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Sun, 19 July 2020

Tamil Nadu to tweak defence industrial policy

The policy aims to create an end-to-end ecosystem for aerospace sector development covering design, engineering and manufacturing of aircraft for the civil and defence sector

By C Shivshankar

Chennai: In a bid to woo investments for the defence industrial corridor, the State government is planning to tweak the Aerospace and Defence Industrial Policy, which was unveiled at the second edition of the Global Investors Meet, according to Chairperson and Managing Director of Tamil Nadu Industrial Development Corporation Usha Kakarala. She was speaking at the fifth edition of the virtual conference on aerospace & defence manufacturing technologies with the theme of empowering India with 'Aatma Nirbhar Bharat Mission' organised by the Tamil Nadu Technology Development and Promotion Centre of Confederation of Indian Industry in partnership with Society of Indian Defence Manufacturers.

The policy, which was unveiled by then Defence Minister Nirmala Seetharaman a year ago, will include more incentive packages to woo investment in the defence corridor, a top official in the industry department told Express. It is learnt that the state is targeting investments worth \$10 billion in the next five to 10 years in the six clusters identified in the state - Chennai, Coimbatore, Kancheepuram, Krishnagiri, Salem and Trichy. The policy aims to create an end-to-end ecosystem for aerospace sector development covering design, engineering and manufacturing of aircraft for the civil and defence sector.



File Image of Tejas aircraft. (File| Nagaraja Gadikal/ EPS)

The plan is also to attract Original Equipment Manufacturers and tier-1 suppliers and India majors as anchor units, by providing required facilities and support at competitive rates, the official said. Dr G Satheesh Reddy, Secretary, Department of Defence, Research and Development, and Chairman, Defence Research and Development Organisation, highlighted that DRDO is filtering out patents which are promising for the industry. He said 87 per cent of Akaash Missile System, where subsystems and technology came from the industry, highlights the success of public-private partnership.

There are a lot of schemes available to support and handhold industries to undertake in-house production. Shripad Yesso Naik, Minister of State for Defence, said Covid has given an opportunity for State to attract new investment from companies in countries like Germany, Finland, Taiwan, France, Korea, Japan, China, the US, Australia, the UK and The Netherlands. The government is focusing on developing a strong domestic capability in defence to give greater impetus for economic growth, skilled job creation and to support growth of domestic manufacturers and MSMEs.

<https://www.newindianexpress.com/states/tamil-nadu/2020/jul/19/tamil-nadu-to-tweak-defence-industrial-policy-2171771.html>



Sun, 19 July 2020

Indian Navy plans to acquire new local-made Naval jets for its aircraft carriers

According to information released by the Defense Aviation Post website on July 19, 2020, the Indian Navy plans to receive a new twin-engine aircraft carrier jet designed by the local company Hindustan Aeronautics Ltd. (HAL) to replace the Russian-made MiG-29K

Citing Defense Aviation Post, the Indian Navy could acquire 57 twin-engine fighter aircraft that will be used on the aircraft carrier Vikramaditya. The new jet will be developed by the Indian Defence Research and Development Organisation (DRDO) that should be ready by 2026.

Currently, Indian Navy has two aircraft carriers, the Vikramaditya which is a modified Kiev-class aircraft carrier that entered into service in 2013. On 14 June 2014, the Prime Minister of India formally inducted INS Vikramaditya into the Indian Navy.

The Vikramaditya has been designed as a STOBAR (Short Take-Off But Arrested Recovery) carrier capable of operating both conventional fixed-wing aircraft and helicopters, with up to 34 aircraft[10] capable of being accommodated. Its primary embarked aircraft type is the Mikoyan MiG-29K, a navalised version of the Mikoyan MiG-29M. The MiG-29K is an advanced, all-weather multi-role fighter capable of undertaking both the fleet air defence, low-level strike, and anti-shipping roles.



An Indian Navy MiG-29K take-off from the aircraft carrier Vikramaditya in the Barents Sea. (Picture source Shiv ArrotrTwitter account)

The second aircraft carrier of the Indian Navy is the INS Vikrant, also known as Indigenous Aircraft Carrier 1 (IAC-1). The ship is under construction by Cochin Shipyard in Kochi, Kerala for the Indian Navy. It is the first aircraft carrier to be built in India.

Currently, the Indian Navy has 45 Russian MiG-29K aircraft and its officials had stated that there will not be enough aircraft to operate from both carriers. The Indian has also shown interest for the acquisition of the American F-18 Super Hornet or the naval version of the French Rafale.

<https://www.navyrecognition.com/index.php/news/defence-news/2020/july/8747-indian-navy-plans-to-acquire-new-local-made-naval-jets-for-its-aircraft-carriers.html>

THE TIMES OF INDIA

Mon, 20 July 2020

Top IAF brass to meet to discuss China border situation, rapid Rafale deployment this week

New Delhi: Amid the ongoing tensions with China, top Air Force commanders will meet this week to discuss the situation on the Line of Actual Control with China in Eastern Ladakh and rapid operational station of the Rafale combat aircraft arriving later this month. The top commanders will meet this week for the two-days commanders' conference starting from July 22 where they will deliberate on a range of security issues, Indian Air Force officials told ANI.

One of the main agenda points during the conference headed by Air Chief Marshal RKS Bhadauria and attended by all seven of his commanders-in-chief would be about the situation on the borders with China and the forward deployments done by the force in the Eastern Ladakh and northern borders, sources said.

The Air Force has deployed its entire fleet of modern fighters like Mirage 2000, Sukhoi-30, and the MiG-29 fighters all along with the advanced and forward bases from where they have been carrying out both day and night operations.

The advanced Apache attack helicopter has also been deployed in forward bases along the China border and are carrying out frequent sorties over the Eastern Ladakh region even during night time.

The IAF brass will also discuss the rapid deployment and operationalisation of the Rafale fighter jets arriving in the country by end of this month from France.

The most advanced jets of the South Asian region are going to give an edge to the Air Force over their adversaries as they are fitted with most advanced weapon systems, officials said.

The India Specific Enhancements in the fighter jets along with the long-range weapons like the Meteor air to air missiles are going to give India an edge over China and Pakistan, they said.

The Air Force is also working on the integration of the French fighters with the Russian-origin fleet and make them compatible in operations.

The IAF chief played a significant role in concluding India's biggest ever defence deal as head of the Indian Negotiation Team for the project under which 36 Rafale jets worth around Rs 60,000 crore will be coming to India under emergency purchase route.

The two squadrons of Rafale will also help India to stem the downfall in the number of fighting units in the force as well as strengthen its capabilities to carry out long-range attacks.

<https://timesofindia.indiatimes.com/india/top-iaf-brass-to-meet-to-discuss-china-border-situation-rapid-rafale-deployment-this-week/articleshow/77048697.cms>



Top IAF brass to meet to discuss China border situation, rapid Rafale deployment this week

IAF may deploy Rafale fighters in Ladakh sector amid border row

The possible role of Rafale fighters could be discussed at the IAF commanders' conference in New Delhi from July 22 to 24 where the air force brass is expected to focus on the ongoing border row with China, an official said

By Rahul Singh

New Delhi: The Indian Air Force could deploy its new Rafale fighter jets in the Ladakh sector as part of India's overarching plan to strengthen its military posture in the region, where Indian and Chinese forces are locked in a tense border confrontation and disengagement has turned out to be a challenging process, people familiar with the developments said on Sunday, ahead of a key IAF commanders' meet this week.

Acting on a special request by the IAF, France is speeding up the deliveries of Rafale fighters to India and six jets are likely to land at their home base in Ambala on July 27 --- instead of four that were originally planned to be delivered in the first batch.

"Air and ground crews have undergone full training on the aircraft including advanced weapons systems over the last one year in France," said one of the officials cited above, speaking on the condition of anonymity.

The IAF is looking at means to operationalise the Rafale in the quickest possible time and the new fighters could be deployed wherever there is a requirement including Ladakh, he said.

The possible role of Rafale fighters could be discussed at the IAF commanders' conference in New Delhi from July 22 to 24 where the air force brass is expected to focus on the ongoing border row with China, the IAF's preparedness and new purchases that have to be made to stay prepared for any eventuality, said a second official, who also spoke on condition of anonymity.

India-specific enhancements on the jets include cold engine start capability to operate from high-altitude bases.

India ordered 36 Rafale jets from France in a deal worth Rs 59,000 crore in September 2016 as an emergency purchase to arrest the worrying slide in the air force's combat capabilities.

The arrival of the Rafale will add punch to the IAF's capability, said Air Vice Marshal Manmohan Bahadur (retd), additional director general, Centre for Air Power Studies.

"For sure, there will be a period of integration with other systems, and it (Rafale) would be put to use as the operational planners deem fit," Bahadur said.

According to the original delivery schedule, the first 18 jets (including the four in the first batch) were to be delivered to the IAF by February 2021, with the rest expected in April-May 2022. Future deliveries will also be accelerated.

France handed over to India its first Rafale fighter during a ceremony attended by defence minister Rajnath Singh and his French counterpart, Florence Parly, in Merignac on October 8 last year.

In the Ladakh sector, the IAF is projecting its capability to carry out day-and-night, all-weather combat missions, with front-line fighter jets, attack helicopters and multi-mission choppers getting airborne regularly for demanding night-time missions from a forward base in the area.



Acting on a special request by the IAF, France is speeding up the deliveries of Rafale fighters to India. (AP File Photo)

The air force's MiG-29 fighter jets, Sukhoi-30s, Apache AH-64E attack helicopters and CH-47F (I) Chinook multi-mission helicopters are among the platforms that are undertaking night missions in the mountainous terrain.

The Indian Rafales will be equipped with Meteor beyond-visual-range missiles whose no-escape zone is touted to be three times greater than that of current medium range air-to-air missiles.

<https://www.hindustantimes.com/india-news/iaf-may-deploy-rafale-fighters-in-ladakh-sector-amid-border-row/story-UCHPOMhzbGUiC3RRVJBC6O.html>

नवभारत टाइम्स

Mon, 20 July 2020

आते ही लद्दाख में तैनात होगा राफेल!

