 12 दिन में बनाया 1000 बेड वाला कोविड अस्पताल

By Sachin Gautam

नई दिल्ली: केंद्रीय गृह मंत्री अमित शाह (Amit Shah) और रक्षा मंत्री राजनाथ सिंह (RajNath Singh) ने दिल्ली कैंट में डीआरडीओ की ओर से बनाए गए सरदार वल्लभ भाई पटेल कोविड-19 अस्पताल (DRDO Built Covid19 Hospital) का दौरा किया।

उनके साथ केंद्रीय स्वास्थ्य मंत्री डॉ. हर्षवर्धन और दिल्ली मुख्यमंत्री अरविंद केजरीवाल भी मौजूद थे। डीआरडीओ के चेयरमैन जी सतीश रेड्डी भी इस दौरान (DRDO Built Covid19 Hospital) मंत्रियों के साथ थे।



**राजनाथ ने कहा- 12 दिन में बना अस्पताल**

रक्षा मंत्री राजनाथ सिंह ने बताया कि डीआरडीओ, गृह मंत्रालय, टाटा संस इंडस्ट्रीज और कई अन्य संगठनों के सहयोग से इस अस्पताल (DRDO Built Covid19 Hospital) का निर्माण सिर्फ 12 दिन में कराया गया है।

**अस्पताल में 250 से अधिक ICU यूनिट्स: राजनाथ**

सिंह ने बताया कि WHO की गाइडलाइंस के साथ यहां 250 से अधिक ICU यूनिट्स उपलब्ध कराए गए हैं।

**शाह और राजनाथ ने किया डीआरडीओ के अस्पताल का दौरा**

डीआरडीओ की ओर से बनाए गए सरदार वल्लभ भाई पटेल कोविड-19 अस्पताल (DRDO Built Covid19 Hospital) का दौरा करते हुए केंद्रीय मंत्री अमित शाह और राजनाथ सिंह। उन्होंने अस्पताल के अधिकारियों से भी बात की। अधिकारियों ने बताया कि सरदार वल्लभ भाई पटेल कोविड-19 अस्पताल में क्या-क्या सुविधाएं मुहैया कराई जा रही हैं।

**सभी जरूरी मेडिकल सुविधाओं से लैस है अस्पताल**

सरदार वल्लभभाई पटेल कोविड-19 अस्पताल का ऑपरेशन शुरू हो गया है। कोरोना संकट को देखते हुए डीआरडीओ ने 1000 बेड वाले इस अस्थायी अस्पताल का निर्माण केवल 12 दिनों में किया। अस्पताल में सभी मेडिकल सुविधाएं मुहैया कराई गई हैं। ऑक्सीजन, पीपीई किट, वेंटिलेटर, कोरोना टेस्ट सुविधा और दूसरे लैब की सुविधा उपलब्ध है।

**कोरोना से जंग में डीआरडीओ की बड़ी भागीदारी**

रक्षा मंत्रालय, गृह मंत्रालय, स्वास्थ्य मंत्रालय, टाटा संस, दिल्ली सरकार समेत कई अन्य संगठनों के संयुक्त प्रयास से दिल्ली में अस्पताल तैयार किया गया। इसमें कोरोना मरीजों की देखभाल के लिए सभी सुविधाएं मुहैया कराई गई हैं।

## अस्पताल में तैनात है सेना के 600 जवानों की टीम

डीआरडीओ अस्पताल में डॉक्टर लेफ्टिनेंट जनरल माधुरी कानितकर ने बताया कि डॉक्टर, नर्सिंग अधिकारी और पैरामेडिकल स्टाफ समेत पहले महीने में 600 सेना के जवानों की टीम अस्पताल में तैनात की गई है। रोगियों की संख्या के अनुसार इसमें जरूरी बदलाव किया जाएगा।

## 'अस्पताल में मरीजों के लिए सभी सुविधाएं फ्री'

DRDO के चेयरमैन जी सतीश रेड्डी ने बताया कि अस्पताल में मरीजों के लिए सभी सुविधाएं निःशुल्क हैं। साथ ही सेना के जवान अपनी सेवाएं 24x7 प्रदान करेंगे। सरदार वल्लभभाई पटेल COVID-19 अस्पताल के निर्माण के लिए एक कचरा डंपिंग ग्राउंड को साफ और समतल किया गया। इसके बाद इसे तैयार किया गया।

## 'हर महीने 25000 वेंटिलेटर का कर सकते हैं निर्माण'

जी सतीश रेड्डी ने कहा कि डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन (DRDO) कोरोना के खिलाफ लड़ाई में अब तक 70 मेड इन इंडिया प्रोडक्ट्स बनाए हैं। अगर जरूरत पड़ी तो हम हर महीने करीब 25,000 वेंटिलेटर का निर्माण कर सकते हैं। हम उन्हें भी निर्यात करने के लिए तैयार हैं।

## केजरीवाल ने कहा- अस्पतालों में बेड की कमी नहीं

इस दौरान दिल्ली के मुख्यमंत्री अरविंद केजरीवाल ने कहा कि अभी अस्पतालों में बेड की कोई कमी नहीं है, हमारे पास 15,000 से अधिक बेड हैं। जिनमें से सिर्फ 5300 ही इस्तेमाल में है। हालांकि, आईसीयू बेड की कमी है, लेकिन अगर कोरोना मामले बढ़ते हैं तो ये ICU बेड हमारे लिए काफी अहम साबित होंगे।

<https://webvarta.com/national/drdo-built-covid19-hospital/>

## DRDO Technology News

**PSUWATCH**  
Fast, Accurate, Engaging

एवम् विस्तार  
के 50 वर्ष

Tue, 07 July 2020

## Akash Missile: BDL signs contract for licence agreement & ToT with DRDO

*Bharat Dynamics Limited (BDL) has signed contract for License Agreement and Transfer of Technology (LAToT) of Akash Missile Weapon System with Defence Research and Development Organisation (DRDO)*

New Delhi: Bharat Dynamics Limited (BDL) on Monday announced it has signed a licence agreement and transfer of technology (LAToT) of Akash Missile Weapon System with Defence Research and Development Organisation (DRDO) recently. BDL is the lead integrator for Akash Weapon System (Indian Army version). The contract has been signed by Defence Research & Development Laboratory's (DRDL) Director Dr Dasharath Ram and BDL's Director (Production) P Radha Krishna.

The event was witnessed by Mayank Dwivedi, Director DI<sup>2</sup>TM (Directorate of Industry Interface & Technology Management), who participate via video conference and Dr Ajit Chaudhary, Project Director (Akash).

## Akash Missile Weapon System

Akash Missile Weapon System (AKASH) is a short-range surface to air missile system to protect vulnerable areas and vulnerable points from air attacks. AKASH Weapon System can simultaneously engage multiple targets in group mode or autonomous mode. It has built-in electronic counter-countermeasures (ECCM) features. The entire weapon system has been configured on mobile platforms. AKASH Weapon Systems has been inducted and is operational with the Indian Air Force (IAF) as well as the Indian Army. The current agreement is for the Indian Army version of the Akash Missile, though.



BDL signs licence agreement with DRDO for Akash Missile Weapon System

## Bharat Dynamics Limited (BDL)

Bharat Dynamics Limited (BDL) is a manufacturer of ammunitions and missile systems. It was founded in 1970 in Hyderabad, Telangana. BDL was established in the year 1970 as a manufacturing base for guided weapon systems. Begun with a pool of engineers drawn from Indian Ordnance Factories, DRDO and aerospace industries, BDL began by producing a first-generation anti-tank guided missile – the “French SS11B1.” This product was a culmination of a licence agreement the government entered into with Aerospatiale. The defence PSU has three manufacturing units, located at Kanchanbagh Hyderabad (Telangana), Bhanur, Medak district of Telangana and Visakhapatnam (Andhra Pradesh). Two New Units are planned at Ibrahimpatnam, Ranga Reddy district, Telangana and Amravati, Maharashtra.

<https://psuwatch.com/bdl-signs-licence-agreement-with-drdo-for-akash-missile>

THE TIMES OF INDIA

Tue, 07 July 2020

## DRDO to establish research cell at IIT Hyderabad to meet future defence technological needs

*'DRDO-IITH Research Cell' will enhance scientific and technological base of the country in critical defence technology areas & help the nation become self-reliant in select defence technologies*

*By Manash Pratim Gohain*

Hyderabad: Defence Research and Development Organisation (DRDO) is going to establish a research cell at Indian Institute of Technology, Hyderabad to meet the future defence technological requirements of the country. The ‘DRDO - IITH Research Cell’ will undertake basic and applied research programs in identified technology areas.

Being established as an extension of the DRDO Research and Innovation Centre (RIC), Chennai, the research cell is envisaged to become a centre of excellence in conducting scientific and applied research in advanced technologies for defence.

The MoU to establish the research cell was signed by K K Pathak, director, Directorate of Futuristic Technology Management (DFTM), DRDO, MSR Prasad, distinguished scientist and director general, missiles and strategic systems (MSS), DRDO, and Professor B S Murty, director, IIT Hyderabad.

The MoU was signed during a virtual event organized at the DRDO DG-MSS Office in Hyderabad on July 3, 2020 in which officials from DRDO and IIT Hyderabad participated.

G Sathesh Reddy, secretary, department of defence R&D and chairman, DRDO said: “This DRDO-IITH research cell will ensure seamless execution of different projects between DRDO and

IITH. IITH has a strong research base in advanced technologies, which will be strengthened for the growth of the country through this cell.”

The DRDO-IITH research cell will enable tapping knowledge resources in Basic Science and Technology Industries that are interdisciplinary in nature and spread across multiple institutions. The research cell will help enhance the scientific and technological base of the country in critical defence technology areas. This directed Research initiative will help India become self-reliant in select defence technologies

Professor Bhaskar Ramamurthi, director, IIT Madras, said: “IITM shares a special bond with IITH from its birth. I am sure that DRDO-IITH research cell will make headway with its breath-taking deliverables under the umbrella of RIC, Chennai, with strong collaboration between DRDO Scientists and IITH Researchers.”

The Research Cell will facilitate directed basic and applied research by engaging faculty and researchers at academic institutions, technology centres and other renowned institutes in the country through defined research programs based on their research capabilities.

Murty, said: “Research is always a prime focus at IITH. This cell will support various research areas at IITH that can not only focus on fundamental science but also can bring out indigenous technologies and solutions through strong collaboration with scientists of DRDO.”

#### **The Thrust Areas of the Research Cell includes**

- Advanced Material and Processing
- Sensors for defense applications
- Hardware and Algorithms for Artificial Intelligence-based applications
- Technologies for Space applications
- Adaptive Optics and Image Processing
- UAV and Nanoornithoceptor Technologies
- Quantum Technologies

<https://timesofindia.indiatimes.com/home/education/news/drdo-to-establish-research-cell-at-iit-hyderabad-to-meet-future-defence-technological-needs/articleshow/76818766.cms>

**THE HINDU**

*Tue, 07 July 2020*

## **DRDO to set up research cell at IIT-Hyderabad**

Hyderabad: Defence Research and Development Organisation (DRDO) will be establishing a research cell at Indian Institute of Technology Hyderabad (IIT-H) to meet the future defence technological requirements of the country. The ‘DRDO - IIT-H Research Cell’ will undertake basic and applied research programs in identified technology areas and is being established as an extension of the DRDO Research and Innovation Centre (RIC), Chennai.

The research cell is envisaged to become a 'Centre of Excellence' in conducting scientific and applied research in advanced technologies for defence. The Memorandum of Understanding (MoU) to establish the research cell was signed by Director, Directorate of Futuristic Technology Management (DFTM), DRDO, K.K. Pathak, Director General, Missiles and Strategic Systems (MSS), DRDO M.S.R. Prasad and IITH Director Prof. B.S. Murty through a virtual event few days back.

“This MoU is aimed at bringing together DRDO capabilities and IITH to achieve greater heights in indigenous technology through collaborative research. The research cell will ensure seamless execution of different projects between both organisations as IITH has a strong research base in advanced technologies,” said DRDO chairman G. Satheesh Reddy, through a video call.

The cell is to help in tapping knowledge resources in basic science and technology industries that are interdisciplinary in nature and spread across multiple institutions. The initiative is help the country become self-reliant in select defence technologies and facilitate directed basic and applied research by engaging faculty and researchers at academic institutions, technology centers and other renowned institutes through research programs, said a press release on Monday.

“IIT-Madras shares a special bond with IIT-H from its birth. We are also happy that Prof. Murty, also an institute Professor at IIT-M, is leading IIT-H. I am sure that DRDO-IITH Research Cell will make headway with its breath-taking deliverables under the umbrella of RIC, Chennai, with strong collaboration between DRDO scientists and IITH researchers,” said IIT-M director Prof. Bhaskar Ramamurthi.

Thanking DRDO for choosing IIT-H to set up the research cell, IIT-H director Prof. B.S. Murty said: “Research is always a prime focus at our institute. It is indeed a pride moment for IITH to get associated with DRDO. This cell will support various research areas at IITH that can not only focus on fundamental science but also can bring out indigenous technologies and solutions through strong collaboration with scientists of DRDO.”

Thrust areas of the research cell include advanced material and processing, sensors for defense applications, hardware and algorithms for artificial intelligence-based applications, technologies for space applications, adaptive optics and image processing, UAV and nanoornithoceptor technologies, and quantum technologies.

<https://www.thehindu.com/news/cities/Hyderabad/drdo-to-set-up-research-cell-at-iit-hyderabad/article32001275.ece>

**BW EDUCATION**

Tue, 07 July 2020

## **DRDO to establish research cell at IIT Hyderabad to meet future defence technological needs**

*The MoU was signed during a virtual event organized at the DRDO DG-MSS Office in Hyderabad on 3rd July 2020 in which officials from DRDO and IIT Hyderabad participated*

Defence Research and Development Organisation (DRDO) is going to establish a Research Cell at Indian Institute of Technology Hyderabad to meet the future defence technological requirements of the country. The ‘DRDO - IITH Research Cell’ will undertake basic and applied research programs in identified technology areas.

Being established as an extension of the DRDO Research and Innovation Centre (RIC), Chennai, the Research Cell is envisaged to become a Centre of Excellence in conducting scientific and applied research in advanced technologies for defence.

The MoU to establish the Research Cell was signed by KK Pathak, Director, Directorate of Futuristic Technology Management (DFTM), DRDO, MSR Prasad, Distinguished Scientist and Director General, Missiles and Strategic Systems (MSS), DRDO and Prof BS Murty, Director, IIT Hyderabad.



The MoU was signed during a virtual event organized at the DRDO DG-MSS Office in Hyderabad on 3rd July 2020 in which officials from DRDO and IIT Hyderabad participated.

Highlighting the role expected of ‘DRDO-IITH Research Cell,’ Dr G Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO, who addressed the event through video conference, said, “This MoU is aimed at bringing together the capabilities of DRDO and IIT

Hyderabad, in order to achieve greater heights in indigenous technology through collaborative research. This DRDO-IITH Research Cell will ensure seamless execution of different projects between DRDO and IITH. IITH has a strong research base in advanced technologies, which will be strengthened for the growth of the country through this cell.”

The DRDO-IITH Research Cell will enable tapping knowledge resources in Basic Science and Technology Industries that are interdisciplinary in nature and spread across multiple institutions. The Research Cell will help enhance the scientific and technological base of the country in critical defence technology areas. This directed research initiative will help India become self-reliant in select defence technologies

Addressing the event, Prof Bhaskar Ramamurthi, Director, IIT Madras, said, “IITM shares a special bond with IITH from its birth. We are also happy that Prof Murty, who is also an Institute Professor at IITM, is leading IITH. I am sure that DRDO-IITH Research Cell will make headway with its breath-taking deliverables under the umbrella of RIC, Chennai, with strong collaboration between DRDO Scientists and IITH Researchers.”

The Research Cell will facilitate directed basic and applied research by engaging faculty and researchers at academic institutions, technology centres and other renowned institutes in the country through defined research programs based on their research capabilities.

Thanking the DRDO for choosing IIT Hyderabad to set up the Research Cell, Prof BS Murty, Director, IIT Hyderabad, said, “Research is always a prime focus at IITH. It is indeed a pride moment for IITH to get associated with DRDO with the establishment of DRDO-IIT Hyderabad Research Cell. This cell will support various research areas at IITH that can not only focus on fundamental science but also can bring out indigenous technologies and solutions through strong collaboration with scientists of DRDO.”

The Thrust Areas of the Research Cell includes

- Advanced Material and Processing
- Sensors for defense applications
- Hardware and Algorithms for Artificial Intelligence-based applications
- Technologies for Space applications
- Adaptive Optics and Image Processing
- UAV and Nanoornithoceptor Technologies
- Quantum Technologies

Other officials who spoke during the online event include MSR Prasad, Distinguished Scientist and Director General - Missiles and Strategic Systems (MSS), Sudhir Gupta (DS & DG (TM), DRDO HQ, Dr V Natarajan, Director, Research and Innovation Centre (RIC), Chennai. Other officials present in the event include Directors of various DRDO Laboratories (DRDL, DMRL, CAS, CHESS, DSP& DYSL), Dean (R&D), IIT Hyderabad and Dean (Students), IIT Hyderabad.

After the event, DRDO and IIT Hyderabad officials also planted saplings at the DRDO DG (MSS) office in Hyderabad.

<http://bweduction.businessworld.in/article/DRDO-To-Establish-Research-Cell-At-IIT-Hyderabad-To-Meet-Future-Defence-Technological-Needs/06-07-2020-294473/>

## **DRDO to set up research cell at IIT Hyd for defence tech requirements**

Hyderabad: Defence Research and Development Organisation (DRDO) will establish a research cell at Indian Institute of Technology Hyderabad to meet the future defence technological requirements of the country. This was announced here on Monday.

The 'DRDO-IITH Research Cell' will undertake basic and applied research programmes in identified technology areas.

Being established as an extension of the DRDO Research and Innovation Centre (RIC), Chennai, the research cell is envisaged to become a centre of excellence in conducting scientific and applied research in advanced technologies for defence.

Advanced material and processing, sensors for defense applications, hardware and algorithms for Artificial Intelligence-based applications, technologies for space applications, adaptive optics and image processing, AUAV and Nanoornithocopter technologies and quantum technologies will be the thrust areas of the research cell.

The MoU to establish the research cell was signed by K.K. Pathak, Director, Directorate of Futuristic Technology Management (DFTM), DRDO, M.S.R. Prasad, distinguished scientist and Director General, Missiles and Strategic Systems (MSS), DRDO, and B.S. Murty, Director, IIT Hyderabad.

The MoU was signed during a virtual event organized at the DRDO DG-MSS Office in Hyderabad on July 3 in which officials from DRDO and IIT Hyderabad participated, according to a statement released by IIT Hyderabad on Monday.

G. Satheesh Reddy, Secretary, Department of Defence R&D, and Chairman, DRDO, who addressed the event through video conference, highlighted the role expected of the 'DRDO-IITH Research Cell'.

"This MoU is aimed at bringing together the capabilities of DRDO and IIT Hyderabad, in order to achieve greater heights in indigenous technology through collaborative research. This DRDO-IITH Research Cell will ensure seamless execution of different projects between DRDO and IITH. IITH has a strong research base in advanced technologies, which will be strengthened for the growth of the country through this cell," he said.

The DRDO-IITH Research Cell will enable tapping knowledge resources in basic science and technology industries that are interdisciplinary in nature and spread across multiple institutions. It will help enhance the scientific and technological base of the country in critical defence technology areas. This directed research initiative will help India become self-reliant in select defence technologies

Addressing the event, Bhaskar Ramamurthi, Director, IIT Madras, said that IITM shares a special bond with IITH from its birth.

"We are also happy that Murty, who is also an Institute Professor at IITM, is leading IITH. I am sure that DRDO-IITH Research Cell will make headway with its breath-taking deliverables under the umbrella of RIC, Chennai, with strong collaboration between DRDO Scientists and IITH Researchers," he said.

The research cell will facilitate directed basic and applied research by engaging faculty and researchers at academic institutions, technology centers and other renowned institutes in the country through defined research programs based on their research capabilities.

Thanking the DRDO for choosing IIT Hyderabad to set up the research cell, B.S. Murty, Director, IIT Hyderabad, said that research is always a prime focus at IITH.

"It is indeed a pride moment for IITH to get associated with DRDO with the establishment of DRDO-IIT Hyderabad Research Cell. This cell will support various research areas at IITH that can not only focus on fundamental science but also can bring out indigenous technologies and solutions through strong collaboration with scientists of DRDO," Murty said.

<http://www.daijiworld.com/news/newsDisplay.aspx?newsID=727417>

## नवभारत टाइम्स

Tue, 07 July 2020

### आईआईटी हैदराबाद में अनुसंधान प्रकोष्ठ स्थापित करेगा डीआरडीओ

हैदराबाद: रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) भविष्य में देश की रक्षा संबंधी प्रौद्योगिकी की जरूरतों को पूरा करने के लिए भारतीय प्रौद्योगिकी संस्थान (आईआईटी) हैदराबाद में अनुसंधान प्रकोष्ठ स्थापित करने जा रहा है। संस्थान की ओर से सोमवार को जारी विज्ञप्ति के मुताबिक डीआरडीओ और आईआईटी हैदराबाद का अनुसंधान प्रकोष्ठ चिह्नित क्षेत्रों में मौलिक एवं व्यावहारिक अनुसंधान कार्यक्रम के लिए कार्य करेगा। दोनों संस्थानों के बीच सहमति पत्र पर हस्ताक्षर करने के लिए डिजिटल कार्यक्रम हैदराबाद स्थित डीआरडीओ के मिसाइल एवं रणनीतिक कार्यक्रम के महानिदेशक के कार्यालय में हुआ और इसमें डीआरडीओ एवं आईआईटी हैदराबाद के पदाधिकारी शामिल हुए।

विज्ञप्ति के मुताबिक आईआईटी हैदराबाद में स्थापित होने वाला अनुसंधान प्रकोष्ठ चेन्नई स्थित डीआरडीओ के अनुसंधान एवं नवप्रवर्तन केंद्र (आरआईसी) का विस्तार होगा। इस केंद्र की परिकल्पना रक्षा के लिए उन्नत प्रौद्योगिकियों में वैज्ञानिक और अनुप्रयुक्त अनुसंधान करने में उत्कृष्टता केंद्र के रूप में की गई है। डीआरडीओ-आईआईटी हैदराबाद अनुसंधान प्रकोष्ठ की भावी भूमिका को रेखांकित करते हुए रक्षा अनुसंधान एवं विकास विभाग के सचिव एवं डीआरडीओ के अध्यक्ष जी सतीश रेड्डी ने कहा कि इस सहमति पत्र का उद्देश्य डीआरडीओ और आईआईटी हैदराबाद की क्षमताओं को एक साथ लाना है ताकि संयुक्त शोध से स्वदेशी प्रौद्योगिकी नयी ऊंचाई पर पहुंचाई जा सके।

उन्होंने यह बात कार्यक्रम को वीडियो कांफ्रेंस से संबोधित करते हुए कही। रेड्डी ने कहा, "डीआरडीओ-आईआईटी हैदराबाद अनुसंधान प्रकोष्ठ दोनों संस्थानों के बीच परियोजनाओं का निर्बाध क्रियान्वयन सुनिश्चित करेगा। आईआईटी हैदराबाद के पास आधुनिक प्रौद्योगिकी में अनुसंधान का मजबूत आधार है जिसे देश के विकास के लिए इस प्रकोष्ठ की मदद से मजबूती मिलेगी।" आईआईटी हैदराबाद के निदेशक बी एस मूर्ति ने इस पहल के लिए उनके संस्थान को चुनने के लिए डीआरडीओ को धन्यवाद ज्ञापित किया।

<https://navbharattimes.indiatimes.com/state/other-states/hyderabad/drdo-to-set-up-research-cell-at-iit-hyderabad/articleshow/76813877.cms>



## DRDO to set up research cell at IIT Hyderabad to meet defence tech requirements

*The research cell will enhance the scientific and technological base of the country in critical defence technology areas and help India become self-reliant in them*

Hyderabad: To meet future defence technological requirements of the country, the Defence Research and Development Organisation (DRDO) will set up a research cell at the Indian Institute of Technology Hyderabad (IIT-H).

The 'DRDO - IIT-H Research Cell' will undertake basic and applied research programmes in technology areas, IIT-H informed in a press release on Monday. The research cell is an extension of the DRDO Research and Innovation Centre (RIC), Chennai, that is envisaged to become a Centre of Excellence in conducting scientific and applied research in advanced technologies for defence.



IIT Hyderabad (File| EPS)

The Memorandum of Understanding (MoU) to establish the research centre was signed by the Director, Directorate of Futuristic Technology Management (DFTM), DRDO, KK Pathak, Director General, Missiles and Strategic Systems (MSS), DRDO MSR Prasad and IITH Director Professor BS Murty virtually, last week.

The DRDO-IITH Research Cell will enable tapping knowledge resources in basic science and technology industries that are interdisciplinary in nature and spread across multiple institutions. The research cell will enhance the scientific and technological base of the country in critical defence technology areas and help India become self-reliant in them.

“This MoU is aimed at bringing together the capabilities of DRDO and IIT-H, to achieve greater heights in indigenous technology through collaborative research. This DRDO-IIT-H Research Cell will ensure seamless execution of different projects. IIT-H has a strong research base in advanced technologies, which will be strengthened for the growth of the country through this cell,” said G Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO.

“Research is always a prime focus at IITH. It is indeed a proud moment for IITH to get associated with DRDO with the establishment of the DRDO-IIT Hyderabad Research Cell. This cell will support various research areas at IITH that can not only focus on fundamental science but also bring out indigenous technologies and solutions through strong collaboration with scientists of DRDO,” Professor BS Murty said.

The thrust areas of the research cell includes advanced material and processing, sensors for defense applications, hardware and algorithms for artificial intelligence-based applications technologies for space applications, adaptive optics and image processing, quantum technologies, UAV and nanoornithocopter technologies.

<https://www.newindianexpress.com/states/telangana/2020/jul/06/drdo-to-set-up-research-cell-at-iit-hyderabad-to-meet-defence-tech-requirements-2166167.html>



Tue, 07 July 2020

# PM Narendra Modi's stand prevails, Indian Army stands firm, isolated China to move back from LAC

*India not only challenged China on the border but also started to put an economic as well as diplomatic pressure. It appears that China was not ready to face challenges on so many fronts*

*Edited By Arun Kumar Chaubey*

New Delhi: India-China border dispute took a new turn on Monday (July 6) as the first signs of tensions easing along the Line of Actual Control (LAC) was seen in the Chinese military's limited pull-back from a number of points in the eastern Ladakh. The development took place a day after NSA Ajit Doval and Chinese Foreign Minister Wang Yi agreed on completing the ongoing disengagement process along the LAC.

Doval and Wang, who are designated 'Special Representatives' on Sino-India boundary question, held a telephonic conversation on Sunday during which they understood to have agreed that a "complete disengagement" of troops at the "earliest" was necessary for full restoration of peace in the border areas.

Three days ago, Prime Minister Narendra Modi had also visited Ladakh to give a clear message to China that India would not budge an inch on the LAC unless Chinese troops withdraw to their earlier positions. China's decision to limited pull-back from a number of points has no doubt given India a diplomatic edge over the Communist nation, which of late exhibited its expansionist agenda.

According to sources, the Chinese army has gone back to its side from at least three places in Ladakh. China's Foreign Ministry statement also made an official statement to show the disengagement process. China today said that Foreign Minister Wang Yi and India's National Security Advisor Ajit Doval reached "positive common understandings" over easing the current border situation and underlined the need to act promptly on the consensus reached by their military commanders to complete the disengagement of the front-line troops at the LAC as soon as possible.

It further said that the two sides "welcomed the progress achieved in the recent military and diplomatic meetings, agreed to stay in dialogue and consultation and stressed the importance to promptly act on the consensus reached in the commander-level talks between Chinese and Indian border troops, and complete disengagement of the front-line troops as soon as possible."

The ongoing stalemate over the border row was also a challenge for China as India gave enough indications that it was ready to fight China on every front. India not only challenged China on the border but also started to put an economic as well as diplomatic pressure. It appears that China was not ready to face challenges on so many fronts.

The three points from where the Chinese army is stated to be retreating along the LAC in Ladakh include: the first place is the patrolling point 14 in the Galvan Valley; the second place is

the Hot Springs; while the third place is Gogra. Near the patrolling point 14, the troops of both the nations had a violent confrontation on the night of 15 June, in which 20 Indian soldiers martyred and 40 to 50 Chinese soldiers had died.