IAF कमांडर्स की बैठक में फैसला संभव

इस महीने के अंत तक भारत को राफेल लड़ाकू विमान मिलने जा रहे हैं। इस बैठक में एयरफोर्स के शीर्ष अधिकारी इसकी तैनाती और परिचालन पर भी चर्चा करेंगे। अधिकारियों ने कहा कि दक्षिण एशियाई क्षेत्र के सबसे उन्नत जेट अपने प्रतिकूल परिस्थितियों में वायुसेना को बढ़त देने वाले हैं

Edited By Vineet Tripathi

हाइलाइट्स

- इस महीने के अंत तक भारत आ जाएगा राफेल विमान
- 22 जुलाई से भारतीय वायुसेना के टॉप कमांडर्स की बैठक
- बैठक में राफेल की तैनाती और संचालन पर होगी चर्चा

नई दिल्ली: चीन से जारी तनाव के बीच अगले हफ्ते भारत पहुंच रहे राफेल फाइटर जेट की लद्दाख में तैनाती को लेकर भारतीय वायुसेना बुधवार से तीन दिनों की कमांडर्स कांफ्रेंस करने जा रही है। इस दौरान न केवल सीमाई इलाकों में एयर डिफेंस सिस्टम पर बात होगी, बल्कि लद्दाख के वर्तमान हालात को देखते हुए एयरफोर्स अरुणाचल प्रदेश, उत्तराखंड और सिक्किम में भी अपने एयर कॉम्बेट कैपेबिलिटी को बढ़ाने पर चर्चा संभव है।

27 जुलाई को भारत पहुंचेंगे राफेल जेट

सूत्रों के अनुसार, इस बैठक में 27 जुलाई को फ्रांस से भारत पहुंच रहे 6 राफेल जेट के पहले बैच की तैनाती को लेकर बड़ा फैसला किया जा सकता है। ये जेट कॉम्बेट रेडी होंगे जिससे इनकी तैनाती तुरंत ऑपरेशनल इलाकों में की जा सकती है। शुरुआत में इन्हें अंबाला में तैनात किया जाएगा। माना जा रहा है कि इस कांफ्रेंस को रक्षा मंत्री राजनाथ सिंह भी संबोधित कर सकते हैं।

22 जुलाई से शुरू होगा सम्मेलन

वायुसेना के अधिकारियों ने कहा, शीर्ष कमांडर इस सप्ताह 22 जुलाई से शुरू होने वाले दो दिवसीय कमांडर्स के सम्मेलन में मिलेंगे, जहां वे कई सुरक्षा मुद्दों पर विचार-विमर्श करेंगे। न्यूज एजेंसी एएनआई ने कहा कि वायुसेनाध्यक्ष एयर चीफ मार्शल आरकेएस भदौरिया ने नेतृत्व में होने वाली इस बैठक का मुख्य एजेंडा चीन के साथ सीमाओं पर स्थिति और पूर्वी लद्दाख और उत्तरी सीमाओं में बल द्वारा की गई फॉरवर्ड तैनाती होगी। इस बैठक में सातों कमांडर-इन-चीफ शामिल होंगे।

इन देशों से होते हुए फ्रांस से भारत आएगा राफेल

6 राफेल जेट फ्रांस के बोर्डोक्स से भारत उड़कर ही आएंगे। भारतीय वायुसेना ने इसके लिए पूरी योजना तैयार कर ली है क्योंकि रास्ते में ये फाइटर जेट कई देशों की सीमाओं से होकर भारत के जामनगर पहुंचेंगे। राफेल विमान फ्रांस से भारत तक का सफर पूरा करने के दौरान लगभग 1000 किमी प्रतिघंटे की गति से उड़ान भरेंगे। हालांकि, राफेल की अधिकतम स्पीड 2222 किमी प्रति घंटा है।

अलर्ट मोड पर है वायुसेना

जब से चीन के साथ तनाव की स्थिति पैदा हुई है तभी से वायुसेना अलर्ट मोड पर है। वायुसेना ने अपने आधुनिक बेड़े में मौजूद विमान जैसे मिराज 2000, सुखोई-30, और मिग-29 के सभी लड़ाकू विमानों को उन्नत और फॉरवर्ड बेस पर तैनात किया है, जहां से वे दिन और रात दोनों के ऑपरेशन कर रहे हैं। अपाचे अटैक हेलीकॉप्टर को चीन की सीमा के साथ फॉरवर्ड बेस पर तैनात किया गया है और यह रात के समय भी पूर्वी लद्दाख क्षेत्र पर लगातार उड़ान भर रहा है।

कहां, कैसे, कब तैनात होगा राफेल

इस महीने के अंत तक भारत को राफेल लड़ाकू विमान मिलने जा रहे हैं। इस बैठक में एयरफोर्स के शीर्ष अधिकारी इसकी तैनाती और परिचालन पर भी चर्चा करेंगे। अधिकारियों ने कहा कि दक्षिण एशियाई क्षेत्र के सबसे उन्नत जेट अपने प्रतिकूल परिस्थितियों में वायुसेना को बढ़त देने वाले हैं क्योंकि वे सबसे उन्नत हथियार प्रणालियों से लैस हैं। उन्होंने कहा कि फाइटर जेट्स में भारत स्पेसिफिक एनहांसमेंट के साथ-साथ लंबी दूरी के हथियार जैसे उल्का एयर टू एयर मिसाइल भारत को चीन और पाकिस्तान पर बढ़त देने वाले हैं।

हथियारों के साथ भारत पहुंचेगा राफेल

पहले यह जानकारी दी गई थी कि पहले चरण में 4 राफेल विमान भारत पहुंचेंगे, जिसमें से 3 डबल सीटर यानि ट्रेनर होंगे। लेकिन अब जो जानकारी मिल रही है उनके अनुसार, भारत आने वाल 6 राफेल विमान पूर्ण रूप से कॉम्बेट रेडी पोजिशन में होंगे। जिन्हें कुछ दिनों के अंदर ही किसी भी ऑपरेशन में लगाया जा सकेगा। इन विमानों के पहले खेप को हरियाणा के अंबाला में तैनात किया जाएगा।

Meteor और Scalp से लैस होगा राफेल

भारत को मिलने वाला राफेल विमान हवा से हवा में मार करने वाली बियांड विजुअल रेंज मिसाइल से लैस होगा। यह मिसाइल दुश्मन के प्लेन को बिना देखे सीधे फायर किया जा सकता है। इसमें एक्टिव रडार सीकर लगा होता है जिससे मिसाइल को किसी भी मौसम में फायर किया जा सकता है। वहीं, स्कैल्प मिसाइल या स्ट्रॉम शैडो किसी भी बंकर को आसानी से तबाह कर सकती है। इसकी रेंज लगभग 560 किमी होती है।

<https://navbharattimes.indiatimes.com/india/top-air-force-commanders-will-meet-this-week-to-discuss-the-situation-on-the-lac-with-china-in-eastern-ladakh/articleshow/77049753.cms>

चीन के खिलाफ पहाड़ से समुद्र तक तैयार है भारत, नेवी के आक्रामक जवाब से ड्रैगन खामोश

शिशिर गुप्ता

चीनी आक्रामकता के खिलाफ भारत बर्फीले पहाड़ों की ऊंचाई से लेकर समुद्र की गहराई तक सीना ताने खड़ा है। एक तरफ भारतीय सेना और एयरफोर्स के जांबाज अक्सार्ड चिन बॉर्डर पर तैनात हैं तो दूसरी तरफ भारतीय नौसेना ने भी अपने आक्रामक रुख और तैनाती से यह सुनिश्चित किया है कि अरब सागर या बंगाल की खाड़ी में कोई चीनी पीपुल्स लिबरेशन आर्मी (पीएलए) नौसेना का खतरा नहीं है।

मुंबई, विशाखापत्तनम और नई दिल्ली में मौजूद सूत्रों के मुताबिक, 15 जून को गलवान घाटी में हिंसक झड़प के बाद भारतीय नेवी के युद्धपोतों, विमान वाहक युद्धपोतों और पनडुब्बियों ने पूर्वी और पश्चिमी समुद्रक्षेत्र में आक्रामक रुख अपनाया, ताकि किसी चीनी खतरे को खत्म किया जा सके।

पीएलए नेवा के युद्धपोत ग्वादर तक एंटी-पायरेसी ऑपरेशन चलाते हैं, उनका मॉटिनैस और लॉजिस्टिक्स बेस बलोचिस्तान में हैं। पीएलए के युद्धपोत मलक्का स्ट्रेट्स के जरिए हिंद महासागर में भी दाखिल होते हैं। गलवान में हिंसक झड़प के बाद भारतीय नौसेना ने फॉरवर्ड इलाकों में तैनाती से यह सुनिश्चित किया कि तीन पीएलए नेवी युद्धपोत शांति से अदन की खाड़ी में चले गए और तीन युद्धपोत मलक्का जलडमरूमध्य से होते हुए होम बेस तक गए।

एक वरिष्ठ कमांडर ने बताया, "एक चीनी युद्धपोत जो इंडोनेशिया के जरिए हिंद महासागर में प्रवेश कर रहा था, वह भारतीय सुरक्षाबलों की तैयारी देखकर पीछे चला गया।"

पीएलए नेवी ने म्यांमार, श्रीलंका, पाकिस्तान, ईरान और पूर्वी अफ्रीका में कई बंदरगाहों पर नियंत्रण में लिया है ताकि ना केवल भारतीय नेवी को रोक सके बल्कि, अमेरिकी सेंट्रल कमांड फोर्स के अलावा फ्रेंच और ब्रिटिश नेवी के लिए भी चुनौती पैदा कर सके।

म्यांमार के क्योकप्यू बंदरगाह में बीजिंग की 70 फीसदी हिस्सेदारी है, जोकि बंगाल की खाड़ी में है। हम्बनटोटा बंदरगाह दक्षिण श्रीलंका में है और यह हिंद महासागर में चीन की मौजूदगी को मजबूत करता है। पाकिस्तान का ग्वादर पोर्ट ओमान खाड़ी में प्रवेश देता है और ईरान में जस्क बंदरगाह अरब खाड़ी के मुहाने पर है। चीन ने इन सभी देशों में भारी मात्रा में कर्ज या दबाव देकर बंदरगाहों को कब्जाया है।

चीनी तैनाती को देखते हुए भारतीय सुरक्षा की प्लानिंग करने वाले अपनी संप्रभुता वाले 1062 आइलैंड्स पर अडवांस लैंडिंग ग्राउंड्स बनाने की तैयारी में हैं। भारत अंडमान निकोबार आइलैंड से लेकर लक्ष्यद्वीप तक सैन्य फैसिलिटीज को अपग्रेड करने की तैयारी में हैं। चीनी खतरे का मुकाबला करने के लिए अरब सागर और बंगाल की खाड़ी में इंडियन एयरबेस का नेटवर्क बनाने की तैयारी है ताकि स्वतंत्र नौवहन को बढ़ावा दिया जा सके।

<https://www.livehindustan.com/national/story-indian-navy-forward-posture-against-china-pla-in-arabian-sea-and-bay-of-bengal-3360168.html>

LCA Tejas vs JF-17: China speeds-up production of JF-17s for Pakistan while India bets big on HAL Tejas

China has accelerated the production of JF-17 fighter jets for Pakistan. The JF-17 is the same aircraft that was used against the Indian Air Force (IAF) after the Balakot strikes and claimed to have shot-down an Indian MiG21 Bison.

According to earlier reported by the EurAsian Times citing Global Times – in the first half of 2020, the number of JF-17s delivered was the most in the past five years. As of June 30, the production line of the JF-17 has on average reduced the production period of a single aircraft by 15 days compared to last year, China Aviation News reported.

The latest, modified version of the JF-17, known as the JF-17 Block 3, made its maiden flight in December 2019, the Aerospace Knowledge magazine reported then. In March 2019, Yang Wei, chief designer of the fighter jet, said development and production of the JF-17 Block 3 was underway and the third block will see the JF-17's information-based warfare capability and weapons upgraded.

According to an analysis by *Jane's*, the new jet features a couple of additions over previous systems including a new wide-angle holographic head-up display and a new imaging infrared (IIR)-based missile approach warning system.

While JF-17 Block I and II variants are reportedly powered by Klimov RD-93MA turbofan engine, the Block III version of the JF-17 are slated to receive the RD-93MA or Chinese WS-13 engine.

According to Chinese experts – the latest version of the JF-17 jet features technologies from China's stealth aircraft – J-20. The new features include a latest holographic wide-angle heads-up display and integrated cockpit display similar to the one used by the J-20, in addition to an advanced infrared missile approach warning system.