The withdrawal of the Chinese military from Patrolling Point 14 will, however, be confirmed by the Indian Army through ground verification. This process is very important because India no longer trusts China, especially after the June 15 incident.

There have been three Corps Commander-level talks between the Indian and Chinese military. In the meetings of June 22 and June 30, they agreed that the forces of the two countries would withdraw from the confrontational situation on the LAC. India has clearly stated that the process of retreat would be verified for 72 hours after the disengagement process.

Meanwhile, China's stand on the Pangong Lake is still unclear, while the Chinese army is stationed on Finger 4 after building bunkers and tents along with military equipment. This has become the most complicated issue between India and China after the Galwan Valley. India's LAC is up to Finger 8 of Pangong Lake, but China has staked its claim on the Finger 2 and is currently sitting on the Finger 4.

Among several proposals discussed, one is to create a buffer zone near the collision sites along the LAC. The buffer zone means that until the negotiations at the diplomatic level are completed and the LAC is determined, a few kilometers of the area on the LAC will be barred for the troops of both the countries. The area will be patrolled by ITBP personnel from India and BDR personnel from China. The buffer zones will be created so that trust between the two countries can be restored and the army will protect the borders on its side of this buffer zone, according to sources.

If we look into the pages of history from the year 1962, the bone of contention was the Galwan Valley. China had then withdrawn its troops but came back to attack India within 100 days. It was also the month of July. The war ended a month later when China declared a ceasefire. Because of the past experience, India needs to remain vigilant until it is confirmed that China has retreated from the LAC with its military equipment.

China probably had thought that India would not be able to do anything against its infiltration, but within a few weeks, it has realized that India under the leadership of Prime Minister Narendra Modi has changed. In a two-month-long standoff, India has used all kinds of options against China.

From Apps to Maps, India gave a direct message to China on every front that it will not compromise. It has already banned 59 Chinese Apps, causing a loss of about Rs 37,000 crores to Chinese technology companies in the coming days. India also decided to cancel the contracts of Chinese companies in the telecom and railway sectors, besides blocking their entry into the highways and power sectors.

The last nail in the coffin was Prime Minister Narendra Modi's visit to Ladakh, where he went to the extent of warning China. India's diplomatic maneuver also played a key role and China has been isolated on the global front, with the US, Japan, and Australia openly giving statements in favour of India.

<https://zeenews.india.com/india/pm-narendra-modis-stand-prevails-indian-army-stands-firm-isolated-china-to-move-back-from-lac-2294042.html>

## LAC stand-off: India, China agree to expeditiously complete disengagement of troops, says MEA

*The agreement was reached during a phone conversation between the Special Representatives of the two sides on the boundary issue, India's National Security Advisor Ajit Doval and China's foreign minister Wang Yi, on Sunday, the ministry said in a statement*

*By Rezaul H laskar*

New Delhi: India and China have agreed to expeditiously complete the disengagement of their border troops along the Line of Actual Control (LAC) and not to take any unilateral action to alter the status quo along the disputed border, the external affairs ministry said on Monday.

The agreement was reached during a phone conversation between the Special Representatives of the two sides on the boundary issue, India's National Security Advisor Ajit Doval and China's foreign minister Wang Yi, on Sunday, the ministry said in a statement.

This was the first contact between the Special Representatives since the border standoff between the two sides began in May. The two countries have held discussions through diplomatic and military channels, including the corps commanders and the Working Mechanism for Consultation and Coordination (WMCC) on border affairs.



Indian army soldiers drive vehicles along mountainous roads as they take part in a military exercise in union territory of Ladakh on July 4, 2020. (AFP)

The statement was issued against the backdrop of reports that troops from both sides had pulled back in a limited manner at several key points in the Ladakh sector.

The Special Representatives agreed it was necessary to “ensure at the earliest complete disengagement of the troops along the LAC and de-escalation from India-China border areas for full restoration of peace and tranquillity”, the Indian readout said.

They agreed that both sides “should complete the ongoing disengagement process along the LAC expeditiously” and also “ensure a phased and stepwise de-escalation” in the border areas.

“They reaffirmed that both sides should strictly respect and observe the Line of Actual Control and should not take any unilateral action to alter the status quo and work together to avoid any incident in the future that could disturb peace and tranquillity in border areas,” the statement said.

Doval and Wang, who had last met in New Delhi on December 21, had what was described as a “frank and in-depth exchange of views” on recent developments in the western sector of the India-China border areas, or Ladakh, which has been the focus of tensions that have taken bilateral relations to a fresh low.

The two sides had deployed additional forces at several key stretches of the LAC after Chinese troops trespassed across the disputed border and hindered patrolling by Indian troops. A violent face-off in Galwan Valley on June 15 had left 20 Indian soldiers dead and resulted in unspecified Chinese casualties.

The Special Representatives agreed that both sides should take guidance from the consensus of leaders of India and China that maintenance of peace and tranquillity in the border areas is essential for further development of bilateral relations and that the “two sides should not allow differences to become disputes”.

They further agreed that diplomatic and military officials of the two sides should continue their discussions, including under the framework of the WMCC, and implement understandings reached in a timely manner to achieve the disengagement and de-escalation.

The Special Representatives also agreed to continue their conversations to “ensure full and enduring restoration of peace and tranquillity in the India-China border areas in accordance with the bilateral agreements and protocols”.

<https://www.hindustantimes.com/india-news/lac-stand-off-india-china-agree-to-expeditiously-complete-disengagement-of-troops-says-mea/story-KyCJSrXuVsynMrJUgAIIO.html>



Tue, 07 July 2020

## **India-China Galwan Valley faceoff: Chinese Army moves back as disengagement begins after Modi's Leh visit**

*India-China Galwan Valley faceoff latest update: Chinese Army has moved back tents, vehicles and troops by 1-2 km from locations where disengagement was agreed upon at Corps Commander level talks*

India-China Galwan Valley faceoff latest update: Chinese Army has moved back tents, vehicles and troops by 1-2 km from locations where disengagement was agreed upon at Corps Commander level talks, news agency ANI reported today quoting Indian Army Sources. It further said that the Chinese heavy armoured vehicles are still present in depth areas in the Galwan river area. Indian army is monitoring the situation with caution. This development comes days after 20 Indian soldiers died in the clash with the Chinese Army at the Galwan Valley.

The ANI report said that disengagement of Indian and Chinese troops in Galwan, Ladakh has begun. This is a result of intense diplomatic, military engagement and contacts in the past 48 hours. However, details of the disengagement process are awaited. These meetings followed Prime Minister Narendra Modi's visit to Leh where a decisive and firm message was sent out to China.

Sources further told the news agency that India's responsible stance and message at LAC has been globally recognised. Those invested in India-China relationship in Beijing are also of the opinion that the present stand-off should be resolved. India has sent out a decisive message that national security is paramount for the country.

Meanwhile, news agency PTI also reported government sources as saying that the disengagement of the Chinese troops has started as per an agreement between the Corps Commander's of the two side. Similar movement of vehicles of the Chinese Army was seen at Gogra Hot Spring area, PTI quoted sources as saying.

Meanwhile, the Ministry of External Affairs said that National Security Advisor Ajit Doval and Chinese State Councillor and Minister of Foreign Affairs Wang Yi had a telephone conversation on Sunday. They had a frank and in-depth exchange of views on the recent developments in the Western Sector of the India-China border areas. It was agreed that NSA Ajit Doval and Chinese FM Wang Yi will continue their conversations to ensure full and enduring restoration of peace and tranquillity in the India-China border areas in accordance with the bilateral agreements and protocols.

Doval and Wang Yi re-affirmed that both sides should strictly respect and observe the Line of Actual Control and should not take any unilateral action to alter the status quo and work together to avoid any incident in the future that could disturb peace and tranquillity in border areas, the MEA said.

<https://www.financialexpress.com/defence/india-china-galwan-valley-faceoff-chinese-army-moves-back-troops-by-1-2-km-says-report/2014512/>

## **Disengagement process: Why Army is cautious, will verify each step on the ground before taking next**

*As the India and China start repeating the disengagement process, the Indian side is doubly cautious in its insistence on verifying every single step in detail before moving to the next step*

*By Sushant Singh*

Even though Monday's events constitute an important step in the disengagement process on the LAC between India and China, these will have no bearing on either the Army's alertness levels or its preparations for long-haul deployment in the barren mountainous terrain of Ladakh. It will have to be prepared to deal with the new reality of the disputed border where blood was spilled last month after more than five decades.

The foremost reason for this is the high level of mistrust between the two armies caused by multiple incidents on the border over the past nine weeks. Following the first round of talks at the level of the Corps Commander, the two armies had started the disengagement process from Galwan sector but a dispute over the location of a Chinese observation post led to a violent clash on June 15.

The clash, which saw the death of 20 Indian soldiers and an unspecified number of Chinese soldiers, has left scars which are too fresh to be healed. As the two sides start repeating the disengagement process, the Indian side is doubly cautious in its insistence on verifying every single step in detail before moving to the next step.

This means that the whole process of disengagement will be deliberate, time-consuming, and onerous. According to a senior Army officer, the first step in all 'friction points' will itself take two to three weeks, which will be followed by another round of talks between military commanders to arrive at the second step. This by itself forecasts an extended deployment period which could stretch into weeks, if not months, without any hitch being encountered during the whole process.

The Army is also concerned that each of these initial steps of disengagement is easily reversible by the Chinese troops as long as they remain deployed in strength close to the LAC. It means that the Indian side cannot afford to lower its guard at any point in time, or even contemplate any reduction in strength for this period of extended deployment.

Even after the disengagement process is over, the process of de-escalation from rear areas will be equally cumbersome. The soldiers and heavy equipment will get de-inducted but only in phases and in numbers matched by the other side. Considering the quantum of troops, weaponry and equipment moved to the theatre, this will take a lot of time, again prolonging the deployment for the Army.

The second reason for Army's cautious approach is the situation in the Pangong Tso area, on the northern bank of the saltwater lake. In all the meetings till date, the Chinese side has so far not relented in its stance on Pangong, where it has constructed massive infrastructure and undertaken huge deployment eight kilometres on to the Indian side of the LAC.

Based on events in the area since last September, there are genuine apprehensions within the security establishment that the Chinese are intent on forcing India to agree to the new status quo at the lake. This means that Indians are denied the right to patrol up to Finger 8, as they have historically done, while the Chinese would have shifted the LAC westwards.

If this remains the case – and it is likely to be so – it will be unacceptable to India and remain a major flashpoint between the two armies. This could then erupt anytime and engulf the rest of the LAC as witnessed this May. It was on the night of May 5/6 that Indian and Chinese soldiers

clashed violently on the banks of the lake, with major injuries on both sides, and the dispute did not remain localized to the Pangong area alone. It is to cater for any such eventuality that the Army will have to maintain both its strength and its alertness levels in the sector.

The third reason is the creation of de facto ‘buffer zones’ as part of the disengagement process, even though they are believed to be temporary. These ‘buffer zones’ are areas of no-man’s land which end up denying Indian access to certain portions of the LAC, such as PP14, PP15 and PP17A. These PPs are points given by the high-powered China Study Group which must be touched by the patrols of security forces within a specified period.

The Army would like to regain full access to these PPs at the earliest as part of its primary role of ensuring territorial integrity. If the Chinese response, as and when Indian soldiers patrol up to these areas, is hostile or violent, a situation could soon emerge which warrants greater military involvement, an operational contingency it was not prepared for in the routine course.

It is for these reasons that the Army is viewing the current situation on the LAC in Ladakh as a long haul, where a return to the status quo ante of April remains only a distant goal. The Army has to be prepared for dealing with the new realities of the disputed border, and it means a high level of alertness, different preparations, and a fresh orientation. That new reality remains unaltered by Monday’s move of the two sides to step back some distance from Galwan.

<https://indianexpress.com/article/explained/disengagement-process-why-this-will-not-affect-army-alertness-level-preparations-6493175/>



*Tue, 07 July 2020*

## **They can come back: Indian Army cautious after China’s ‘Baby Steps’ towards LAC disengagement**

The Indian and Chinese armies have initiated the process of putting some physical distance between their troops at three friction points along the Line of Actual Control in Ladakh after over a two months-long border standoff. Sources in the Indian Army told News18 that the PLA has been observed removing tents and other temporary structures erected at Patrolling Point 14 in Galwan Valley, the site of the June 15 clash. Indian troops have also observed “rearward movement of PLA vehicles” at the two other friction points – Hot Springs and Gogra.

However, officials aware of the developments, say there is no reason to celebrate just yet. “These are baby steps. The Chinese have stepped back 1.5 km and the Indian troops have also moved back a bit. But this movement is reversible. They can come back. We are watching things very closely,” an officer who did not want to be named said.

The level of trust on the ground is low after the bloody clashes in Galwan that left 20 Indian soldiers and an unspecified number of Chinese soldiers dead. The clash had started after Colonel Santosh Babu, the Commanding Officer of 16 Bihar regiment, had gone to verify if the Chinese had honoured their June 5 commitment to remove tents from Patrolling Point 14.

The Army is clear it will not give the specific distance to which the PLA has relocated in Galwan or elsewhere till a thorough verification is done.

Galwan River is in spate given the snow melt in Aksai China, and sources pointed out there is a good chance that some of the disengagement at Galwan could be the Chinese merely shifting their tents and men because of it.

However, the statement issued by the Indian government after the Special Representative talks between National Security Advisor Ajit Doval and Chinese foreign minister Wang Yi on Sunday was more optimistic about de-escalation of border tensions.

“The two sides agreed that it was necessary to ensure at the earliest complete disengagement of troops along the LAC and de-escalation from the border for full restoration of peace and tranquillity,” the government stated.

The Chinese statement on the talks stated: “India and China have withstood the test of ups and downs and it is not easy to achieve today’s development. Not long ago what happened in the Galwan Valley is very clear. China will effectively continue to defend its territorial sovereignty.”

The Indian Army also downplayed reports of disengagement at Pangong Tso where the PLA has come in till Finger 4 and built bunkers, pitched tents and even laid out a small airstrip. The PLA has denied Indian troops their ability to patrol from their forward positions till Finger 8, which India asserts lies within the LAC.

Sources say the Chinese have displayed some intent of moving back from Finger 4, but how much they are willing to step back is not clear. A senior officer said, “The PLA has not moved an inch from Pangong Tso. Removing three tents and moving back 20 vehicles is not disengagement.”

In two marathon Corps Commander meetings between Lieutenant General Harinder Singh and his PLA counterpart, South Xinjiang military region chief Major-General Liu Lin, the two armies had agreed to creating a buffer zone between to reduce the risk of a skirmish or scuffle that could escalate further into a Galwan-like clash.

That would mean Indian troops pull back from their own territory as a “confidence building measure to create faith in the process.”

Lt Gen DS Hooda, a former Northern Army Commander, called Monday’s development positive. “If you do not have violence, it sets the stage for a negotiation or reaching agreements. After the first Corps Commander meeting, the Army Chief had said that a phase wise disengagement would start from the North, that is Galwan.”

“What sabotaged it was the violence of June 15. Now by stepping back, the Chinese are sending a positive signal. Chumar, Despang and Doklam were resolved diplomatically and what helped was lack of violence,” he said.

Diplomatic level talks between NSA Doval and the Chinese Foreign Minister will continue later this month, and military-level talks will also continue.

Army sources say while the process of disengagement has started, de-escalation is a long way off. They have already started stocking up for the winters for the 40,000 troops currently deployed in Eastern Ladakh against the Chinese build up.

“Till the PLA does not move out its troops and weapons from the rear, till it does not restore status quo ante by going back to where they were in early April, there will always be a threat,” an officer said.

<https://idrw.org/they-can-come-back-indian-army-cautious-after-chinas-baby-steps-towards-lac-disengagement/#more-230491>



## India-China ties in complex situation, says Beijing after Doval-Wang icebreaker

*China's statement comes on the same afternoon India released its statement agreeing that both sides "should complete the ongoing disengagement process along the LAC expeditiously"*

*By Sutirtho Patranobis*

Beijing: China on Monday said the consensus reached with India to disengage troops at the border should be implemented as soon as possible, indicating cooling down of tension with India at the disputed Line of Actual Control (LAC). India and China clashed earlier last month along the disputed border in Galwan Valley, resulting in death of 20 Indian soldiers and purported casualties of Chinese troops.

Acknowledging that current bilateral ties were facing a "complex situation", Beijing said both sides should adhere to the "to the strategic judgement that they do not pose a threat to each other...".

A statement released by the Chinese foreign ministry on a conversation between foreign minister, Wang Yi and India's national security advisor Ajit Doval on Sunday said both New Delhi and Beijing welcome recent military and diplomatic talks to resolve the last month's crisis at the border.

Wang was referring to the June 30 meeting – and two previous ones in June -- between delegations led by Lieutenant General Harinder Singh, commander of the Leh-based 14 Corps, and Major General Liu Lin, commander of the South Xinjiang military region.

"The two sides welcome the progress made in the recent military and diplomatic meetings between the two countries, and agree to continue the dialogue and consultation and emphasise that the consensus reached at the level of the two border defence forces' commanders should be implemented as soon as possible to complete the process of disengagement of the front-line forces of the two sides as soon as possible," the statement in Mandarin released Monday evening read.

China's statement comes on the same afternoon India released its statement agreeing that both sides "should complete the ongoing disengagement process along the LAC expeditiously" and also "ensure a phased and stepwise de-escalation" in the border areas.

India, in its statement, also said that Wang and Doval re-affirmed that both sides should strictly respect and observe the Line of Actual Control, and that they should not take any unilateral action to alter the status quo and work together to avoid any incident in the future that could disturb peace and tranquillity in border areas.

This was the first contact between the Special Representatives since the border standoff between the two sides began in May. The two countries have held discussions through diplomatic and military channels, including the corps commanders and the Working Mechanism for Consultation and Coordination (WMCC) on border affairs.

However, China in its statement, also made it clear who Beijing thinks was responsible for the standoff in Galwan Valley and then the violence at the border.

"What happened recently in the western part of the border between China and India in the Galwan Valley is very clear. China will continue to effectively defend its territorial sovereignty and maintain peace and tranquility in the border area," said Wang, who is also state councillor told Doval, according to the statement.

It referred to the existing mechanisms between the two countries to resolve the long-standing 3488 km boundary problem – currently the longest land border dispute in the world.

"The two sides agreed to strengthen communication through the special representative meeting mechanism, the working mechanism for consultations and coordination on Sino-Indian border

affairs, and constantly improve and strengthen confidence-building measures in border areas to avoid the recurrence of incidents affecting peace and tranquility in border areas,” the Chinese statement said, quoting Wang.

The relationship between India and China is complex and both sides should work to reverse it, Wang said.

“The two sides should always adhere to the strategic judgement that they do not pose a threat to each other and provide each other opportunities for development, attach great importance to the complex situation facing the current relationship between the two countries, and work together to overcome and reverse them as soon as possible,” the Chinese statement said.

Wang’s statement emphasised the importance of guiding “public opinion and public will” on the ties between the two countries.

“It is hoped that India and China will act in the same direction, correctly guide public opinion and public will, maintain and promote normal exchanges and cooperation between the two countries, avoid adopting practices that expand disputes, and jointly safeguard the overall situation of China-India relations,” the statement said.

Unlike India, China is yet to release the PLA’s casualty figures it sustained during the June 15 brawl.

A senior Chinese official had told foreign diplomats last month that one of the reasons Beijing hadn’t released official figures was because it did not want to stir sentiments.

The other reason, the Chinese official said, was because the casualty numbers were low for the PLA.

<https://www.hindustantimes.com/india-news/lac-stand-off-china-says-ties-with-india-complex-situation-agrees-to-pull-back-troops/story-gy0cweRmuo8XsdFOGdsV3O.html>

**Outlook**  
THE FULLY LOADED MAGAZINE

*Tue, 07 July 2020*

## **Both Indian, Chinese troops retreat 2km each in Galwan**

Leh: Both Indian and Chinese troops have retreated two kilometres each along the Line of Actual Control (LAC) in the Galwan Valley, where 20 Indian and unknown number of Chinese soldiers were killed in a violent face-off last month.

Top official sources told IANS that both sides retreated two kilometres simultaneously on Sunday, following several rounds of talks which had begun after the clash on June 15. The disengagement between Indian and the People's Liberation Army (PLA) happened as per the agreed terms in the Corps Commander's meeting.

With the retreat from both sides, a four kilometre no-man zone has been created. "Four kilometres in the highly mountainous terrain like Galwan valley, deprives both sides to see each other's installations and reinforcements," sources said.

The two sides have also agreed, sources said, not to do any aerial surveillance of the retreated area, to rebuild trust which was badly damaged due to the June 15 bloodbath.

"As a result, neither side would really know what the other side is doing," a military source said.

Indian Navy's P-8I aircraft generally used for maritime patrol and reconnaissance, had been pressed into service in Ladakh for high altitude surveillance. The P-8Is carried out similar surveillance operations during the 2017 India-China standoff in Doklam in Sikkim.

However, sources said PLA has removed tents and structures at PP14 and rearward movement of vehicles of the PLA were seen at general area Galwan, Hotsprings and Gogra.

The retreat on Sunday, sources said, is limited to these areas and not other contentious points along the LAC. Around 30,000 troops of Indian Army are in an eyeball-to-eyeball confrontation with Chinese troops along the LAC in Ladakh, following the additional deployment of three brigades since the violent face-off last month.

*(Disclaimer: This story has not been edited by Outlook staff and is auto-generated from news agency feeds. Source: IANS)*

<https://www.outlookindia.com/newscroll/both-indian-chinese-troops-retreat-2km-each-in-galwan/1887127>

## THE ECONOMIC TIMES

Tue, 07 July 2020

# The Indian Air Force is ramping up deployment in LAC

### Bringing out the big guns

Seven weeks into a bitter standoff with Chinese troops, the Indian Air Force has significantly enhanced deployment of frontline jets, attack helicopters and transport fleet in its key bases along the Line of Actual Control. The frontline fighter jets have increased their sorties in Ladakh and nearby areas in the last few days as part of increased alert level.

### C-17 Globemaster III

The IAF has also pressed into service a fleet of C-17 Globemaster III transport aircraft as well as C-130J Super Hercules to transport military equipment and weaponry to forward bases. The C-17 Globemaster III is a premier transport aircraft. The massive, sturdy, long-haul aircraft can carry large combat equipment, troops and humanitarian aid across long distances in all weather conditions.

### Ilyushin-76

The IAF is also using its Ilyushin-76 fleet to transport troops to various areas along the Line of Actual Control, the 3,500 km de-facto border between India and China. Il-76 is a medium-range military transport aircraft, also known by the Nato codename 'Candid'. The missions of the aircraft are paratroopers drop, and the carriage of troop forces and combat material with crews and armaments, including medium-sized battle tanks, cargo airlifting for troop forces and transport for disaster relief operations.

### Mirage 2000

The force has already moved a sizable number of its frontline Sukhoi 30 MKI, Jaguar, Mirage 2000 aircraft to several key air bases including Leh and Srinagar. In February of last year, twelve Mirage-2000 fighter jets crossed the Indian Airspace for the first time to strike the Jaish-e-Mohammed terror launch pads across the Line of Control. The unprecedented cross-border strike, which targeted the biggest JeM hideout in Balakot in a counter-terrorism operation was a retaliation to avenge the Pulwama attack.

### Apache attack choppers

It has also deployed Apache attack choppers and Chinook heavy-lift helicopters to transport troops to various forward locations. The battle-proven Apache attack helicopter was inducted into the Indian Air Force in September last year, boosting its capabilities for conducting cross-border hits on terrorist launch pads and improving its strike packages with fighter jets.

<https://economictimes.indiatimes.com/news/defence/the-indian-air-force-is-ramping-up-deployment-in-lac/apache-attack-choppers/slideshow/76811149.cms>

## For Ladakh stand-off, how India readied its fleet of Apache attack choppers

*The AH-64 Apache choppers, described by some as the Ferrari of attack choppers, was one of India's primary counter to Chinese threats on the ground and in the air*

*By Shishir Gupta*

New Delhi: India fast-tracked delivery of the last batch of the US-built Apache attack choppers after the May 5 stand-off with China in eastern Ladakh to be able to ramp up their presence along the Line of Actual Control (LAC). The last batch of five choppers arrived in India last month after the central government exempted Boeing contractors from the mandatory quarantine rules notified due to the Covid-19 pandemic. The team assembled the five choppers that had been shipped to India and quickly had them flown to the Pathankot air base after being flight-tested for deployment in Ladakh.

“The military wanted to be prepared for the worst-case scenario. And it was,” a top government official told Hindustan Times on Monday.

India had last year inducted 17 of the 22 AH-64 Apache choppers ordered from Boeing that can track 128 targets, prioritise threats and engage 16 targets. The remaining five were to arrive in India by the end of March. But the plan to ship the choppers had to be halted due to the nationwide lockdown enforced in India due to the coronavirus pandemic.



The last batch of five Apache choppers arrived in India last month.

India was taken by surprise in early May when China's People's Liberation Army (PLA) soldiers adopted an aggressive posture, setting up a stand-off at four locations in eastern Ladakh. As it became clear that the stand-off was probably directed from Beijing, New Delhi started preparing for all eventualities.

Over the next few days and weeks, the air force started moving its assets such as the Apache choppers and the 15 heavy-lift Chinook choppers to airbases closer to Jammu and Kashmir.

Simultaneously, it also reached out to Boeing to indicate its ability to receive the shipment. Special visas were arranged and formal orders exempting the contractors who would re-assemble the choppers from the mandatory quarantine rule was issued on grounds of national security. By 1 June, the Home Ministry allowed visas to foreign technical specialists travelling for installation, repair and maintenance of foreign-origin equipment.

The induction of the two aerial platforms acquired in a \$3 billion deal is a game-changer for the Indian military which otherwise relied on Russian Mi-17 medium lift helicopters for rapid induction of forces and an obsolete squadron of Russian Mi-26 helicopters.

The Chinook helped the military transport troops, artillery, equipment, and fuel to forward bases. The AH-64 Apache choppers, described by some as the Ferrari of attack choppers, was one of India's primary counter to Chinese threats on the ground and in the air. Because they have an amazing maneuverability, the Apache is designed to operate in “nap-of-the-earth” flight - that is flying at an extremely low level and using terrain and vegetation to hide from hostile elements.

Counted among the deadliest flying machines, the Apache has a 30mm cannon under the nose that can fire 1,200 rounds in less than two minutes. It can also carry 80 rockets besides Hellfire missiles that can identify, track and hunt targets in the dark.