The new JF-17s could give pilots more situational awareness, permitting them to focus more on warfare instead of flying the plane. The jet is set to operationally deploy with the Pakistan Air Force in 2020 and all 50 planned JF-17 Block IIIs are expected to be inducted by 2024," the Diplomat, quoted the PAF Chief of Air Staff, Mujahid Anwar Khan last year.

Meanwhile, India is finalizing plans to acquire indigenously developed Light Combat Aircraft – LCA Tejas to boost its depleting Air Force. The Indian Air Force (IAF) will buy an additional 83 jets, apart from an earlier deal for 40 aircraft, CDS – General Bipin Rawat had stated.

"The Indian Air Force is switching that to the LCA," Rawat said when asked about the global tender for jets. "The IAF is saying, I would rather take the indigenous fighter, it is good."

New Delhi is taking a massive step towards 'Make in India' initiative by rejecting expensive foreign jets which have been stuck in bureaucratic delays and financial uncertainties. PM Modi had also emphasized to buy local to boost the ailing economy mauled by the Covid-19 pandemic.

The induction of Tejas jets will help India rise as a key defence exporter due to its "relatively low price," General Rawat had stated. The move to acquire indigenous fighter jets marks a momentous shift to start using domestic weaponry.

"The artillery guns, air defence systems and radars will all be indigenous systems as well. We are doing well with artillery guns and in air defence systems," he added. "We are also looking at ammunition manufacturing in our country in a very big way."

While the IAF is vehemently supporting the indigenous fighter program, there are various issues, including faster delivery schedules and quality issues that still haunt the IAF officials. As per plans, the 123 Tejas aircraft are to be followed by the Mark-II variant which are medium-weight fighters.

The test flight for the next generation Tejas jets is likely to be held 2022 and could come face to face against JF-17 jets, co-developed by China and Pakistan.

<https://eurasianimes.com/lca-tejas-vs-jf-17-china-speeds-up-production-of-jf-17s-for-pakistan-while-india-bets-big-on-hal-tejas/>

hindustantimes

Mon, 20 July 2020

Navy's forward posture against PLA aggression in Ladakh muscles out Chinese threat on high seas

To counter the Chinese threat, the plan is to have a network of Indian airbases on islands in both Arabian Sea and Bay of Bengal so that freedom of navigation and overflights is maintained and not restricted like in South China Sea

By Shishir Gupta

New Delhi: While the Indian Army and Air Force are fully deployed on the Aksai Chin border, the Indian Navy through its forward posture has ensured that there is no Chinese People's Liberation Army (PLA) Navy threat in either the Arabian Sea or the Bay of Bengal.

According to sources based in Mumbai, Vishakhapatnam and New Delhi, after the June 15 Galwan flare-up, the Indian Navy warships including aircraft carrier and submarines adopted an aggressive posture on both eastern and western seaboard to ward off any Chinese Navy threat to India from Malacca Straits to the Horn of Africa.

The PLA Navy warships using the cover of anti-piracy operations operate between Gwadar, their maintenance and logistics base in Balochistan, to acquired Djibouti Naval base on the mouth of Red Sea. The PLA warships also enter the Indian Ocean through Malacca Straits and operate in the international waters.



Indian navy MiG-29 K lines up on INS Vikramaditya deck

After the Galwan flare-up in East Ladakh, the Indian Navy's forward posture has ensured that three PLA Navy warships have taken to safe waters in Gulf of Aden, off the coast of Djibouti and three other warships have exited through Malacca Straits to home base. "A Chinese warship which was entering through Indonesia towards the Indian Ocean also turned back as the Indian forces were fully prepared for any contingency," said a senior commander.

The PLA Navy has acquired a string of ports in Myanmar, Sri Lanka, Pakistan, Iran and east Africa to not only contain the Indian Navy but also challenge the presence of US Central Command forces as well as French and British Navy. Beijing has 70 per cent stake in Kyaukpriu port in Myanmar, which sits in the Bay of Bengal, Hambantota port in South Sri Lanka dominates the Indian Ocean, Gwadar port in Pakistan sits on the mouth of Gulf of Oman and the port of Jask in Iran is located on the edge of Persian Gulf. While the countries in which these ports are may justify the Chinese tie-up due to push by the US, fact is that all these ports have been acquired through huge infusion of cash and muscle. With the PLA Navy moving full speed to acquire blue water navy status, it is only a matter of time that the global trade will be at mercy of the Chinese warships.

With a clear understanding of the Chinese posture, the Indian national security planners are working towards building of advance landing grounds in some of the 1062 islands under its sovereignty. Rather than buy more aircraft carriers, the Indian plan is to totally upgrade the military facilities in Andaman Nicobar Islands on eastern seaboard as well as Lakshadweep on western seaboard. To counter the Chinese threat, the plan is to have a network of Indian airbases on these islands in both Arabian Sea and Bay of Bengal so that freedom of navigation and overflights is maintained and not restricted like in South China Sea.

<https://www.hindustantimes.com/india-news/indian-navy-s-forward-posture-against-pla-aggression-in-ladakh-muscles-out-chinese-threat-on-high-seas/story-mRYUXdkrCmGQznQod5lWFK.html>

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In a subtle message to China, Indian Navy conducts drill near Andaman & Nicobar Islands

The Indian Navy conducted drill near Andaman & Nicobar Islands with several warships, including destroyers, frigates and submarines as well as maritime patrol aircraft taking part in the exercise

Key Highlights

- **A&N Islands can serve as one of the key centres of India's defence and security strategy**
- **India planning to fast-track plans for deploying additional military forces**
- **Quad's operations headquarters should be in Andaman and Nicobar Islands**

New Delhi: In a subtle message to China, the Indian Navy conducted drill near the Andaman & Nicobar Islands with several warships, destroyers, frigates and submarines taking part in the exercise.

This drill comes when American super aircraft carriers USS Nimitz and USS Ronald Reagan are conducting rare dual combat drills in the South China Sea despite strong objection from China.

According to a report by TOI, the exercise was led by eastern naval fleet Rear Admiral Sanjay Vatsayan and some warships deployed near the Malacca Strait are also taking part.

Quad's operations HQ in A&N Islands

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According to a report by TOI, the exercise was led by eastern naval fleet Rear Admiral Sanjay Vatsayan and some warships deployed near the Malacca Strait are also taking part.

India is also planning to fast-track plans for deploying additional military forces apart from developing requisite infrastructure in the strategically located Islands.

Development of A&N can greatly enhance India's geopolitical leverage over IOR

The Andaman and Nicobar Command (ANC) is India's only theatre command where all assets and manpower of the Army, Navy, IAF and Coast Guard are placed under one operational commander.

The Andamans can be used to effectively to counter China's growing footprint in the Indian Ocean Region (IOR) apart from ensuring the security of sea lanes converging towards the Malacca Strait, reported TOI.

The A&N Islands can not only serve as an economic hub but also as one of the key centres of India's defence and security strategy.

Former Ambassador Sujan R. Chinoy in his policy brief titled 'Time to Leverage the Strategic Potential of Andaman & Nicobar Islands', has recommended the opening up of the Islands to the

friendly navies of the US, Japan, Australia and France in order to promote greater naval cooperation.

A section of former veterans turned defence analysts are calling for setting up Quad's operations headquarters in Andaman and Nicobar Islands.

<https://www.timesnownews.com/india/article/in-a-subtle-message-to-china-indian-navy-conducts-drill-near-andaman-nicobar-islands/623449>

THE
WIRE

Mon, 20 July 2020

From troop to poop, difficult terrain brings its own challenge for army, and officer

Men in uniform must answer the call of nature, whether they are in the deserts of Rajasthan or the icy heights of Ladakh and Siachen

By Rahul Bedi

Chandigarh: Over centuries, defecation has posed a trial, if not a persistent challenge, for operationally deployed armies.

Such essential but rarely talked about activity invariably elicits embarrassing reactions even in macho soldierly circles, possibly because pooping is a decidedly private endeavour that renders each one of us highly vulnerable.

But the sheer helplessness it manifests amongst crouching or squatting soldiers – their trousers bunched up around the ankles as they attempt to relieve themselves in proximity to an enemy – is somehow even more pronounced.

Alternately, the subject of soldiers defecating in combat gear whilst on exercise or deployed on field manoeuvres, prompts bawdy, albeit *sotto voce* scatological humour.

But this response too, it seems is a dodge to cover up with braggadocio a fundamental chore most people are basically ill at ease with, and furthermore loath to discuss or even mention. In a sense, pooping is the covert or invisible part of all of our critical, though gratifying, daily routines.

Adam Linehan, a former US Army medic who deployed to Iraq and Afghanistan and went on to become a well-known journalist and film maker in Brooklyn, put it in perspective when he wisely stated that “we don't talk about pooping enough – at least not in earnest”. He then goes on to hilariously recall how he learnt to do it squatting from an Afghan soldier, and how he taught his entire platoon to follow suit whilst on counter-insurgency operations in and around Kandahar.

While no soldier in India needs to learn how to squat, the Indian Army – possibly amongst the world's most widely and diversely employed – has to manage the daily execution of defecations on an industrial scale for tens of thousands of its personnel in the field. And to complicate matters it has to do so in diverse environments where little or no infrastructure, leave alone, toilets exist.

These settings stretch from the world's coldest and inhospitable Himalayan regions, where temperatures average minus 25 degrees Celsius round the year, plummeting to minus 40 degrees Celsius in winter, to places in the Rajasthan desert, where the mercury tops 50 degrees Celsius in summer.

Delicately put, this renders the entire exertion of pooping into a major undertaking, especially for officers in the field, who are forced to resort to extremes of jugaad or innovation to perform this most private of activities in utmost seclusion, which is often not easily possible.

There is a delicate, but rarely talked about reason behind this search for solitude by officers to poop: fear of exposure of their genitalia to jawans and even to junior colleagues. After all, it's a universally accepted if unstated tenet that authority back in the unit would be adversely impacted if

a jawan who spies his senior officer pooping reports back to his formation langar that the man in question is poorly endowed.

In all command-and-control settings, even outside the military, claims regarding inadequately hung seniors spread swiftly, often with disastrous consequences in a largely male-centric environment.

Irrespective of psychologists' claims that size does not matter, the issue preys on the mind of males everywhere, and the army is no exception.

One former armoured corps officer said he was thankful for the old Willys Jeep, which for a generation of soldiers, was an indispensable commode-on-wheels. During desert manoeuvres in Rajasthan, he said he would invariably drive out into the sand dunes, far from his tank formation each morning in his Willys for his morning poop. He would stop the vehicle in the deserted desert, perch preciously over the gap between the fender and the engine bloc, resting one arm on the bonnet, and comfortably relieve himself in utmost privacy.

The advent of the Maruti Gypsy jeep in his later years, he lamented, had ended the comfort provided by the Willys, leaving him little choice but to squat furtively behind some sand dunes away from the prying eyes of his regimental risaldars.

High in the Mountains

But pooping in the Himalayas is, without doubt the most arduous, to say the least, claim a host of veterans who have served at vertiginous heights along the line of control with Pakistan, and later at Siachen, in unbelievably freezing conditions.

After 1984, when India seized the Siachen Glacier and surrounding areas, veterans said they faced a Hobson's choice in defecating at heights of over 17,000 feet and in temperatures that dipped to below 45 degrees Celsius during winter, and an even more formidable wind chill factor.