<https://www.hindustantimes.com/india-news/for-ladakh-stand-off-how-india-readied-its-fleet-of-apache-attack-choppers/story-ozj3NiqeSQw0jA2AGebqwl.html>

## चीन से मुकाबले को तैयार Indian Army, लद्दाख में तैनात किए 30,000 जवान

*पंजाब हिमाचल प्रदेश और उत्तर प्रदेश से तीन अतिरिक्त  
ब्रिगेड के लगभग 10000 सैनिकों को लाया गया है।*

लेह: वास्तविक नियंत्रण रेखा (एलओसी) पर चीन के साथ जारी तनातनी के बीच भारतीय सेना ने लगभग 30,000 जवानों को लद्दाख में तैनात किया गया है। पिछले महीने दोनों दशों के सैनिकों के बीच हुई हिंसक झड़प के बाद भारत ने तीन अतिरिक्त ब्रिगेड की तैनाती की है। उच्च पदस्थ सूत्रों ने आईएनएस को बताया कि सामान्य तौर पर छह ब्रिगेड, यानी दो डिवीजनों को लद्दाख में एलएसी पर रखा जाता है। यहां पर सैनिकों को रोटेशन के आधार पर तैनात किया जाता है।

15 जून की हिंसक झड़प के बाद सेना ने तीन अतिरिक्त ब्रिगेड को तैनात किया है। हर ब्रिगेड में लगभग 3,000 सैनिक और सहायक होते हैं। चीनी सैनिकों के साथ हुई झड़प में एक कमांडर सहित 20 भारतीय सैनिक शहीद हो गए थे और 70 से अधिक सैनिक घायल हुए थे। सूत्रों ने बताया कि पंजाब, हिमाचल प्रदेश और उत्तर प्रदेश से तीन अतिरिक्त ब्रिगेड के लगभग 10,000 सैनिकों को लाया गया है। एलएसी पर अभी 14 कोर कमांड के तहत सेना की 3 डिविजन मौजूद है। यह भारत में सेना की सबसे बड़ी कोर है, जिसे 1962 में चीन के साथ युद्ध के दौरान स्थापित किया गया था।

सूत्रों ने कहा कि पाकिस्तान के खिलाफ 2017 के सर्जिकल स्ट्राइक में अहम भूमिका निभाने वाले कुछ पैरा स्पेशल फोर्स को भी लद्दाख भेजा गया है। भारतीय पैराट्रूपर्स अर्धसैनिक बलों एक दर्जन से अधिक विशेष बल रेजिमेंट से आते हैं, जो अत्यंत कठिन इलाकों में उच्च जोखिम वाले अभियानों में प्रशिक्षित होते हैं। इसी तरह, लद्दाख स्काउट्स की पांच बटालियन और सेना की एक पैदल रेजिमेंट को पहाड़ी युद्ध में समर्थन के लिए तैयार रखा गया है।

सूत्रों ने कहा कि गाल्वन घाटी में हुई हिंसक झड़प के बाद से भारतीय सेना अपनी तैनाती को बढ़ा रही है। इसके तहत M-777 अल्ट्रा-लाइट होवित्जर तोपों को लगाया गया है। वहीं, वायुसेना ने अपने परिवहन विमान, सी -17 ग्लोबमास्टर III को तैयार रखा है, जिसका उपयोग सैनिकों को एयरलिफ्ट करने, सेना के वाहनों और टी -72 / टी -90 टैंक जैसे भारी टैंकों को ले जाने के लिए किया जा सकता है। भारतीय सेना रूसी सुखोई -30 लड़ाकू विमानों, मिग -29 जेट्स, इल्युशिन -76 हेवी-लिफ्ट विमानों, एन -32 परिवहन विमानों, एमआई -17 यूटिलिटी हेलिकॉप्टरों के साथ चीन की किसी भी हरकत का जवाब देने के लिए तैयार है।

वहीं, नौसेना का पी -8 आई विमान आम तौर पर समुद्री गश्त के लिए इस्तेमाल किया जाता है, जिसे लद्दाख में उच्च ऊंचाई वाले क्षेत्रों की निगरानी के लिए इस्तेमाल किया जा रहा है। पी -8 आई विमानों को 2017 में भारत-चीन गतिरोध के दौरान भी निगरानी के लिए तैनात किया था। सूत्रों ने कहा भारतीय सेना रक्षा अनुसंधान और विकास संगठन (DRDO) द्वारा विकसित स्वदेशी मध्यम दूरी की सतह से हवा में मार करने वाली आकाश मिसाइल का उपयोग कर रही है।

<https://www.jagran.com/news/national-indian-army-deployed-30000-troops-for-confrontation-with-chinese-20479697.html>

## **Three new bridges by BRO help Indian Army move tanks to Eastern Ladakh border**

*Three new bridges by BRO help Indian Army move tanks to Eastern Ladakh border*

*By Ajit K Dubey*

Nimu (Ladakh): The Border Roads Organisation (BRO) has built three new strategic bridges near Nimu which are helping the Indian Army move its tanks and towed artillery guns to the Eastern Ladakh sector along the Line of Actual Control (LAC).

Visiting the bridge in Nimu, ANI team saw the BRO has replaced a bailey bridge which could only be used for 24-tonne vehicles with the new one which can be used by vehicles up to 70 tonnes. The task was accomplished in a record time of three months.

"This bridge is at kilometre 397. Earlier, there were three bottlenecks at kilometre 362, 361 and 397. This bridge has been constructed in a record time of three months. On the request of the Army, we made a 50-metre long steel structure bridge which can carry any sort of load," BRO Executive Engineer B Kishan told ANI.

"This is an R-70 class bridge (which can be used by vehicles up to 70 tonnes) and it can take any sort of load to the forward posts," he said.

Before January this year, C-17 heavy-lift aircraft and Ilyushin-76 transport aircraft were mainly used by the Army to ferry tanks from lower formations to Ladakh region mainly due to these three bottlenecks on the Srinagar-Leh highway.

Prime Minister Narendra Modi had visited Nimu last week and met soldiers injured in the Galwan Valley clash with Chinese troops on June 15.

Asked if the construction of these bridges has helped in the movement of troops and heavy equipment to the forward areas, the BRO officer said it will fulfil requirements of the Army and also meet the civilian needs.

"Yes, sure, this has helped a lot. It can carry any sort of load of the Indian Army or the civilian requirement. It is a class 70 R bridge and there will be no hindrance to the movement of Indian Army or civil," he said.

Asked about the frequent Chinese objections over road construction activities by India in the Ladakh sector, Kishan said, "In BRO, we have the mandate to construct roads. BRO has nothing to do with objections as we do whatever assignment is given to us."

The ANI team next reached the second bridge at the Basgo location near Nimu which has again been rebuilt and would be ready for full use in next few days by heavy vehicles including trucks towing artillery guns and tank boat vehicles.

BRO officials had said earlier that they had stopped the flow of the small drain flowing below the bridge to allow the movement of the heavy vehicles from the side of the under-construction bridge.

The third bridge has been built at a place called Ule Topo, which is further ahead on the Srinagar-Leh highway, from where the armoured vehicles are brought by road.

ANI team could see the Army convoys involved in the transfer of troops and equipment using the bridge for smooth movement towards Leh and to forward areas in Eastern Ladakh from there. The BRO looks after 1,200 km of the LAC in Ladakh sector along with China and over 250 kilometres of Line of Control and Actual Ground Position Line with Pakistan.

BRO also maintains the airfields in Leh, Daulat Beg Oldi, Thoise and Kargil which are crucial for maintaining connectivity with the forward posts and towns. (ANI)

(Disclaimer: *The views expressed in the article above are those of the authors' and do not necessarily represent or reflect the views of this publishing house. Unless otherwise noted, the author is writing in*

his/her personal capacity. They are not intended and should not be thought to represent official ideas, attitudes, or policies of any agency or institution.)

<http://www.businessworld.in/article/Three-new-bridges-by-BRO-help-Indian-Army-move-tanks-to-Eastern-Ladakh-border/06-07-2020-294617/>



Tue, 07 July 2020

## अमेरिका से मिसाइल और लेजर गाइडेड बम से लैस ड्रोन खरीदने की तैयारी में भारत, LAC पर सेना की बढ़ेगी ताकत

शिशिर गुप्ता

नई दिल्ली: पूर्वी लद्दाख में चीनी पीपुल्स लिबरेशन आर्मी (पीएलए) के साथ लंबे समय से जारी गतिरोध के बीच भारत ने कम ऊंचाई पर अधिक देर तक उड़ान भरने वाले अमेरिकी सशस्त्र प्रीडेटर-बी ड्रोन खरीदने में रुचि दिखाई है। यह ड्रोन ना सिर्फ खुफिया जानकारी इकट्ठा करता है, बल्कि लक्ष्य का पता लगाकर उसे मिसाइल और लेजर गाइडेड बम से नष्ट कर देता है।

फिलहाल भारत पूर्वी लद्दाख में इज़राइली हेरोन ड्रोन का इस्तेमाल करता है, जो कि निहत्था है। वहीं, चीन की बात करें तो उसके पास विंग लूंग II सशस्त्र ड्रोन है। इसके अलावा वह पाकिस्तान को भी सप्लाई करने की तैयारी में है। पाकिस्तान वायु सेना द्वारा उपयोग के लिए 48 सशस्त्र ड्रोन का संयुक्त रूप से उत्पादन करने के लिए चीन के साथ करार कर रहा है। विंग लूंग II के सैन्य संस्करण जीजे -2 को हवा से सतह पर मार करने वाली मिसाइलों से लैस बताया गया है। वर्तमान में सीमित सफलता के साथ लीबिया के सिविल वॉर में इसका इस्तेमाल किया जा रहा है।



हालांकि अमेरिका ने चार अरब डॉलर से अधिक के 30 सी गार्डियन बेचने की पेशकश की है। राष्ट्रीय सुरक्षा योजनाकारों को लगता है कि सर्विलांस और टारगेट पर हमला के लिए एक ही ड्रोन हो न कि अलग-अलग। भले ही भारतीय नौसेना अमेरिका के साथ बातचीत में मुख्य भूमिका निभा रही है, लेकिन भारतीय सेना प्रीडेटर-बी के पक्ष में है।

अमेरिका भारत की उच्च तकनीकी हथियारों की आपूर्ति के लिए तैयार है, लेकिन साथ ही साथ भारत के द्वारा एस-400 मिसाइल सिस्टम रूस से खरीदने से नाखुश भी है। उसे डर है कि सतह से हवा में मार करने वाली मिसाइल प्रणाली भारत मास्को तक पहुंचा सकता है। चीन ने पहले ही रूस से एस-400 प्रणाली का अधिग्रहण कर लिया है और वर्तमान में इसे अरुणाचल प्रदेश में तैनात किया है।

भले ही नोएडा स्थित कुछ भारतीय प्राइवेट कंपनी medium-altitude long-endurance (MALE) ड्रोन विकसित करने की प्रक्रिया में हैं, लेकिन वे सशस्त्र ड्रोन हासिल करने की क्षमता से अभी दूर हैं। लद्दाख में किए गए कई प्रयोग तिब्बत के पठार पर उच्च-वेग से चलने वाली हवाओं में खो जाने वाले ड्रोन के साथ पूरी तरह से सफल नहीं हुए हैं। रक्षा अनुसंधान और विकास संगठन (DRDO) की योजना है कि इस साल के अंत तक Male Rustom ड्रोन प्रोटोटाइप का उत्पादन किया जाएगा।

<https://www.livehindustan.com/national/story-india-eyes-acquisition-of-predator-drones-from-america-that-helps-indian-army-at-lac-3330187.html>

## List of 10 latest defence deals of India 2020

Indian Army is the world's largest Standing army in the world with a strength of around 1.4 million. Not only this, but India is also the world's largest importer of defence-related equipment such as arms and ammunition. India spends billions in the defence sector to strengthen its Armed Forces and safeguard its territory. Below we have mentioned the latest defence deals of India:

### 1- Fleet Vessel Ship Agreement

In October 2019, India put the FVS (Fleet Vessel Ship) Agreement on hold after questions were raised on Turkey's links with Pakistan and the recent diplomatic tiff with the Recep Tayyip Erdogan government. Turkish shipyards are major suppliers of warships to the Navy of Pakistan. This raised serious security concerns as the Turkish company was to manufacture ships at HSL. However, in February 2020, the Government of India has given a nod to go ahead with the \$2.3 billion deal after reviewing the concerns as mentioned above.



Under this agreement, the Turkish company will manufacture 5 Fleet Vessel Ship of 45,000 tonnes at HSL (Hindustan Shipyard Limited), Vishakhapatnam. Turkey's TIAS emerged as the lowest bidder for the FVS contract and was given a green signal in the year 2016. These ships will be used by the Indian Navy to carry fuel and other supplies to refuel its warships at sea.

### 2- India-US Apache Contract

India and the US have signed \$930 million agreement for 6 Apache Helicopters for Indian Army. The contract was made in the year 2015 by the Indian Air Force for 22 Apache helicopters. Out of 22 helicopters, 17 have already been delivered to India and the rest will be delivered in the year 2023. These helicopters will be deployed on Rajasthan border with Pakistan on western sector.

The contract includes munitions, training, aircraft certification, and components include engines, EO sensors and the radar. Indian Army will get the AH-64E Apache configuration. This is the world's most advanced multi-role helicopter and was inducted in the US Army in November 2011.

The Apache sale is a hybrid procurement – Direct Commercial Sale (DCS) between Boeing and Ministry of Defence (MoD) and Foreign Military Sale (FMS) between the Government of India and the US Government.

The Apache helicopters are produced in Mesa, Arizona and more than 400 Apache helicopters (AH-64E) have been delivered worldwide to date.

The Apache helicopters have advanced digital connectivity, joint tactical information distribution system, more powerful T700-GE-701D engines with upgraded face gear transmission to accommodate more power, the capability to control unmanned aerial vehicles (UAVs) and new composite main rotor blade.

### 3- MH-60 Romeo Helicopters Deal

In 2018, after the dialogue between India and the United States in New Delhi, the South Block gave a nod to the Indian Navy to pursue the acquisition of 24 Sikorsky MH-60R helicopters. The contract was finally sealed in February 2020, during President Trump's visit to India.

The \$2.6 billion deal between India and the US includes helicopter, communication systems, weapons systems, eight anti-surface Hellfire Missiles which can be used to hit at ships, MK 54 Lightweight Torpedoes, 50 cannons and precision rocket systems.

MH-60 helicopters are manufactured by Lockheed Martin's Sikorsky Aircraft and will be procured by India via government-to-government route. The delivery of these helicopters will start



in the year 2021. The helicopters will be inducted onboard Delhi and Kolkata class destroyers and 15B destroyers (currently under construction).

The said helicopter is US Navy's primary anti-submarine and anti-surface warfare helicopter. It is capable enough to do search, rescue and supply missions.

These helicopters will replace Sea King anti-submarine warfare helicopters of the Indian Navy. The Sea King helicopter was de-inducted from the service in 1991 and the Indian Navy is currently using an outdated helicopter. In 1971, India acquired these helicopters from the United Kingdom to detect and engage the warships and submarines lurking in the Indian Ocean from Pakistan and China.

#### **4- India-Israel Defence Pact**

The Government of India has signed Rs 800 crore deal with the Israel Weapons Industries (IWI) to procure 16,479 Negev 7.62x51 mm light machine guns (gas-operated) for the Indian Armed Forces. These machine guns are used as squad automatic weapons and will enhance the lethal power of a soldier along with his range. The light machine guns have improved lethality and range over the one currently used by the Indian soldiers.

LMG (light machine guns) were first used in World War II and were later introduced by IWI in the year 2012. The Negev LMG is inducted by Israel as well as several other Defence Forces around the globe.

The weight of the said LMG is 7.95 kg without the magazine and other accessories have a length of 1,100 mm, retracted length of 1,030 mm. The LMG can fire 600 rounds in the semi-automatic mode and 750 in the fully automatic mode. The magazines used can either be 100 or 125-round assault drum or an ammunition belt.