Till the late 1990s, when bio-digester toilets designed by the Defence Research and Development Establishment (DRDE) at Gwalior were installed at Siachen base camp, soldiers and officers alike were directed to strategically located ropes for defecating. After swiftly lowering their arctic leggings, they pooped speedily over the mountain edge into a snowy abyss, completing the entire exercise within seconds, officers said.

However, over years, with tens of thousands of soldiers defecating similarly, this led to a major environmental crisis: growing mountains of poop, as perennially low temperatures in the region do not facilitate the natural microbial decomposition of waste, which continues accumulating throughout the ice layers. Technically, and on a lighter note, the waste of the first soldiers to take a dump at Siachen in 1984 would still be in existence.

Other than being an aesthetic monstrosity, this accumulation runs the risk of getting mixed up with the snow that remains the sole supply of drinking water for the deployed brigade. And though some of these problems have been partially resolved, thousands of soldiers deployed to forward posts still face pooping hazards, for which there seems to be little or limited redress, despite advances in technology and disposal of human waste. One officer jocularly said that this heap of waste could be rolled down the hillside towards Pakistan, but this remedy remains just that: a shitty joke.

Alternately, however, the soldiers at these posts can descend a ladder down into crevices that are located a little distance from their living quarters; but even for this, agility and liveness are necessary and, no doubt a skill developed over time. But one saving grace most Siachen veterans were thankful for during their tenure on the glacier – if it can be called that – was that with loss of appetite at those forbidding heights and consequent limited intake of food, their need to defecate was considerably mitigated. Hence, so were the associated tribulations.

Similar ordeals of mass defecation are expected to surface imminently with the impending winter deployment, October onwards, of over 20,000 additional troops to the disputed line of actual control (LAC) in eastern Ladakh. With a daily consumption of hundreds of kilos of foodstuff by these soldiers, the ordeal of evacuating it at remote posts at heights of over 15,000 feet will be enormous.

This deployment is expected to stretch 250-300km along the precipitous expanse from the Depsang plains in the north to Galwan, the Hot Springs-Gogra region and Pangong Tso lake and onto Chushul, to safeguard multiple ingress points along the LAC. Virtually no infrastructure exists in this region to house these many supplementary troops in freezing conditions.

Perforce, whatever arrangements the army makes will need to incorporate defecating facilities too.

Up in the Air

Fighter pilots, including those from the Indian Air Force (IAF), seem to have a somewhat temporary solution to the calls of nature by regressing to their childhood and using diapers. Whenever deployed on extended missions like flying to Europe or the US for exercises, or in the neighbourhood for extended manoeuvres, IAF pilots strap themselves in with diapers to deal with their physical urge to urinate and defecate.

In 2010, for instance, when IAF fighter pilots participated in an exercise to bomb mock targets on the Andaman and Nicobar archipelago, they were also armed with diapers. At the time senior IAF officers said they would have to get used to carrying additional loads in their diapers as future missions would be more complex, requiring pilots to remain airborne for 12 to 15 hours.

“Human endurance should not be a limiting factor in the cockpit’ then Air Chief Marshal Homi Major had sanguinely declared on that occasion.

Down in the Sea

Pooping in submarines is possibly the most hazardous, as the chances of the sewage coming right back and hitting the sailor with great impact are not unknown if the toilet tank is over-pressurised hundreds of feet underwater.

It’s instructive to recall that in WWII, an advanced German hunter submarine of the U-1206-class, on its maiden combat voyage in the North Sea in April 1945, sank thanks to its poop after its captain used the boats hi-tech toilet improperly.

Ingenious German engineers had developed what they believed to be the ‘next generation in undersea plumbing’ by discharging waste directly into the sea. Eight days into its first patrol, the captain decided to try out the submarines toilet some 200 feet under water.

He accidentally turned a wrong valve, unleashing a torrent of sewage and water back into the submarine. “The situation escalated swiftly with the unpleasant liquid filling the toilet compartment and beginning to stream down onto the submarine’s giant internal batteries – located directly beneath the bathroom –which reacted chemically and began producing chlorine gas,” writes Elliot Carter in *Motherboard*.

As the poisonous gas filled the submarine, the captain frantically ordered the boat to the surface where it was attacked by Allied combat aircraft, giving the crew no option but to scuttle the boat.

Apocryphally speaking, Shit happens.

<https://thewire.in/security/from-troop-to-poop-difficult-terrain-brings-its-own-challenge-for-army-and-officer>

Military Digest | Detailed order of battle: Chinese forces in Eastern Ladakh

The talks are a tedious, prolonged process. One reason for the long duration of the meetings is the need to translate everything. It seems the Chinese are playing for time. These are their typical tactics

By Mandeep Singh Bajwa

The one division plus and an armoured brigade with which India normally garrisons Eastern Ladakh has been reinforced many times over with backup formations both from Northern Command and Army HQ reserves. Opposed to them are two full-strength Chinese mobile divisions earmarked for high-altitude warfare, an airborne brigade and some odds and ends amounting to two more brigades. A deeper look at these manoeuvre formations' composition and equipment should give us a good idea about their capabilities and the inherent threat.

6th Highland Mechanised Infantry Division now occupies jumping-off points in the Chinese half of Depsang Plains. It consists of 7 Mechanised Infantry Regiment, 18 Mechanised Infantry Regiment and an armoured regiment. Combat support consists of a field artillery regiment, an air defence regiment, a combat engineer battalion, an electronic warfare battalion and a



chemical, biological, radiological and nuclear (CBRN) defence battalion. The presence of the latter two units show how much of a march the Chinese have stolen over us in the implementation of hybrid warfare concepts. The divisional reconnaissance battalion is a small, lithe unit for scouting and flank protection tasks. Its mainstays are eighteen ZBD-04A infantry fighting vehicles armed with AFT-10 anti-tank guided missiles (ATGMs). These are the divisional commander's eyes and ears. The division HQ has an infantry company and air defence platoon for its protection.

The Type-99. The most advanced Chinese tank and fielded in Ladakh.

Each mechanised infantry regiment/brigade has four mechanised battalions (up from the earlier three) and a tank battalion with 35 ZTZ-99A (Type 99) main battle tanks. There are eleven tanks in each of the three tank companies with two command tanks in the battalion headquarters. An artillery battalion with eighteen 122mm PLZ-07B self-propelled tracked howitzers is in direct fire support. Combat support is provided by an engineer battalion and a signal battalion.

The backbone of the division are its mechanised infantry battalions of which it has eight.

The skies above the division's battlespace are sought to be secured by the air defence cover provided by the integral Anti-Aircraft Artillery Regiment. This consists of a battalion of 24 GZ-09 PGZ-07 twin 35mm self-propelled (tracked) anti-aircraft guns and a battalion of 18 HQ-17 short-range air defence systems (tracked), a development of the Russian SA-15 (NATO reporting name: Gauntlet). This is meant to target all kinds of aerial threats including Cruise missiles, low-flying aircraft and short-range ballistic missiles. Six FN-6 MANPADS launchers comprising an air defence platoon are also attached to the Regiment. An aviation regiment provides the division with an integral air attack, aerial reconnaissance, airborne anti-tank and heli-lift capacity. This is provided by a squadron each of Harbin Z-9G armed helicopters (NATO reporting name; Haitun), a licensed variant of the French Eurocopter AS365 Dauphin and Mi-17I transport helicopters. Both units have six machines each.

Combat support assets are available from the Group Army (equivalent to an Indian corps) to boost the division's firepower and battle-survivability. These could include an independent artillery brigade with two battalions of PCL-181 155mm/52-calibre truck-mounted howitzers (36 tubes) and

another two battalions of PHL-03 300mm 12-tube long-range multi-barrel rocket launchers (36 systems). The latter is based on the BM-30 Russian Smerch system with a range of 650 kms and used to target strategic targets like command centres, major concentrations of troops, airbases, air defences, logistics hubs and engage in counter-battery fire missions. Force multipliers with this formation include weapon-tracking radars and tactical reconnaissance UAVs.

In a battlefield environment rich in enemy air assets i.e. when the adversary has a modicum of air superiority an independent air defence brigade could also come under command. This would field a battalion (24 systems) of twin-barrelled 35mm towed anti-aircraft guns for point defence of headquarters, gun positions and static installations like fuel dumps and ammunition depots. In addition, a unit of twelve FM-90 mobile short-range surface to air missiles, an unlicensed, reverse-engineered copy of the French Crotale SAM would form part of this reinforcement.

Aksu, Xinjiang-based 4th Highland Motorised Infantry Division comprises the 11 Motorised Infantry Regiment, 12 Motorised Infantry Regiment, a tank regiment, an artillery regiment, and anti-tank and anti-aircraft artillery battalions. This is the Chinese formation troops of XIV Corps are encountering in the Galwan River Valley, Hot Springs/Gogra and the Fingers Area. The division's motorised infantry regiments are equipped with tracked Type 86 ICVs (reverse-engineered Soviet BMP-1 replicas) and WZ-551 6 x 6 APCs. In addition, there are eight relatively more modern VN-1 8 x 8 APCs armed with indigenous Red Arrow 10 ATGMs. The motorised infantry battalions follow the standard table of organisation with three companies, each of three platoons.

As we can note from this study this is a formidable mobile formation with tremendous firepower. The terrain in Ladakh i.e. high-altitude mountain plateau is ideal for its employment. However, plain, flat valleys in the region are bounded by steep ridges. Mobile forces can easily manoeuvre through the flat valleys and penetrate the gaps. However, if the adversary's forces hold the ridgelines in strength and dominate the passes tanks and mechanised infantry will find themselves being channelled into and decimated in armour killing areas. For any sizeable armoured force to hope to make any headway it is imperative to seize the high ground flanking the proposed routes of advance. In effect that means that up to one-third of the attacking must dismount from their APCs, climb those hills, neutralise the occupying enemy and hold out against counter-attacks and air action. Chinese infantry has been noted in recent years to have become 'APC-ised' i.e. too accustomed to moving and fighting in infantry combat vehicles to the detriment of traditional infantry skills. This is something that should worry their high command and political commissars.

Situation Report Eastern Ladakh: 17th July 2020

The impasse in Eastern Ladakh continues, the Army has said in a statement that 'disengagement on the Line of Control (LOC) is an intricate process'. Four rounds of marathon meetings between the XIV Corps commander and his Chinese counterpart, the commander of the South Xinjiang Military District have not exactly resulted in a great agreement on both sides withdrawing to and occupying pre-April positions. The talks are a tedious, prolonged process. One reason for the long duration of the meetings is the need to translate everything. It seems the Chinese are playing for time. These are their typical tactics.

In the meanwhile, the issue of border tension in a strategically vital region and more importantly Chinese intrusions into Indian territory have been relegated to the inside pages of newspapers. The media seems to have lost interest in the matter. The matter is now on the backburner. The ground position is that Chinese troops are yet to return to positions occupied by them before April.