#### **5- Air Force One Deal with the US**

The Government of India has signed a \$ 190 million deal with the US Government to procure two self-protection suites (SPS). The deal was signed during President Trump's visit to India in February 2020. These suites will be retrofitted on the two custom-built Boeing-777 aircraft earlier acquired for long-haul VVIP travel.

The aircraft will have two wide-bodied B-777s, fully-integrated advanced missile approach warning sensors, defensive electronic warfare systems, infra-red counter-measures, digital radio frequency jammers and other such contraptions under the overall SPS. This will be similar to President Trump's Air Force One or the Flying Oval Office.

After Malaysia Airlines flight MH17 was shot down over Ukraine last year and similar other incidents, Prime Minister Modi will soon be able to fly in a secure aircraft after the clearance of Desi Air Force One. The aircraft will be used by Prime Minister of India, President of India and more VVIPs for extra-long-haul overseas travel.

The B-777s will be under IAF control rather than earlier decided Air India. Also, IAF pilots have been trained to fly the VVIP aircraft.

#### **6- India-US Guardian Drones Deal**

The US and the Indian Government signed a \$ 2-3 billion deal for the Guardian drones. The US Government has cleared the sale of 22 predator Guardian drones to India. The drones are manufactured by General Atomics.

The Guardian drone can be used for wide-area, long-endurance maritime intelligence, surveillance and reconnaissance missions. It can stay put for 27 hours in the air and can fly at 50,000 feet. The Indian Navy made the request for ISR (intelligence, surveillance and reconnaissance) in 2017.

#### **7- India's Defence Deal with Armenia**

On March 1, 2020, India signed a \$ 40 million deal with Armenia, Europe to supply 4 SWATHI weapon locating radars. The radars are capable of locating weapons and are developed by DRDO (Defence Research and Development Organisation) and manufactured by BEL (Bharat Electronics Limited).

Armenia conducted trials of the radar systems offered by Russia and Poland but gave a nod to India's SWATHI weapon. India's radar system provides fast, automatic and accurate location of enemy weapons like shells, mortars, and rockets in its 50-km range. It includes 81mm or higher calibre mortars, 105mm or higher calibre shells and 120mm or higher calibre free flying rockets.

This deal will strengthen the 'Make in India' initiative by the Government of India and will brace the Indian Defence System.

### **8- India-Russia Defence Deal**

During DefExpo 2020, India and Russia signed 14 MoUs (memorandums of understanding). The MoUs consist of development and production of land, air and naval systems and hi-tech civilian products. This set the defence deals between India and Russia to cross \$16 billion.

Russia is committed to implementing a contract within the promised time frame. This includes the supply of S-400 air defence systems and the production of Kalashnikov rifles and Kamov helicopters.

Rosoboronexport, Russia's state-run organization has signed deals with DRDO for advanced pyrotechnic ignition systems, HAL for the export of spares and services to allies, and BHEL for land systems.

Another deal was signed between Russian Helicopters and Indo-Russian Helicopters Ltd to localise the components used in Kamov Ka-226 helicopters. India is planning to purchase 200 Ka-226 helicopters.

India has already made the payment of the first tranche in 2019 for five S-400 systems. The deal is approximately \$5.4 billion.

Despite the pressure from the US, India signed strong defence deals with Russia. Also, Russia was the largest foreign contributor at DefExpo 2020.

### **9- India-Russia air-to-air Missiles Deal**

The Government of India has signed Rs 1,500 crore deal with Russia to procure R-27 air-to-air missiles to be equipped on the Su-30MKI combat aircraft. This deal will boost India's capabilities in beyond visual range warfare.

The missile is developed by Russia and is a medium-to-long-range air-to-air missile for MiG and Sukhoi fighter jets.

After the Pulwama attack, emergency powers were granted by the Centre to all the three services to buy types of equipment of their choice up to Rs 300 crore per case within 3 months to safeguard the borders with Pakistan.

### **10- India-US Defence Deal of Naval Guns**

India signed a deal of \$1.0210 billion with the US to obtain 13 MK45 Naval guns and related equipment.

The MK-45 Gun System will help India to conduct anti-surface warfare and anti-air defence missions while enhancing its interoperability with the U.S. and other allied forces. India will use the enhanced capability as a deterrent to regional threats and strengthen the defence system.

The contractor of India-US defence deal is BAE Systems Land and Armaments, Minneapolis, Minnesota with gun manufacturing in Louisville, Kentucky.

India is one of the few nations in the world that is granted to procure the latest version of naval guns (Mod 4) by the US. The other countries include-- Australia, South Korea, Japan and Thailand.

<https://www.defencenews.in/article/List-of-10-latest-defence-deals-of-India-2020-861470>

## Ladakh Scouts should be given major role along LAC: Veterans

*The veterans, who have fought in the India-China war in 1962 and Kargil War in 1999, said war was no solution and the two countries should use all diplomatic channels to restore status quo ante*

*By Hakeem Irfan Rashid*

Leh: Army veterans from Ladakh claim that Ladakh Scouts should be given a major role on the Line of Actual Control (LAC) as locals are more acclimatised to the harsh terrain and are more aware of key strategic points than the regular soldiers. They feel that the strategic and tactical Chinese intrusions to control the mountainous area around Leh, which have been continuing for several years now, have been ignored by the central governments.

The veterans, who have fought in the India-China war in 1962 and Kargil War in 1999, stated that war was no solution and the two countries should use all diplomatic channels to restore status quo.

They suggested that Ladakh Scouts should be given a major role along the LAC as the other army units, which are transferred on a regular basis, were often unable to acclimatise with the environment and cannot have a long-term engagement policy for any border issue.



“Chinese have intruded at very crucial points and it is catering to their long-term strategy to take over Ladakh. Thus, Galwan Valley is also crucial and cannot be given away under any circumstances,” Naik Elihud George, who served in the 1962 India-China war told ET. However, he said that war should be the last resort to resolve any border issue.

“I suggest that Ladakh Scouts should be given a major role on the LAC as locals are naturally more fit to fight and serve on these treacherous heights,” said George, who reminisces his tough treks to Daulat Beg Oldie in 1962, when surviving the terrain itself was a challenge.

Similarly, Colonel (retired) Sonam Wangchuk, who was awarded the Maha Veer Chakra for his role in the Kargil war, said diplomatic channels and military negotiations should be pursued aggressively to resolve the current issue along LAC.

“Chinese are moving ahead strategically and we have to respond accordingly, understanding their moves ahead of time,” said Wangchuk.

The veteran also suggested that Ladakh Scouts should be given a major role along the LAC, as troops are from the region and acclimatised to the harshness of the hostile terrain. “Locals understand terrain from a tactical point of view, while a soldier from the plains has extreme difficulty doing so,” said Wangchuk.

Another Kargil war hero, Tashi Chhepal, who was awarded Vir Chakra and has served in Chushul area of eastern Ladakh, said China’s move at any point on the border is well thought out and is not a knee-jerk reaction.

“They have entered into our area, but we don’t have to get into their trap and react as per our plan and strategy. War is no solution, but weapons can be used as a last resort,” said Chhepal. He also suggested that the government should increase the strength of Ladakh Scouts which hasn’t happened since 1999. “Locals are the best to serve in this mountainous region. It will also end the problems arising due to transfers and temporary arrangements made to deal with the issues on the border,” said Chhepal.

<https://economictimes.indiatimes.com/news/defence/ladakh-scouts-should-be-given-major-role-along-lac-veterans/articleshow/76803083.cms?from=mdr>



*Tue, 07 July 2020*

## **India has slain more than 100 Chinese soldiers in Galwan Valley, claims former Chinese military official**

Jianli Yang, a former Chinese military official and son of a leader in the Chinese Communist Party, made a sensational claim. As per Yang, 'More than 100 Chinese troops were killed in the dreadful conflict between Indian and Chinese soldiers, on the night of 15th June. But the Chinese regime is hiding this information from the Chinese people. President Xi Jinping is worried that if the information regarding the soldiers, killed in the Galwan Valley, is disclosed, the serving as well as the retired soldiers could revolt. Not only this but also there could be a rebellion within the Communist Party.'

in his article written for the newspaper, Washington Times, Jianli Yang accused that the Chinese regime is not willing to disclose the information regarding the Galwan Valley conflict Yang reminded that in the last few days, Zhao Lijiang, the spokesman of the Chinese foreign ministry has dodged the questions regarding the Chinese casualties, in the Galwan Valley, during various news conferences. Yang made vitriolic criticism saying that China is not willing to openly state the number of casualties in the Galwan Valley conflict. On the other hand, the Indian government honoured if martyrs.



Yang presented the plight of the soldiers saying 'It is better not to think of the state of the retired Chinese army personnel when China does not care for the serving soldiers and martyrs from the Chinese military. The Chinese government frequently treats the retired soldiers, who participated in the 1979 China-Vietnam or the Korean war, with contempt. These soldiers are protesting against the communist government for pension, medical facilities and employment, for the last many years. But the Chinese government is not willing to take cognisance of their demands.'

There are nearly 57.5 million soldiers retired from the Chinese People's Liberation Army. Every year these soldiers protest for their pension and other demands. Saying that the Jinping government takes action against these soldiers, he has cited the protests held by the retired soldiers against Jinping, in various cities including Beijing. Yang also claimed that moreover, there is anger brewing in these soldiers against Jinping as he closed the other avenues of employment for these soldiers.

The Chinese rulers are worried that in this scenario, if it is announced that the number of Chinese soldiers killed is in multiples of the number of Indian soldiers, Jinping will have to face a backlash and the retired soldiers, taking advantage of the situation, will attack the Chinese government. Jinping is well aware that once the retired Chinese soldiers declare a rebellion, even the iron grip of the government cannot control the situation. Therefore, since the last few years, Jinping has been appealing to the Chinese military, to have complete faith in him.

<https://idr.org/india-has-slain-more-than-100-chinese-soldiers-in-galwan-valley-claims-former-chinese-military-official/#more-230479>



Tue, 07 July 2020

## This Israeli system can beat Chinese S-400 as well as S-300 for India

By Himansu Swain

Israel is known for its unique technologies in the fields of electronic, Cyber, Jamming, Radar Systems & other military applications. The clue was found during 70s when Israel got the first delivery of American F-16, Then they replaced Americans avionics with their indigenous systems & transformed it into a Superior platform. Americans got surprised to see such transformation.

As Israel is proficient in making sophisticated Weapon systems, one of its Jamming system in-cooperated with SU-30MKI has made it superior to Rival's platform. After Galwan Valley Debacle, Certain media report that Chinese are deployed S-300 & S-400 systems near LAC, especially in Hotan Air base (S-400) due to presence of 50-60 Aircrafts compared to Ngari Air base. So, Indian military top brass came under pressure to deal with Chinese S-400. Soon After, DM Rajnath Singh's visit to Russia as the guest for Victory day celebration having meeting with his Russian Counterpart to request Russia to fastback S-400 as per schedule were reported.

But the question raises how IAF to counter S-400 if Air strike is ordered. The solution is IAF to explore Israel's Rafael EW System. It includes 3 Type Components from Medium range to short range jamming system.

**Sky Shield EW Jamming System:** Mounted on an aircraft, it can deceive & disrupt the enemy radar signals ensuring the Strike package remains undetected. The sky shield creates an EW shield that prevents hostile SAM or BMD batteries targeting the friendly forces & increases missions efficiency while conducting Surgical or deep penetration strike inside hostile territory.

**LITE Shield System:** A powerful EW close support & Escort jamming system integrated with a Litening Pod can detect & disrupt enemy radar signal so that Fighter jets can engage those SAM batteries in short time by clearing the Air-denial Axis.

**X-Guard Towed Decoy:** Being an off-board jammer, it can act as last phase of jamming if hostile fires SAM on aircrafts, X-Guard can disrupt its signal & divert it into another end ensuring strike package to unleash Freefall Bombs on strategic installations of Enemy

We know Some of our powerful radar systems are based on Israeli derivatives (e.g : Swordfish Radar).A week ago, one of the hostiles of Israel, Egypt signed a deal with Russia to buy 500 T-90MS tanks. Who would predict, there could be S-400/500 sale by Egypt in upcoming years that would force Israel to build such countermeasure before her rival puts hand on such Russian systems.



S-400 was developed in 2007 & was undergoing trials as well as improvement till 2011. Then, it became operational. But Sky Shield system was operational in 2018-19 keeping an eye on advanced BMD systems like S-400 deployment in Syria. There could be a possibility that Israelis have tested this system on their Barak-8, Arrow BMD batteries & even on American systems like Patriot & THAAD.

If we buy it, a Strike package of SU-30MKI, MIRAGE-2000H or JAGUAR equipped with Sky shield can not only take out S-400 battery but also plunder entire Hotan Air base making it dysfunctional. As Indian Govt allowed 3 military wings to go for emergency purchases for conflict with China in near future, there were reports on separate military teams despatched to USA, RUSSIA, FRANCE & ISRAEL for possible quick purchases. We heard of IAF buying more Spice bombs as the team is there busy in picking up best they can.

At current time, we can't underestimate such system as it carries one of the most powerful net centric platforms. It has been built particularly for SEAD as well as DEAD missions. We hope, our IAF top planners won't give miss to such platforms.

*(Disclaimer: Articles published under "MY TAKE" are articles written by Guest Writers and Opinions expressed within this article are the personal opinions of the author. IDRW.ORG is not responsible for the accuracy, completeness, suitability, or validity of any information on this article. All information is provided on an as-is basis. The information, facts or opinions appearing in the article do not reflect the views of IDRW.ORG and IDRW.ORG does not assume any responsibility or liability for the same. Article is for information purposes only and not intended to constitute professional advice. Article by Himansu Swain, cannot be republished Partially or Full without consent from Writer or idrw.org)*

<https://idrw.org/this-israeli-system-can-beat-chinese-s-400-as-well-as-s-300-for-india/#more-230472>



Tue, 07 July 2020

## China sees Indo-Pacific idea in terms of balance of power, not for advancing common interests

*China should re-consider its position and view the Indo-Pacific idea as an instrument for advancing common interests, and not make it a source of conflict or tension*

By Vijay Gokhale

In the wake of China's behaviour on our northern border, India needs to look carefully at other areas of potential conflict. The Indian Ocean is an obvious one. In his keynote address at the Shangri-La Dialogue in Singapore in June 2018, our prime minister presented India's Indo-Pacific vision. It is rooted in our historical associations with this region, and our understanding of its seminal importance in building prosperity in this century. The clarity of our approach was captured thus: "Inclusiveness, openness and ASEAN centrality and unity, therefore, lie at the heart of the new Indo-Pacific. India does not see the Indo-Pacific Region as a strategy or as a club of limited members. Nor as a grouping that seeks to dominate. And by no means do we consider it as directed against any country."