As information comes in and previously collated data is confirmed or denied identification of PLA (Chinese Army) formations can be done now. With the passage of time and increasing visibility formations and their locations can be recognized with greater fluency. 4th Highland Motorised Infantry Division is now confirmed to be deployed in the eastern part of the Depsang Plains held by the Chinese. This is a launching pad against Daulet Beg Oldie and the western part of the Plains held by Indian troops. The formation has been mobilised from Aksu lying at the northern edge of the Tarim Basin. The Kashgar-based 6th Highland Mechanised Infantry Division, now present in full strength threatens the Galwan River Valley, Hot Springs/Gogra and the Fingers

Area. Not so much the occupation of territory, it is the presence of these offensive formations opposite our border that pose the real and imminent threat. In the next article the exact order of battle of these formations is discussed to give the reader an idea of their capabilities.

Elements of the 362nd and 363rd Border Defence Regiments are located in penny-packets here and there bolstering up defences and manning observation posts. I had earlier mentioned the airborne mechanised brigade moved into the theatre from Hubei province in Central China with great publicity as a psyops tactic. This is part of the PLAAF (Chinese Air Force) strategic force the Airborne Corps. This is held in reserve for vertical envelopment operations using the abundant heli-lift available. The intention is to get in the rear of Indian forces and seize key communication nodes and high-value targets. However, the well-known vulnerability of helicopters in the face of modern air defence weapons including Akash missiles might bring these plans to naught.

Surface to surface missiles held in impregnable underground shelters at two locations, one each in Aksai Chin and Xinjiang along with their transporters, erectors and launchers (TELs) pose a real danger. These can be used to hit high-value targets like the IAF's airbases and advanced landing grounds (ALGs). A long-term threat are the two mountain mechanised divisions located in bases on the eastern periphery of Pakistani-occupied Gilgit-Baltistan. The danger that these forces pose to Siachen, Kargil and the Kashmir Valley in conjunction with Pakistani troops cannot be discounted.

Conclusion of Operation Samudra Setu

During the Kargil War the Indian Navy (IN) played a significant role by adopting a forward posture in the Arabian Sea. This put pressure on the Pakistani establishment because of the economic ramifications of a naval blockade. The not so subtle threat worked. The conflict was confined to the area around Kargil and Dras. In the current stand-off with China the Navy has been silently monitoring Chinese maritime activities including the movements of their submarines in the Indian Ocean. A significant operation of the IN's commitment to national life has just got over though.

Operation Samudra Setu launched on 5th May 2020 formally got over on 8th July. This was undertaken by the Navy as a function of the effort to evacuate Indian citizens stuck overseas due to the COVID-19 pandemic. A total of 3,992 of our nationals were evacuated by sea. The Landing Platform Dock (LPD) INS Jalashwa and Landing Ships, Tank (LST) INS Magar, INS Airavat and INS Shardul were tasked for this purpose. These ships traveled more than 23,000 kms during the operation. This was not the first time that the Indian Navy (IN) conducted such evacuations under humanitarian assistance and disaster relief (HADR) operations. The previous operations were Operations Sukoon from Lebanon in 2006 and Rahat from Yemen in 2015.

Because of the peculiar conditions existing on board ships the pandemic has had a major effect on their working and on those who sail in them. This is due to the close setting and specific ventilation systems on board ships. The IN rose to the challenge posed by these complex circumstances and took up the task given to it by the government with its usual dispatch. By far the greatest test was to avoid any cases of infection onboard the ships forming the task force. Meticulous care was taken, strict measures being put into place and implemented with vigour. Medical safety was paramount. Protocols were strictly followed with military discipline being enforced.

The amphibious warfare ships used for the operations were best suited to carry out evacuations considering that they were built to carry troops with all the necessary infrastructure to sustain them including medical facilities. The larger space available meant that social distancing norms could be implemented properly. Sick bays on board the task force's ships were specially prepared with equipment related to COVID-19 precautions and treatment. The Navy's work was thorough to the extent that women officers and military nurses were specially boarded on the ships to take care of the susceptibilities and needs of female passengers. Everything (food, medicines etc.) was provided to the evacuees.

An interesting piece of news is that Sonia Jacob, a passenger on board INS Jalashwa gave birth to a boy within a few hours of reaching Kochi. And that too on International Mothers' Day. These evacuees will never forget the work of the IN! Just another day's work for our sailors.

<https://indianexpress.com/article/india/military-digest-detailed-order-of-battle-chinese-forces-in-eastern-ladakh-6513871/>



Sun, 19 July 2020

India-China: Time for a reset

Things haven't been this adversarial since the 1960s, but India and China also have a chance to reassess and rebuild their fraught relationship

By Shivshankar Menon

New Delhi: The death of 20 Indian soldiers and an unknown number of PLA (People's Liberation Army) soldiers in a clash in Ladakh on June 15 marks an inflection point in India-China relations. The clash was a result of changes in Chinese behaviour on the border since April this year. The PLA has attempted to establish a permanent presence across the Line of Actual Control (LAC), concentrated force along the line and prevented Indian soldiers from following their normal patrolling patterns in several places in Ladakh. In effect, China's actions have changed the status quo that both sides are legally bound to respect under a series of bilateral agreements since 1993. A reset of India-China relations is now inevitable and necessary.

Where Are We Today?

The June 15 clashes come as the culmination of a series of incidents of ever growing scale, duration and severity along the India-China border since 2012. In 2013, the PLA intruded across the line and pitched tents in Depsang, withdrawing after negotiations over two and a half weeks. In September 2014, on the day that President Xi Jinping arrived in India for a state visit, over a thousand PLA troops entered Chumar and only vacated the area three weeks after his visit. In 2017, the PLA entered and stayed on the Doklam plateau, disputed between Bhutan and China, an area they had only patrolled sporadically before. A 72-day stand-off between Indian and Chinese troops ended with the face-off spot being vacated by both sides. Since then, the Chinese have left the face-off spot vacant but have built permanent structures and stayed through the year on the rest of the Doklam plateau. However, the intrusions in Ladakh this year are a significant escalation, for they occurred at multiple points along the LAC—at Depsang, Galwan, Hot Springs, Pangong Tso and, according to local Ladakhis, elsewhere as well. Chinese forces have been strengthened in the eastern and middle sectors as well.

It could well be that China drew the wrong lessons from the Doklam experience. The government of India claimed a victory in having faced down the Chinese and got them to move away from the face-off spot. The Chinese may have concluded that a two-steps-forward-one-step-back approach, like the one they have followed in the South China Sea, would work on the India border as well and that they could change outcomes on the ground without risk of major conflict or military pushback.

The Narendra Modi government's reaction to Chinese actions since April has been diplomatically tentative while strong on rhetoric. The Indian government has spoken of restoring the status quo, disengagement and a cooling off on the LAC as its goals for the ongoing discussion with China. China, too, has signalled its desire to negotiate disengagement and there's talk of a 'buffer zone' between the armies.

How Did We Get Here?

China's actions come despite the Modi government's public deference to Chinese sensitivities on a series of issues after Doklam in 2017. Official India has recently muted criticism or been silent

on the Chinese occupation of the Doklam plateau, the Belt and Road Initiative, developments in Xinjiang, Hong Kong, the South China Sea, the East China Sea, Taiwan and on China's culpability for the Covid-19 pandemic or the need to bring Taiwan into WHO discussions on the pandemic. Tibetan activities in India have been curbed. Government leaders have not met the Dalai Lama in public since 2014, unlike previous governments. While respecting Chinese sensitivities, India has moved steadily in the past few years to upgrade her defence and security relationship with the US, signing agreements that previous governments found difficult, increased inter-operability of the armed forces, particularly the navies, and improved India-US relations to the point where President Donald Trump wishes to see India in the G-7.

To my mind, the most likely explanation for China's behaviour is that domestic stress led the party-state and its leader Xi Jinping to seek victories abroad, or, short of victories, to be able to show the Chinese people that the nation was under attack and that they should therefore rally around the flag and leader. The Covid pandemic and deterioration in China-US relations should have been enough to make this case except that these could be portrayed as failures of the present Chinese leadership. Hence, China has stepped up her assertiveness in disputes across the board: submarine patrols and military flights in the East China Sea around the Senkakus; military aircraft in Taiwanese airspace; sinking Vietnamese vessels in the South China Sea and declaring new administrative structures in those contested waters; and starting a tariff war with Australia. Assertiveness on the LAC with India would then be part of a broader pattern of China's "wolf warrior" behaviour and diplomacy.

Prime Minister Modi has invested heavily in relations with China and in personal diplomacy with President Xi Jinping, more than any other Indian prime minister. He has met the Chinese president 18 times, more than with any other foreign head of state or government. Modi has visited China nine times, five times as prime minister. The border clashes show that the personal diplomacy which worked with President Trump has not succeeded with the world's oldest and toughest-minded bureaucracy.

Modi's initial emphasis was on the economic relationship with China, and this had a certain success. Chinese investment in India, which was cumulatively \$1.8 billion in 2014 when he came to power, is now estimated at about \$26 billion, and is significant to several Indian start-ups and unicorns; it also provides technology and financing in sectors like fin-tech. (Indian investment in China was cumulatively only \$0.92 billion by the end of 2019.) China has a strong presence, or is critical to, sensitive Indian sectors like power, pharmaceuticals, automobiles and telecom.

India-China relations have been increasingly adversarial in the past three years or so. It has been evident for some time that the *modus vivendi* agreed in 1988 during the Rajiv Gandhi visit to China no longer works. That *modus vivendi* was based on an agreement to discuss differences like the boundary dispute while keeping the peace, not allowing differences to prevent normal cooperation such as trade and travel and working together on the international stage where interests coincided, as at the WTO or in climate change negotiations. Signs of stress in that understanding have become increasingly clear since 2012, as China, whose GDP in 1988 was similar to India's, grew phenomenally to an economy almost five times the size of India. China became an economic superpower and a significant regional military power. India, too, grew at historically unprecedented rates, and as both countries grew, their interests did too. For instance, freedom of navigation in the South China Sea has become important to India just when China has chosen to make it a Chinese lake and call its ownership a core Chinese interest.

If peace held on the border for 40 years despite economic asymmetry and political dissonance, it's probably because the effective military balance of usable power on the border was not as skewed as comparing GDP figures or even military budgets would suggest. Successive Indian governments have sought to maintain that balance by building border roads and infrastructure since 2004, raising two mountain divisions since 2010, opening advanced landing grounds for aircraft near the border, raising a mountain strike corps since 2013, and so on. That China should today try to change the status quo suggests she thinks that the balance on the border has shifted in her favour,

or that other factors, such as the Indian government's fear of political embarrassment, or a favourable international context, will help her override it.

Blueprint for change

It is clear there will be a reset in India-China relations, complex as they are. The immediate popular reaction in India to the clashes is to call for a boycott of Chinese products, a call that is supported by the ruling BJP's supporters, some of its front organisations and trade unions. This will not be easy to achieve: China is India's largest trading partner in goods, and second only to the US when services are added. As India and China enter a more openly adversarial phase in their relationship, it seems likely that the Indian government will act to limit exposure to Chinese firms and products in critical infrastructure such as telecom, railways, power, and where it can control the terms of entry, as in the rollout of 5G networks. Short of war, limits on trade would be more difficult to impose, given India's dependence on Chinese products and her obligations under WTO and other agreements. India has a chance here to rework the economic relationship with China to a less unequal and more advantageous one, should she wish to.

The calls to boycott trade with China feed into India's existing inward turn. Customs duties have been raised for four years running. After eight years of negotiation, India has opted out of the Regional Comprehensive Economic Partnership (RCEP) agreement with China, ASEAN, Japan, Korea, Australia and New Zealand, potentially the world's largest free trade area, encompassing 40 per cent of the world economy. The collapse of the world economy in the wake of the Covid-19 pandemic has led the Indian prime minister to call for self-reliance, just as President Xi has in China. In both cases, it is unclear how autarchic their idea of self-reliance is and to what extent it will increase mercantilist and protectionist behaviour by the two economies that were the greatest beneficiaries of the globalisation decades.

Trade boycotts or steps to address economic asymmetry between India and China will not restore the status quo on the border or immediately increase Indian leverage in dealing with China. And that is where the first focus should be, on restoring or strengthening the effective balance on the border. Here, India has options ranging from quid pro quo strategies to other options on the ground that will strengthen the negotiating task of securing a restoration of the status quo as it existed before April 2020. After the immediate crisis is over, a review of lessons learnt from this episode, covering the intelligence chain, the military response, the diplomatic effort and the government's overall performance will presumably lead to changes in India's border management, organisationally, in the standard operating procedures, the rules of engagement and so on. A rigorous programme of self-strengthening is required and likely. India must prepare for escalation of the situation on the China border in order to deter it. Much of what India would do in response to these events is in the realm of domestic policy, accelerating the military reforms that are under way, and working to reduce asymmetries of power with China.

At the same time, there's no getting away from the need for India to work on cost-imposition on China asymmetrically and in non-border areas. This has already begun in denying China contracts in the road and power sectors and in the bans on Chinese apps, for some of which India is the biggest market. The broader periphery India and China share and the maritime domain in the Indian Ocean are also now in active contention.

It is essential that India step up its game in the subcontinent and in our relationships with Nepal, Sri Lanka and other countries, all of whom will judge the effectiveness of our response to the Chinese actions on the border and draw their own conclusions. The longer term goal should be to build on our affinities and work on integrating the subcontinent economically and to convince our neighbours that India is a source of stability and security for them in their nation-building. This would require us to move beyond thinking of our neighbours in terms of their effect on local politics and elections within India.

Externally, it is hard to think of a time since the Cultural Revolution when China's international prestige and reputation have been lower. The government of India should bring the truth of what has happened on the border with China to the attention of the world. We should be talking to others and making our case rather than minimising the problem. But we should also recognise that despite

China's prestige being at an all-time low, there is limited appetite for a concerted China policy in a distracted international community that needs China's economic strength to overcome the economic crash of 2020, a consideration that also applies to India's China policy.

India's external balancing responses will almost certainly include a strengthening of political, defence and intelligence ties with the US. Though the US president's offer to mediate between India and China might suggest US neutrality rather than an interest in becoming directly involved in this confrontation, India will seek and likely obtain US diplomatic support and help in strengthening herself militarily. The transformed India-US relationship provides a platform for cooperation across the board in mitigating the effect of adverse Chinese actions internationally, and we can expect much better coordination. This will likely stay short of a military alliance, a NATO-East or Indo-Pacific Treaty Organisation, which is unnecessary. Instead, the US-India political-military relationship is likely to grow denser despite the US tending towards the role of an offshore balancer in Asian affairs. Over the past decade and a half, India has also begun to work much more closely with the US's Asian allies and China's other neighbours who bear the brunt of assertive Chinese behaviour. Each of them, like India, simultaneously has equities with China which limit the countervailing actions that they are willing to undertake. But we can expect India, the US and other partners working together to invigorate the Quad (with Australia and Japan) and bring in other southeast Asian partners in an attempt to shape the environment around China and mitigate the effects of Chinese assertion in the region.

Developments in India-China relations could also reinvigorate India-Russia ties which have long been strategic from India's point of view but have stagnated recently. India's major weapons platforms are Russian, which is unlikely to change in the short term. Indian and Russian interests coincide in Afghanistan and central Asia, and the two have a history of working together in that arena. Russia and Iran are two powers who could provide some answers to India's strategic dilemma as China consolidates the Eurasian continent. That makes it unwise for India to entirely buy into present US policies on Iran and Russia.

All in all, there are limits to India's external balancing of China on the current Asian stage. The US and her allies are primarily interested in the maritime domain, or in the Free and Open Indo-Pacific. India is also a continental power and our issues with China are on land. On the ultimate issue of safeguarding her territory, India has no choice but to rely on herself. For China, fighting and negotiating are not antithetical but means that reinforce each other, which can both be undertaken simultaneously, a lesson that India should learn.

Three hypothetical scenarios suggest plausible futures for this uneasy relationship: A breakthrough to a new modus vivendi, as emerged following the Sumdorong Chu crisis of 1986; a descent into the perils of armed conflict; or finally, and most likely, a no-war-no-peace scenario that sees both sides climb down to the plateau of a protracted adversarial relationship, on the border and on economic terrain. The paradox is that though India and China are closer to conflict than at any time since the late '60s, they now have an opportunity to reset and rebuild their relationship. The choice is theirs to make.

(Shivshankar Menon is a former foreign secretary and National Security Advisor)

<https://www.indiatoday.in/magazine/cover-story/story/20200727-india-china-time-for-a-reset-1701609-2020-07-18>

People's Liberation Army moves away troops that clashed at Galwan from LAC

By Manu Pubby

Synopsis

The Chinese army has pulled back troops that were involved in the fatal clash at Galwan on June 15 from the flashpoint to lower tempers but it is still not clear if they have been rotated out from the sector as part of the disengagement process.

New Delhi: The Chinese army has pulled back troops that were involved in the fatal clash at Galwan on June 15 from the flashpoint to lower tempers but it is still not clear if they have been rotated out from the sector as part of the disengagement process. Sources told ET that troops from the PLA battalion involved in the Galwan clash have been moved away from the Line of Actual Control (LAC) and regular border troops that had been manning the area have now been deployed.

As reported, troops from the 16 Bihar regiment that were involved in the deadly clash are being moved out from Galwan as well as part of the regular rotation of troops that is carried out in border areas. The 16 Bihar had to move out by March this year but the move got delayed after movements were restricted following the Covid-19 crisis.

Defence Minister Rajnath Singh met soldiers from 16 Bihar involved in the clash during his visit to the Pangong Tso on Friday, including a subedar of the battalion who led troops after the PLA ambush. The minister saluted the troops for their brave stand and thanked them for their devotion to duty. "The PLA troops involved in the clash were not regular soldiers who have been manning the border. These were troops brought in from some other locations. They have now been replaced by the regular border troops who have been deployed for a long time in Galwan," a source said.

Unlike Indian units that are deployed for 24-36 month tenure on the LAC, Chinese troops are permanently deployed to various sectors and are rarely rotated. There has been a view that the violence of June 15, as well as an earlier clash on May 5, had been perpetuated by 'outsider troops' and not regular Chinese soldiers manning the border who generally have a cordial relationship with Indian army units posted forward. Sources said the disengagement process has been progressing and a joint physical verification of the flashpoints is expected this week. Top air force officers are also expected to meet on Tuesday for a commanders' conference in which the ongoing situation on the China border will be discussed in detail.

As first reported by ET, the first batch of combat ready Rafale fighter jets are arriving at the Ambala airbase on July 27 and the commanders are expected to discuss their application given the current security scenario as well. France has gone out of its way to ensure that key armament and training is given in advance to ensure that the Rafale fleet is combat ready. The French Air Force will also deploy its mid air refuelers half way to the UAE to ensure that the combat jets make it to India with a single stopover.

<https://economictimes.indiatimes.com/news/defence/peoples-liberation-army-moves-away-troops-that-clashed-at-galwan-from-lac/articleshow/77056031.cms>

WION exclusive: America's largest warship likely to exercise with Indian Navy amid Chinese aggression

By Sidhant Sibal

Story highlights

The likely India-US drill could happen on the lines of exercise India had with the Japanese Naval forces at the end of June month. The India-Japan Naval exercise was termed "Passex" or passing exercise.

US Navy's USS Nimitz, the world's largest warship, is likely to conduct a drill with Indian Navy's off the coast of Andaman & Nicobar island. Nimitz is already present in the Indian ocean and came into the ocean via Malacca Strait.

The strait, a narrow stretch between Malaysia and Indonesia is a crucial global choke point from which considerable global oil flows to the rest of Asia including China.

The likely India-US drill could happen on the lines of exercise India had with the Japanese Naval forces at the end of June month. The India-Japan Naval exercise was termed "Passex" or passing exercise.

The development comes amidst India-China border standoff. Last month India and China were involved in a violent face-off after "Chinese side took a premeditated and planned action that was directly responsible for the resulting violence and casualties" according to Ministry of external affairs.

Nimitz aircraft carrier is coming from South China sea and was part of wargames along with USS Theodore Roosevelt.

Both conducted dual-carrier operations in the Philippine Sea which according to US Navy was to "demonstrate our commitment to regional allies, our ability to rapidly mass combat power in the Indo-Pacific, and our readiness to confront all those who challenge international norms that support regional stability."

The development is also significant given the increased Chinese presence in the Indian ocean. China has its only overseas military base in Djibouti in the horn of Africa, located strategically at the mouth of crucial sea lanes connecting the Suez Canal, the Gulf of Aden and wider Indian ocean.

Meanwhile, it looks a significant possibility that Australia may join India, US & Japan for Malabar exercise expected to happen later this year. All 4 countries already have a working arrangement called Quad whose foreign ministers met last year.

<https://www.wionews.com/india-news/wion-exclusive-americas-largest-warship-likely-to-exercise-with-indian-navy-amid-chinese-aggression-314502>



The USS Ronald Reagan and USS Nimitz would be in the South China Sea from Saturday, the US news outlet quoted the strike group commander as saying. Photograph:(ANI)

Oz may become a permanent member of Malabar exercise

'India does not need to restrain Quad exercises to keep China happy'

By Abhinandan Mishra

New Delhi: Australia is almost certain to join the Malabar naval war exercise scheduled for later this year, with informed sources in both Canberra and New Delhi confirming that Australia will be made a permanent member of this naval exercise which right now has three members, India, the United States and Japan.

Malabar 2020 will be taking place in the waters of Bay of Bengal by the end of this year where China has been wanting to spread its domination.

The last and the only time the Australian Navy had participated in this exercise was in 2007. At the time, Malabar 2007 had provoked issuing of demarche to India by China due to participation of Australia. Following this, despite repeated communication by Australia to let it participate in the exercise, Indian government chose to take the route of conciliation rather than confrontation with China and politely refused Australia's request.



The last and the only time the Australian navy had participated in this exercise was in 2007. At that time, Malabar 2007 had provoked issuing of demarche to India by China due to the participation of Australia.

“That was in the past,” a senior official with the Ministry of Defence said while recalling India's reaction to China in 2007. “Malabar 2020 is going to happen in a very different time, literally and figuratively. In 2007, the political leadership was wooing China; 13 years later, the situation is vastly different. China has shown its hand (referring to the Galwan incident), now we are under no obligation to give priority to China's wishes over our own strategic requirements,” he told The Sunday Guardian.

According to official sources, Indian policy-deciders are aware that China will make a lot of noise as Malabar 2020 comes close, but termed it as “expected” and “normal”, signifying the change in the mood in the North Block as far as taking care of China's concerns was concerned.

China watchers, both inside India and outside, believe that inviting Australia to become a part of Malabar 2020 will be a “big” step.