China is not a littoral state in the Indian Ocean. Nor, historically speaking, did it have a naval presence. Barring a brief three decades between 1405 and 1433, when the Ming Yongle Emperor sent the Zheng He Expeditions into the Indian Ocean, Chinese naval activity was limited to the East China Sea, the Bohai Sea, the Yellow Sea, and the South China Sea which Angela Schottenhammer, a scholar on maritime history, loosely



China could have been expected to welcome the Indo-Pacific approach which gives her both legitimacy and respect in the Indian Ocean. She has, instead, opted to undermine it. (AP/File)

labels the “China Seas”. This by no means suggests that China did not play an important part in Indian Ocean trade; it is to merely posit that such trade, especially beyond the Malacca Straits, was mainly carried on by Arab, Indian and Persian traders. Nonetheless, in today’s context, China is the second largest economy and the world’s largest trading nation. The sea-lanes of communication in the Indian Ocean are vital to her economy and security. China should have equal access under international law and in accordance with international practice.

China could have been expected to welcome the Indo-Pacific approach which gives her both legitimacy and respect in the Indian Ocean. She has, instead, opted to undermine it. After the initial put-down by China’s Foreign Minister in March 2018 who described the idea of the Indo-Pacific as akin to “sea-foam in the Pacific or India Ocean..... (that) soon will dissipate”, the rhetoric has sharpened. China now alleges that this is an American-led plot to “contain” China’s rise.

After the founding of the People’s Republic in 1949, China was initially focussed on the consolidation of the “homeland”. Its horizons broadened as its economy went global, and the consequent challenge was encapsulated by President Hu Jintao in November 2003 to party cadres as China’s “Malacca Dilemma”. They imagined that others would block the Malacca Straits to “contain” the Chinese. From that point forward, China has strategised to dominate not just the Malacca Straits, but the ocean beyond it. The PLA Navy (PLAN) made its first operational deployment in the Gulf of Aden in 2008; in December 2009 retired PLAN Admiral Yin Zhuo referred to a possible overseas base or facility; in 2010 a China State Oceanic Administration report alluded to plans to build aircraft carriers.

By 2012 China was ready to make the move into the Indian Ocean. A Maritime Rights and Interests Leading Group was established inside the Communist Party. The Report to the 18th Party Congress in the same year saw the first official reference to “building China into a sea-power nation”. The plan was presented as the 21st Century Maritime Silk Road in Jakarta in October 2013, carefully wrapped in terms of trade and finance, in order to disguise its dual purpose. While some Chinese scholars advanced the idea of building a “harmonious ocean”, in May 2014 three Chinese researchers affiliated to the China Naval Research Institute laid out the real game-plan in their article, “The Strategic Scenario in the Indian Ocean and the Expansion of Chinese Naval Power”. Acknowledging that US hegemony and India’s regional influence in the Indian Ocean posed challenges to the Chinese plan, the authors laid out the inherent deficiencies that China needed to overcome, namely that (a) it is not a littoral state; (b) its passage through key maritime straits could be easily blocked; and (c) the possibility of US-India cooperation against China. They suggested that these deficiencies might be overcome by (1) carefully selecting sites to build ports — Djibouti, Gwadar, Hambantota, Sittwe and Seychelles were specifically named; (2) by conducting activities in a low-key manner to “reduce the military colour as much as possible”; and (3) by not unnerving India and America by cooperating at first, then slowly penetrating into the Indian Ocean, beginning with detailed maritime surveys, ocean mapping, HADR, port construction and so on. The Chinese have moved precisely along those lines.

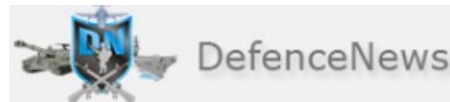
While the official establishment continues to deny that the BRI has military or geo-strategic intent, a Chinese scholar at Jiao Tong University has recently acknowledged that the dual-use ports are likely to support future projection of military power. China has conveniently forgotten its assurance, in the Defence White Paper (1998) that she “does not station any troops or set up any military bases in any foreign country”. The PLA’s new base in Djibouti is the prototype for more “logistics” facilities to come. More port construction projects that are commercially unviable but have military possibilities, like Gwadar and Hambantota, are being offered to vulnerable countries. Chinese “civilian” vessels routinely conduct surveys in the EEZ of littoral states. In January 2020 the PLA Navy conducted tripartite naval exercises with Russia and Iran in the Arabian Sea. They have the largest warship building programme in the world.

The Indo-Pacific idea might potentially derail their carefully crafted plans. It is inclusive, participative and evolving through open discussion; the Maritime Silk Road by contrast is a Chinese fait accompli. After initially disparaging the idea, they now wish to cause alarm by raising fears about Great Power “strategic collision” caused by the so-called American-led “containment”

strategy. This is the classic Chinese ruse of deflecting attention from the real issue on hand, their efforts to dominate the Indian Ocean. It is important to look past their propaganda. In September 2019, Vice Foreign Minister Le Yucheng said: “We are firmly against attempts to use the Indo-Pacific strategy as a tool to counter the BRI or even contain China”. China still thinks in terms of balance of power while speaking about a Community with a Shared Future of Mankind. It should re-consider its position and view the Indo-Pacific idea as an instrument for advancing common interests, and not make it a source of conflict or tension.

*(This article first appeared in the print edition on July 7, 2020 under the title “The Indian Ocean front”. The writer is a former Foreign Secretary and Indian ambassador to China)*

<https://indianexpress.com/article/opinion/columns/the-indian-ocean-front-6493234/>



Tue, 07 July 2020

## Logistics pact to be cornerstone of military coop, says Barry O’Farrell

The logistics support agreement signed with India would be the cornerstone of military cooperation, with warships set to conduct refuelling in international waters in the coming days, Australian high commissioner Barry O’Farrell said in an interaction with ET.

Both nations have a common interest in the stability of the Indo-Pacific and are firmly against any militarisation, reflecting earlier statements by Australia against increased aggression in the South China Sea, O’Farrell said.

He said the logistics support agreement — inked at a virtual summit — would increase the abilities of the two armed forces to operate and exercise together and would pave the way for more complex war games in the future.



“It is particularly important for the navies. The increase in trust and confidence is being demonstrated by the logistics agreement, which will enable both sides to take it to the next level. We want to take an opportunity to conduct sea refuelling in international waters,” the high commissioner said.

On Exercise Malabar, traditionally conducted between India, US and Japan, O’Farrell said Australia has been increasing bilateral ties but would welcome participation. “We would welcome participation if we are invited but the attention on Malabar sometimes overshadows the fact that Australia–India defence relations have grown exponentially in the past years. Our exercises have become more complex. We have had submarine-on-submarine scenarios and P8s patrolling all across the Bay of Bengal (for example).”

On joint development of defence systems, O’Farrell said that Australia has embarked on a 40-year ship building programme and avenues for cooperation between the two industries can be explored to find commonalities. As reported by ET, India and Australia have stepped up bilateral relations to a comprehensive strategic partnership and have announced a shared vision for maritime cooperation in the Indo-Pacific that would result in enhanced cooperation in the maritime domain.

<https://www.defencenews.in/article/Logistics-pact-to-be-cornerstone-of-military-coop,-says-Barry-O%e2%80%99Farrell-861474>



### Order from noise: How randomness and collective dynamics define a stem cell

*Collective cell dynamics could define stem cells identity, number, and dynamics*

**Summary:**

*Without stem cells, human life would not exist. Due to them, a lump of cells becomes an organ, and a fertilized egg develops into a baby. But what actually makes a stem cell? Are these a stable population of specially gifted cells? Scientists discovered that instead, stem cells might emerge due to the collective behavior of cells within the organs.*

Without stem cells, human life would not exist. Due to them, a lump of cells becomes an organ, and a fertilized egg develops into a baby. But what actually makes a stem cell? Are these a stable population of specially gifted cells? Scientists discovered that instead, stem cells might emerge due to the collective behavior of cells within the organs.

Stem cells are central to organ development and renewal. In most organs, stem cells are located in specific regions and, in some cases, can be identified through several intrinsic properties, like molecular markers. They can differentiate into various types of cells and divide indefinitely to produce more stem cells. However, does this mean the stem cell at the top is immortal? Or can any cell overthrow this? The scientific community is in an open debate whether stem cells actually arise from intrinsic cell properties or from the collective dynamics of the tissue itself. In this second scenario, potential stem cells are in constant competition to sit in certain "niche" regions. Each cell wants to overtake its neighbor by replication and, therefore, continuously pushes them. The functional stem cell will be the one that wins this competition, while losers will be pushed away from the niche, differentiate, and ultimately die.

Here, the Hannezo group at IST Austria looked at the mechanism to overcome such pushing forces away from the niche, in collaboration with researchers from the National Cancer Institute of Netherlands and the University of Cambridge. They used a live-imaging microscope to record stem cell movements in the breast, intestine, and kidney tissue. The team found that in addition to constant flow and pushing forces, many random movements were observed. Why would those be important? "A famous saying in real estate business is "location, location, location." In the case of stem cells, this saying transfers to a location determining stemness (rather than the other way around). Then, random movements become key, as they allow you to get to the right location even if you started in the wrong one." summarizes Edouard Hannezo.

Under that framework, the tissues look like the exit of the subway station in the rush hour, with some people able to randomly turn back against the drift of the mass, trying to take the subway again. Under this metaphor, random movements are key to allow cells away from the stem cell niche to eventually go back to it. "We wanted to know what defines the number and dynamics of the stem cells, and to what extent this could be answered by mathematically exploring only the movements of the cells and the geometry of the organs," says Bernat Corominas-Murtra, the leading scientist in this study. They then mathematically mapped this noisy cell dynamics into the geometry of the organs and could predict, among others, the number of functional stem cells (the ones that can get to the right location in time, given the amount of noise/mobility in the system). They found that during tissue renewal or growth, stem cell regions developed naturally, without needing to make assumptions on the molecular nature of the cells. Therefore, the scientists showed that the dynamics and geometry alone play an essential role.

Bernat Corominas-Murtra describes their results: "You would expect that the randomness of cell movements blurs the properties of the system or makes it more unstable. Instead, it is key for the emergence of robust, complex patterns like the stem cell region, which remarkably coincides with the one previously identified using biomolecular markers of individual cells." These results contribute to the open debate on the nature of stem cells in tissues and potentially opens a new dimension in the understanding of organ renewal.

**Story Source:**

[Materials](#) provided by [Institute of Science and Technology Austria](#). *Note: Content may be edited for style and length.*

**Journal Reference:**

1. Bernat Corominas-Murtra, Colinda L. G. J. Scheele, Kasumi Kishi, Saskia I. J. Ellenbroek, Benjamin D. Simons, Jacco van Rheenen, Edouard Hannezo. **Stem cell lineage survival as a noisy competition for niche access**. *Proceedings of the National Academy of Sciences*, 2020; 201921205 DOI: [10.1073/pnas.1921205117](https://doi.org/10.1073/pnas.1921205117)

<https://www.sciencedaily.com/releases/2020/07/200706113957.htm>

INTERESTING  
ENGINEERING

Tue, 07 July 2020

## Scientists develop next-gen Red-light LEDs, could revolutionize optical tech

*Scientists have developed a new red LED structure that could revolutionize optical technology*

*By Brad Bergan*

Novel red LED lights show more stable temperatures than those made with conventional semiconductors, according to a new study published in the journal *Applied Physics Letters*.

This could be the basis for the next generation of televisions and monitors.

### Red LED lights show stable temperatures

With aims to optimize the performance of light-emitting diodes (LEDs), King Abdullah University of Science and Technology researchers seek to know every fabrication, design, and operation of these devices.

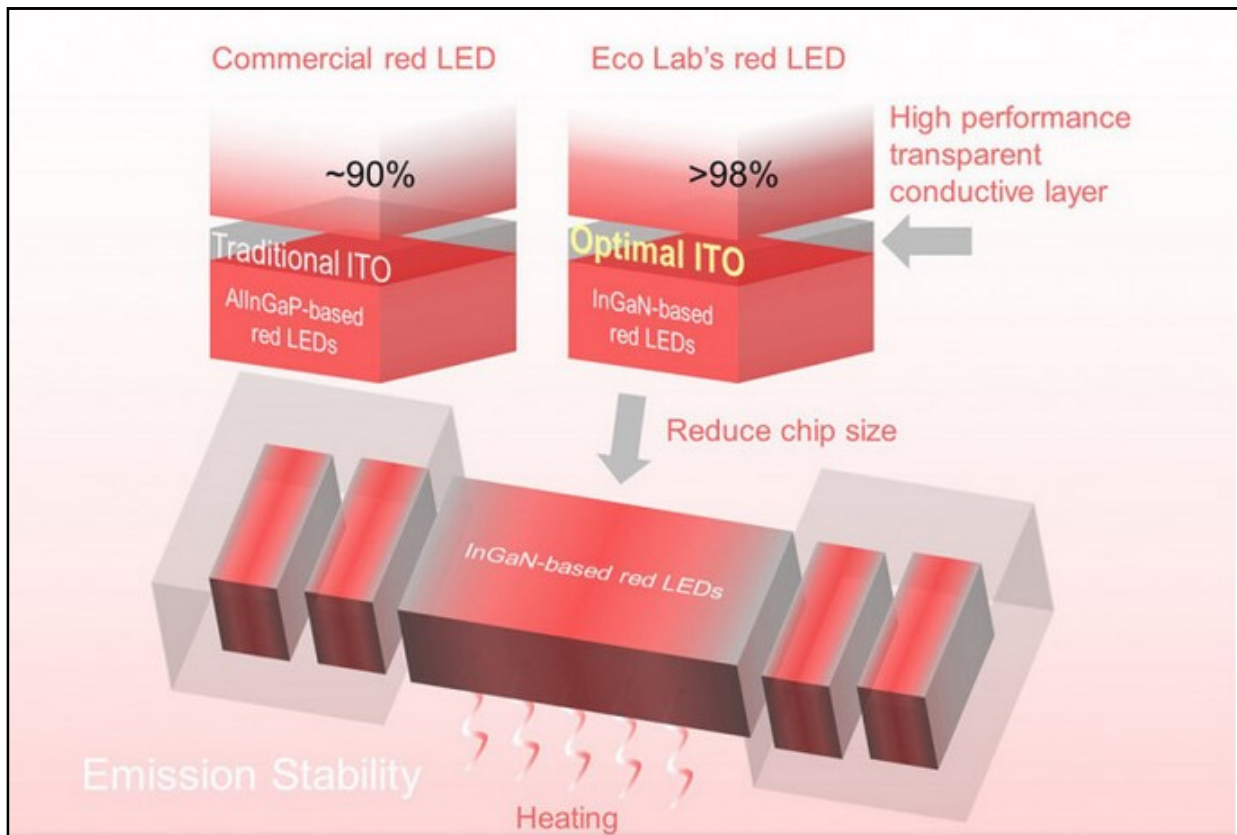
However, recently the team successfully created red LEDs based on the naturally blue-emitting semiconductor indium gallium nitride — inventing a new red LED with comparable stability to indium gallium phosphide, according to phys.org.

LEDs are optical sources created from semiconductors, and they improve conventional visible-light sources because they are smaller in size, support longer lifetimes, and save energy. LEDs emit light across the spectrum, including ultraviolet, blue (B), green (G), red (R), and onward into the infrared. Arrays of tiny RGB devices called micro-LEDs can accentuate vivid-color displays, which are expected to ground the next generation of monitors and televisions.

### Challenges of micro LED development

One of the major challenges in the way of creating micro-LEDs is to integrate green, red, and blue light into one LED chip. At present, RGB LEDs are developed via combining two kinds of materials: blue and green LEDs — which constitute indium gallium nitride (InGaN) semiconductors, and red-light LEDs — made from indium gallium phosphide (InGaP). "Creating RGB displays requires the mass transfer of the separate blue, green and red LEDs together," said KAUST researcher Zhe Zhuang. A simpler solution would involve developing different-colored LEDs on a singular semiconductor chip.

The thinking is since InGaP semiconductors can't emit blue or green light, the only way to make the monolithic RGB micro-LEDs is with the use of InGaN. This material could shift its emission from blue to green, red, and yellow via the introduction of more indium into the mix. InGaN red LEDs are believed to show better performance than InGaP ones, according to phys.org.



Newly-developed InGaN red LED structure, with more stable output power than InGaP red LED structures.  
Source: Zhe Zhuang / KAUST

### Varying LED size, electrical contact, current

In addition to growing high-quality indium-rich InGaN to develop red LEDs with nanofabrication facilities at the KAUST Core Labs, Zhuang and his colleagues also developed exceptional transparent electrical contacts with a thin film of indium-tin-oxide (ITO)<sup>1</sup>, which lets current pass through the team's new InGaN-based amber and red LEDs.

"We have optimized the fabrication of the ITO film to realize low electrical resistance and high transmittance," said Zhuang. The team found that these characteristics seriously improved the performance of InGaN red LEDs.

The team also studied InGaN red LEDs of varying sizes and temperatures. The latter affect the output light power and instigate different color impressions, which makes them critical for practical device performance.

"A critical disadvantage of InGaP red LEDs is that they are not stable when operated on high temperatures," explained Zhuang. "Therefore, we created InGaN red LEDs of different designs to realize very stable red-light InGaN sources at high temperatures." The team successfully developed an InGaN red LED structure, whose output power showed more stability than that of InGaP red LEDs.

<https://interestingengineering.com/scientists-develop-next-gen-red-light-leds-could-revolutionize-optical-tech>

## COVID-19: Mitigate airborne spread, scientists urge WHO

It is time to recognise and mitigate airborne transmission of COVID-19, says a plea to the World Health Organisation (WHO) issued by 239 scientists from around the world.

The scientists suggest that while measures like washing hands and maintaining social distance are important, they may not be enough to arrest the rapid spread of the disease.

The measures that need to be taken to mitigate airborne transmission include providing sufficient and effective ventilation by supplying clean outdoor air, minimise recirculating air particularly in public buildings, workplace environments, schools, hospitals, and aged care homes, they said.

Supplementing general ventilation with airborne infection controls such as local exhaust, high efficiency air filtration, and germicidal ultraviolet lights can be useful, according to the plea set to be published in the journal *Clinical Infectious Diseases*.

They said that it is important to avoid overcrowding, particularly in public transport and public buildings.

Led by air quality and health expert Lidia Morawska, Professor at the Queensland University of Technology in Australia, the appeal is to address the overwhelming research finding that an infected person exhales airborne virus droplets when breathing and talking that can travel further than the current 1.5 metre social distance requirement.

"We are concerned that people may think they are fully protected by following the current recommendations, but in fact, additional airborne precautions are needed to further reduce the spread of the virus," Morawska said.

The WHO has maintained that COVID-19 infection is primarily transmitted by respiratory droplets expelled by infected people.

In its update on June 29, the UN health body said that in the context of COVID-19, airborne transmission may be possible in specific circumstances and settings related to COVID-19 treatment.

So the current WHO recommendations emphasise the importance of rational and appropriate use of all personal protective equipment, not only masks, which requires correct and rigorous behaviour from health care workers.

Professor Morawska said several retrospective studies of the SARS epidemic had shown that airborne transmission was the most likely mechanism that explained the spatial pattern of infections.

"For example, a recent study analysed the data and video records in a restaurant where three separate groups of diners contracted COVID-19, observed no evidence of direct or indirect contact between the three groups, but modelled how the transmission occurred through the air," Morawska said.

The 239 signatories from 32 countries come from many different areas of science and engineering, including virology, aerosol physics, flow dynamics, exposure and epidemiology, medicine, and building engineering.



"Studies by the signatories and other scientists have demonstrated beyond any reasonable doubt that viruses are exhaled in microdroplets small enough to remain aloft in the air and pose a risk of exposure beyond one to two metre by an infected person," Morawska said.

"At typical indoor air velocities, a 5-micron droplet will travel tens of metres, much greater than the scale of a typical room while settling from a height of 1.5m above the floor."

<https://weather.com/en-IN/india/coronavirus/news/2020-07-06-covid-19-airborne-spread-scientists-who>

## COVID-19 Research News

live**mint**

Tue, 07 July 2020

# Bharat Biotech's Covaxin: key facts as India races towards a covid-19 vaccine

*Is it scientifically and ethically possible to develop a vaccine candidate to a deadline?*

*By Nitin Sreedhar*

When Bharat Biotech's covid-19 vaccine candidate Covaxin received the Drug Controller General of India's go-ahead to begin human trials recently, there was a sense of optimism. But a letter on 2 July from the Indian Council of Medical Research (ICMR) left the scientific community in a tizzy. "It is envisaged to launch the vaccine for public health use latest by 15th August 2020 after completion of all clinical trials," the letter said. ICMR followed this up with a clarification on 4 July that the letter was meant "to cut unnecessary red tape, without bypassing any necessary process, and speed up recruitment of participants".

In normal circumstances, the development of a vaccine takes years, not days or months. Vaccine development is also an expensive proposition. In a recent article for *The New York Times*, veteran personal health columnist Jane E. Brody cited the original roll-out of the Salk polio vaccine in 1955 as a reminder of how the premature release of a vaccine can cause more damage than good. "A mishap in mass-producing the vaccine caused polio in 70,000 children, permanently crippling 164 of them and killing 10," she writes.

We look at some key questions related to the development of Covaxin, and whether or not it is scientifically (and ethically) possible to achieve it in a short span.

### **What is Covaxin?**

Bharat Biotech's Covaxin is an indigenous, inactivated vaccine that is being developed in collaboration with ICMR's National Institute of Virology (NIV), Pune. According to the company, Covaxin has been developed from an Indian strain of the novel coronavirus, which was isolated by NIV.

### **What is an inactivated vaccine?**

Inactivated vaccines are made from microorganisms (these could be viruses, bacteria, etc.) that have been killed through physical or chemical processes. According to a World Health Organization (WHO) module on different types of vaccines and their adverse effects, these killed organisms "cannot cause disease".

"Inactivated vaccine as a platform for vaccine preparation is one of the oldest ones. Essentially, for a viral vaccine, you take the virus and you kill or inactivate it—in the sense that the ability of the virus to divide and reproduce itself is completely taken away, which is how the virus would survive otherwise in the host," says immunologist Vineeta Bal, part of the visiting faculty at the Indian Institute of Science Education and Research, Pune. "The immune system normally uses

proteins, lipids, carbohydrates, etc., to mount an immune response. So while the inactivated virus cannot multiply, it can still trigger a response through these components," she adds.

### **What are the other platforms to develop the vaccine?**

There are multiple platforms that are being developed to produce a covid-19 vaccine: viral-vectored, protein subunit, live attenuated. But the most promising amongst them are DNA- and RNA-based platforms, which leverage the nucleic acid component. According to a paper published in *The New England Journal Of Medicine* in May, RNA and DNA vaccines can be made quickly because they require no culture or fermentation, relying instead on synthetic processes. But there are no RNA-approved vaccines so far.

### **Is it scientifically possible to develop a vaccine so quickly?**

"In a straightforward answer, no," says Bal. There are a minimum of three levels within the human trials for a vaccine itself. And Bal explains how it is absolutely critical for these three levels to show positive results for the vaccine to be ready for public use. Any premature release of a vaccine can also result in potential side effects. "If phase 1 and phase 2 (of the trials) are done haphazardly, then we do not know in the first instance if the vaccine is safe. The vaccine's ability to generate an immune response of the desired kind is another major limitation. Every vaccine does not provide what we immunologists describe as 'protective immunity'," adds Bal. Another key factor is the duration of this protective immune response. "If this protective immune response is disappearing in four weeks, it doesn't work. For a vaccine, we don't want such a short protective phase," she adds.

### **The ethics of it**

The timing and tonality of ICMR's initial letter has also raised some questions on the ethics surrounding vaccine development. In a series of tweets on 3 July, public health and bioethics researchers Anant Bhan pointed out: "To my knowledge, such an accelerated development pathway has not been done EVER for any kind of vaccine, even for the ones being tried out in other countries. Even with accelerated timelines, this seems really rushed, and hence with potential risks, inadequate attention to process." Speaking over the phone, Bhan explains how the one thing that is clear about vaccine research is that the chances of success can be fairly low. "HIV is a good example. We still don't have a vaccine for it," says Bhan. "I think presupposing or being able to pre-fix a launch date (for the vaccine) doesn't really add up. You can try to expedite things but unless you follow the proper protocols and procedures, it is not going to be possible to ensure that you have something which you are completely sure about, in terms of the data that you have produced," he adds.

### **Some important numbers on efforts around the world to find a covid-19 vaccine**

**4:** The number of years it took Dr Maurice Hilleman to develop the mumps vaccine in 1967. He used a swab from his daughter's throat in March 1963 to isolate the virus. Mumps vaccine was developed and licensed in record time and played a key role in the early battle against the contagious illness.

**10.71:** The average number of years it takes for the development of a vaccine, according to a 2013 study published in peer-reviewed scientific journal *PLOS One*.

**18:** The total number of vaccines that are in clinical evaluation around the world. This is according to a draft landscape of covid-19 candidate vaccines released by WHO on 2 July. Around 129 vaccine candidates are in the preclinical evaluation stage.

**145:** The number of covid-19 vaccines that are being developed by researchers globally, according to *The New York Times* coronavirus vaccine tracker. The tracker also estimates that 21 vaccines are in human trials.

<https://www.livemint.com/mint-lounge/features/bharat-biotech-s-covaxin-key-facts-as-india-races-towards-a-covid-19-vaccine-11594051503138.html>

## Covid-19 vaccine highly likely by 2021: WHO

By Ajai Sreevatsan

- *Vaccines usually undergo three rounds of testing*
- *The first two trials are typically smaller, testing only for the possibility of adverse reactions, not on efficacy*

At least one of the nearly 150 covid-19 vaccines being tested around the world should be ready by 2021, Soumya Swaminathan, chief scientist at the World Health Organization (WHO), said.

"We can be optimistic that there will be one or more safe and efficacious vaccines by next year," Swaminathan said in an interview.

She said the WHO has already started discussions with member-countries on a viable framework for "fair distribution of the vaccine". A vaccine candidate developed in the UK by the University of Oxford is currently at the most advanced stage, with phase-3 trials recently commencing in hospitals in Brazil and South Africa.



WHO Chief Scientist Soumya Swaminathan. (Reuters)

Vaccines usually undergo three rounds of testing. The first two trials are typically smaller, testing only for the possibility of adverse reactions, not on efficacy. Phase-3 trials are a lot more difficult, requiring thousands of volunteers to gauge whether the vaccine actually works in the real world.

India's own vaccine development efforts have come under a cloud of controversy after the Indian Council of Medical Research (ICMR) made a case to get a vaccine candidate ready by 15 August, effectively giving six weeks for clinical trials to test for safety and efficacy. On the feasibility of such a deadline, Swaminathan said: "Trials take time and must be conducted according to well-established regulatory processes."

The WHO will be closely monitoring the phase-3 results of all vaccine trials, she said, because it is possible that some vaccines may be more suitable for one age group, or one type of population group than others. "The WHO, through its expert committees, has put forward criteria for selection of vaccines for further development," she said.

Until an effective vaccine is identified, treatment options for those who are in hospitals will remain critical, and it is fairly clear that several re-purposed drugs which were initially widely used—like hydroxychloroquine and HIV drug Lopinavir—aren't effective on hospitalized covid-19 patients, Swaminathan said.

"Remdesivir seems to reduce the duration of hospitalization, but its impact on lowering mortality is yet to be established. The efficacy of Favipiravir has also not been established, and, furthermore, it can be teratogenic (may cause birth defects) and must be used with caution."

For the subset of covid patients who are hospitalized and require treatment, a broad scientific consensus seems to be emerging about the likely mortality or death rate. At a research and innovation forum held at WHO last week, Swaminathan said actual covid cases at any point are roughly 10 times the officially recorded figure and the overall death rate is 0.6%. With India's recorded covid caseload at over 700,000, that would put the actual death toll at 42,000, more than double the officially recorded number of around 20,000.

Most countries are not able to report deaths accurately in real-time, she said, and India may well be missing some covid-related deaths. "We will have to wait for several months to know the true death count."

<https://www.livemint.com/science/health/covid-19-vaccine-highly-likely-by-2021-who-11594081386087.html>