B.R. Deepak, well-known expert on China and chairperson of the Institute of Chinese and South Asian Studies at JNU, told The Sunday Guardian that Australia should be made a part of Malabar 2020 in the capacity of a permanent member.

“Australia has participated in the exercises in 2007 as a non-permanent member unlike the US, Japan and India. However, the exclusion of Australia from the 2018 exercises owing to India's overcautious approach about China's sensitivities was uncalled for. India's decision to invite Australia for these exercises implies that India has freed herself from the delusion of China as a non-enemy, and the disbelief that if India is sensitive towards China's core interests, China will be sensitive towards India's. Therefore, if at all, it is a ‘big decision’; Australia should be there in the capacity of a permanent member. The list of non-permanent members must be expanded to countries like South Korea, Vietnam, Indonesia and Philippines. India should not be under any delusion that the Quad or India's close security cooperation with the US has not been incorporated into the Chinese strategic calculus; it has been for sure. Therefore, India must do whatever is required to safeguard and further her national interests,” he said.

Similarly, Dr Satoru Nagao, who is a Visiting Fellow at Hudson Institute and specializes in India's military strategy and Japan-US-India security cooperation, said that if India invites

Australia for Malabar 2020, which China sees as an exercise taken to contain China, it will send out a political message.

“In 2007, it was for the first time that Malabar exercises included all four countries (with Singapore). That time, China had reacted very strongly. As a result of China’s reaction, Quad countries—in view of China’s concern and to avoid provoking China—did many bilateral, trilateral exercises, but no Quad exercises. Quad, especially for India, has both benefits and risks. India faces a dilemma that differentiates its strategic concerns from those of the US, Japan and Australia: India is alone among the four countries that shares a land border with China. That puts India in a bind as it considers the prospect of military cooperation. Simply put, the more India cooperates with the US, Japan and Australia, the more it can improve its ability to counter China in the Indo-China border area. However, the more that the countries cooperate, the more it will have an undesirable effect on India: China will respond by deploying an increasingly greater number of forces to the Chinese side of the India-China border. However, despite India caring about China, China’s activities in the Indo-China border have escalated. Since 2011, the number of incursions have increased drastically—213 (2011), 426 (2012), 411 (2013), 460 (2014), 428 (2015), 296 (2016), 473 (2017), 404 (2018) and 663 (2019). This year, India lost 20 soldiers at Galwan. Therefore, India does not need to restrain Quad exercises to care about China. Inviting Australia to show the power of Quad is the right choice,” Nagao told The Sunday Guardian.

Commenting on whether the informal grouping of India, US, Japan and Australia, which is also called Quad, will assume more seriousness post Malabar 2020 on the lines of perhaps an Asian NATO, Deepak said that it would be too early to call it that, but the nations concerned must seriously deliberate into the nitty-gritty of it.

“India has to answer a simple question, which is: whether or not China has been pinning India to South Asia by its proxies or not? If China’s containment of India has assumed seriousness, then there should be no doubt about Quad or other alliances of India not assuming seriousness. The edifice of post 1988 India-China relationship was built on the premise that China will not pose a security threat to India, and that she will be sensitive towards India’s core interests. If that has not happened, why should India be performing an ostrich act? As far as Asian NATO, it is a little early, nevertheless, the nations concerned must deliberate into the nitty-gritty of it and conclude relevant agreements, besides the logistical support agreement. The invitation should not be a one-off measure to irritate China in the backdrop of the border tension, but should be a permanent feature of India’s strategic thinking that is long term and sustainable, so as our common interests in the free, open and prosperous India-Pacific region are advanced and protected. Obviously, if prosperity is one of the features, India needs to engage aggressively in the region economically, a single-minded security approach may not last long,” he added.

Dr Satoru Nagao, said that the Quad (once Australia becomes a part of it) will not just be a symbol, but will also have more practical value. “There is a possibility that the Quad will expand as Quad+; Southeast Asian countries like Vietnam, Indonesia, Philippines etc and other European countries like the UK and France, too, will join the grouping. Quad can be the core of an ‘Asian NATO’,” Nagao said.

“However, at the same time, Asia or the Indo-Pacific is wider than Europe. There is too much diversity in the Indo-Pacific. To form an ‘Asian NATO’ is a very big job. The most important key in this is the US commitment, because of its military, economic and technological power. As of now, the US is focusing on its competition with China and hence will not withdraw from this region any time soon. But if there is any sign of US withdrawal, it will be nightmare for the other countries. I believe that the US commitment will be more stable and assured if an ‘Asian NATO’ is established,” he added.

Commenting on how the Chinese were seeing Malabar 2020, Antara Ghosal Singh, who keeps a close eye on the developments in China’s strategic circles and is a Research Associate with the Delhi Policy Group, a think-tank, said, “After the Galwan incident, the Chinese strategic community somewhat expected a greater collaboration between India, US, Japan and Australia and the strengthening of the Indo-Pacific concept. The community members, while expressing concern

over these countries getting closer, have argued that a new 'axis' force is on the rise, referring to the developments during World War II, with the key objective 'of threatening regional peace and stability and containing China's rise'. Despite the growing closeness, the Chinese side feels, there are still major contradictions between the four nations which can be leveraged by China in the future."

<https://www.sundayguardianlive.com/news/oz-may-become-permanent-member-malabar-exercise>



Sun, 19 July 2020

Chinese weapons being supplied to terror groups in Myanmar to target Indian assets, warn security agencies

Indian security agencies have expressed concern over Chinese weapons being provided to the terror groups active in Myanmar. In a recent development, a huge cache of Chinese weapons was recovered near Myanmar-Thailand border, which was destined to Arakan Army (AA) so that Indian assets, including the Kaladan Multimodal Project, could be targeted

By Manish Shukla

New Delhi: Indian security agencies have expressed concern over Chinese weapons being provided to the terror groups active in Myanmar. In a recent development, a huge cache of Chinese weapons was recovered near Myanmar-Thailand border, which was destined to Arakan Army (AA) so that Indian assets, including the Kaladan Multimodal Project, could be targeted.

Myanmar and Thailand Police conducted a joint operation last month in June and seized a large consignment of Chinese weapons. Security agencies had arrested a total of 6 people in connection with this case. Those arrested revealed that the Chinese weapons were being transported to the Arakan Army operating in Rakhine state adjoining Bangladesh.



AK 47 assault rifles, anti-tank mines, grenades and machine guns were among the seized items from a house in Mae Sot District on the Thai side.

"They are not the weapons currently used by the Arakan Army. The weapons manufactured by the Wa (United Wa State Army) and the KIA (Kachin Independence Army) are not up to mark. They can't fire on automatic. The seized weapons are original and Chinese-made," The Irrawaddy reported citing a source.

Last year, Indian and Myanmar Armies had carried out a joint coordinated operation in their respective borders against Arakan Army and other rebel groups under the code name 'Operation Sunrise' to secure the Kaladan Project. The Arakan Army has set up several camps in areas across Mizoram's Lawngtlai district, posing a threat to the Kaladan Project. This project is being viewed as India's gateway to Southeast Asia.

In his interview given to Bangkok Post, the Deputy spokesman of Thailand Police Col Kissana Phattanacharoen, said, it is believed the seized weapons were intended to create havoc and the discovery comes amid intelligence reports about suspicious activities being planned by a certain group of people.

Pakistan's ISI is eyeing to recruit Rohingya jihadis for terror activities in Bangladesh and the eastern part of India. There is a strong link available between Let and terror group Aqamul Mujahideen, which is a breakaway group from the Harkat-ul-Jihad Islami Arakan (HUJI-A),

headed by Abdus Qadoos Burmi, a Pakistani national of Rohingya origin has called jihad in Myanmar. Abdus Qadoos Burmi has shared stages with LeT chief Hafiz Saeed.

Last year in the month of Nov, a huge cache of Chinese weapons was seized in Shan state by the Burmese Army including surface to air missiles.

Among the weapons seized were 39 M-22 assault rifles, 29 medium machine guns, 69 M-21 assault rifles, nine M-16 assault rifles, 21-RPG and one FN-6-man portable air defence system which is the shoulder-fired surface to air missile.

During the investigation, it was revealed that all the weapons were to be delivered to terror groups and were smuggled through China.

“There is a well-planned conspiracy to destabilized the Myanmar border adjoining to Bangladesh and India. Through the Kaladan Project, India will be able to reach its strong presence in Myanmar, which will help to counter Chinese presence. This could be a reason that Chinese weapons are transported to rebels groups like AA.” said an officer aware of these developments.

India entered into a framework agreement with Myanmar in April 2008, to facilitate the implementation of the project. On completion, the project will help connect Mizoram with the Sittwe Port in the Rakhine State of Myanmar. On the Indian side, work is on to extend the Aizawl-Saiha National Highway by 90 km to the international border at Zorinpui.

The Chinese made weapons are also available for the insurgent groups of North-Eastern states. As per Indian intelligence report, ULFA Chief Paresh Barua is currently residing in China and actively involved in supplying Chinese made weapons to various groups.

In 2004, ten truckloads of arms and ammunition smuggled from China were seized by the Bangladesh Army. In another incident in 2010 when northeast militant Anthony Shimray, who had returned from Nepal, was apprehended by Indian security agencies. During the interrogation, Shimray disclosed that he was tasked to send a large consignment of AK 47s, M16 rifles, machine guns, sniper rifles, and rocket launchers among other arms and ammunition from China to India.

These weapons were to be sent from China's Beihei through an agent from Bangkok to Bangladesh's Cax Bazaar. From there, the weapons were to be made available to militant groups of northeast.

As per some reports, Beijing had also been taking help from Pakistan's intelligence agency ISI against India. China and Pakistan had jointly set up an operational hub against India in Bangladesh capital city Dhaka with the aim of contacting militant groups of northeast states.

<https://zeenews.india.com/india/chinese-weapons-being-supplied-to-terror-groups-in-myanmar-to-target-indian-assets-warn-security-agencies-2296663.html>

THE TIMES OF INDIA

Mon, 20 July 2020

Pune: 37 Indian Navy officers pass out from INS Shivaji

Pune: As many as 48 officers, including 37 from the Indian Navy and the others from friendly foreign navies successfully completed 105 weeks of professional training at INS Shivaji at Lonavla.

The course completion ceremony of the 89th batch of the marine engineering specialisation course (MESC) was held on Saturday. The officers turned out in ceremonials while donning white masks. They also followed precautionary protocols of Covid-19 during the ceremony.

The parade was reviewed by Commodore Ravnish Seth, Commanding Officer, INS Shivaji. The 89th batch of MESC



consists of 37 Indian officers and 11 foreign officers from Sri Lanka, Myanmar, Tanzania, Sudan, Fiji and Bangladesh.

The commanding officer awarded trophies to the officers adjudged first in overall order of merit and best sportsman. The hammer for the best all round officer was awarded to Lt Bharat Kandpal, the best sportsman trophy was given to Lt Divyansh Singla. The best international officer was awarded to Lt Commander Md Mehedi Hasan of the Bangladesh Navy.

<https://timesofindia.indiatimes.com/city/pune/pune-37-indian-navy-officers-pass-out-from-ins-shivaji/articleshow/77047311.cms>



DEFENCE AVIATION POST
Your Connect To The World Of Defence And Aviation

Mon, 20 July 2020

HAL to test ELM-2052 AESA on LCA-Tejas, while deal hangs on for 83 Jets

Defense PSU Hindustan Aeronautic Limited (HAL) will be integrating an ELTA's ELM-2052 Airborne AESA Fire Control Radar (FCR) procured originally for the Jaguar Display Attack Ranging Inertial Navigation (DARIN III) upgrade program in its preparation for the manufacturing upgraded 83 Tejas Mk1A which company plans to test many of the features and equipment before first Tejas Mk1A jet is ready for first flight by 2023.

The ELM-2052 is an advanced Fire Control Radar (FCR) designed for air-to-air superiority and strike missions, based on fully solid-state Active Electronically Scanning Array (AESA) technology, enabling the radar to achieve

1. long detection ranges,
2. high mission reliability and
3. multi-target tracking capabilities.

The ELM-2052 radar provides simultaneous modes of operation supporting multi-mission capabilities for air-to-air, air-to-ground and air-to-sea operation modes, and weapon deployment.

EL/M-2052 Elta HAL radar is a GaN-based radar with 1500 TRMs. It can track 64 targets simultaneously. It has a range of 290 km in the Air to Sea Mode while in the Air to Air Mode, it is rumored to be between 150 to 200 km for a 1 sq.m RCS, not 3 sq.m

Another very authoritative source says that based on the TRM module count and power output a good initial ballpark estimate would suggest that EL/M 2052 radar might be comparable to APG-77 or APG-81 radars. This information is kept secretive but India and Israel might be planning to develop EL/M-2052 version that uses gallium nitride TRMs.

By analogy to the Saab GlobalEye AESA radar (which was produced in GaAs and GaN versions), a GaN version of the EL/M 2052 might have up to 70% greater range than the APG-77 or APG-81 based estimate.

<https://www.defenceaviationpost.com/2020/07/hal-to-test-elm-2052-aesa-on-lca-tejas-while-deal-hangs-on-for-83-jets/>



Mon, 20 July 2020

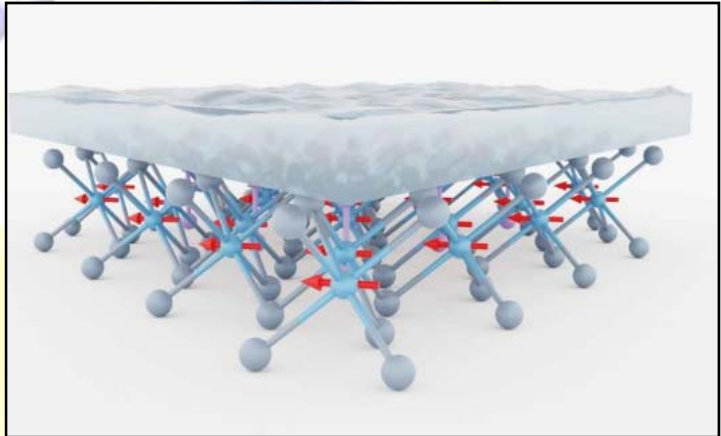
A strategy to modulate the magnetic anisotropy of ultra-thin ferromagnets

By Ingrid Fadelli

Electrical control of the magnetism of novel two-dimensional ferromagnetic semiconductors could enable the development of new types of spintronic devices—electronic devices that leverage the intrinsic magnetic properties of electrons to transmit, store and process information.

To be technologically viable, these devices should operate at or close to room temperature. However, most existing layered ferromagnetic semiconductors exhibit Curie temperatures below 100 K. Moreover, the interplay between magnetic order and electrical charges in these materials systems remains largely unexplored.

Researchers at the National University of Singapore, University College London (UCL) and University of Science and Technology in Beijing recently proposed a new method to modulate the magnetic anisotropy of chromium germanium telluride, $\text{Cr}_2\text{Ge}_2\text{Te}_6$, a layered ferromagnetic semiconductor. The findings presented in their paper, which was [published in *Nature Electronics*](#), could have important implications for the development of a wide range of hybrid electronic devices.



Ball-and-stick model of the crystal structure of $\text{Cr}_2\text{Ge}_2\text{Te}_6$ covered with the ion gel. The red arrows represent the magnetic moments of Cr atoms. Credit: Verzhbitskiy, et al.

"The idea of electrically controlling magnetism in a magnetic semiconductor, which is key to developing energy-efficient information processing and storage devices, has been around for decades," Associate Professor Goki Eda, who led the team that carried out the experiments, told TechXplore. "However, the effect of electric fields on magnetism in most materials is too weak to be useful for real applications."

Recently, studies showed that some layered semiconductors exhibit remarkable magnetism even when thinned down to nanoscopic thicknesses. Due to the ultrathin body of the thinned materials, their physical properties are highly susceptible to gate electrostatics. Thus, electrical control of their magnetic properties by gate electrostatics has become easier, and promising results were reported by several research groups.

Inspired by these recent findings, Prof. Eda and his colleagues started testing methods that could enable the electrical control of magnetism in ultra-thin crystals of $\text{Cr}_2\text{Ge}_2\text{Te}_6$. They soon realized that these materials' magnetism cannot be effectively tuned using the standard solid-gate oxides (i.e., dielectric layers typically used to modulate the electrical properties of semiconductor-based transistors).

The team decided to boost the electric field effect using an electric double-layer transistor geometry where gel-like electrolyte forms a layer of ions at the surface of the crystal, generating strong electric fields. This device geometry allowed them to achieve electron doping densities one

order of magnitude higher than those typically achieved using common solid oxides. The researchers showed that using the electric double-layer transistor geometry, the Curie temperature and magnetic anisotropy of $\text{Cr}_2\text{Ge}_2\text{Te}_6$ can be modulated via electrostatic gating.

"Due to this high electron density, the changes in the magnetic properties of the semiconductor became profound," Dr. Ivan Verzhbitskiy, a research fellow who carried out the experiments, explained. "The Curie temperature was enhanced by more than 140 degrees, from 61 K to 205 K. Such a pronounced electric field effect on Curie temperature has not been observed in other magnetic semiconductors. We were excited to observe such a dramatic increase in the Curie temperature of a magnetic semiconductor with electric fields, as it means that we can switch on and off the magnetism of a material, similar to the way in which a transistor switches electrical signals on and off."

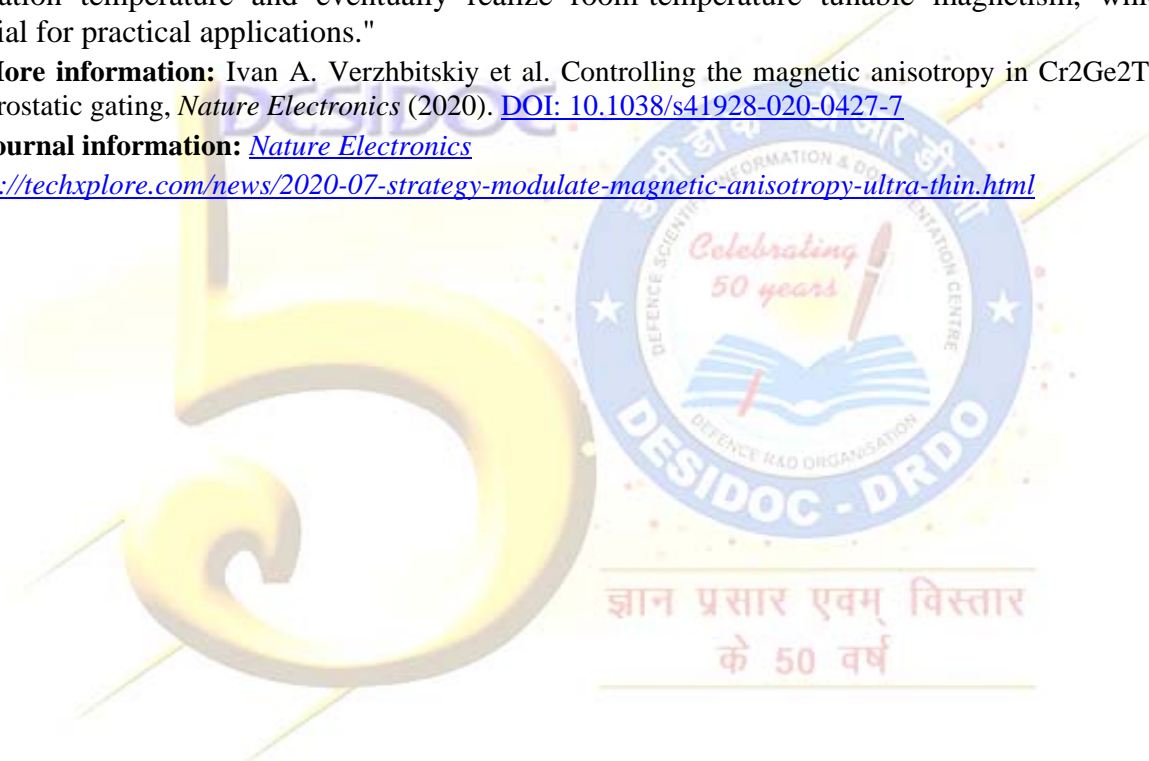
The findings could have important implications for the fabrication of hybrid devices capable of both storing and processing information. In the future, the same strategy could be applied to other layered semiconductors to investigate the modulation of magnetic properties further.

"We plan to investigate the mechanisms behind the observed phenomenon in greater detail," Prof. Eda said. "With a better understanding of the phenomenon, we should be able to improve the operation temperature and eventually realize room-temperature tunable magnetism, which is crucial for practical applications."

More information: Ivan A. Verzhbitskiy et al. Controlling the magnetic anisotropy in $\text{Cr}_2\text{Ge}_2\text{Te}_6$ by electrostatic gating, *Nature Electronics* (2020). DOI: [10.1038/s41928-020-0427-7](https://doi.org/10.1038/s41928-020-0427-7)

Journal information: [Nature Electronics](https://www.nature.com/electronics)

<https://techxplore.com/news/2020-07-strategy-modulate-magnetic-anisotropy-ultra-thin.html>





Mon, 20 July 2020

AIIMS panel allows human trial of India's first coronavirus vaccine

AIIMS-Delhi is among the 12 sites selected by the Indian Council for Medical Research (ICMR) for conducting phase I and II human trials of Covaxin

New Delhi: The AIIMS Ethics Committee on Saturday gave its nod for a human clinical trial of the indigenously developed COVID-19 vaccine candidate Covaxin following which the premier hospital is likely to begin the exercise by enrolling healthy volunteers from Monday.

AIIMS-Delhi is among the 12 sites selected by the Indian Council for Medical Research (ICMR) for conducting phase I and II human trials of Covaxin. In phase I, the vaccine would be tested on 375 volunteers and a maximum of 100 of them would be from AIIMS.

"The AIIMS Ethics Committee gave its approval for starting the human clinical trial of the indigenously developed Covaxin today. Healthy volunteers having no comorbid conditions and without a history of COVID-19, aged more than 18 years and less than 55 years, would be eligible to participate in the randomised, double-blind, placebo-controlled clinical trial," Dr Sanjay Rai, Professor at the Centre for Community Medicine at AIIMS said.

"Few volunteers have already registered for the trial. We would start the screening of the individuals and evaluate their health condition from Monday onwards before vaccinating them," Rai, who is also the principal investigator of the study, said.

Anybody willing to participate in the trial can send an email to Ctaiims.covid19@gmail.com or an SMS to or call on 7428847499, he said. The institute may also put up these contact details on its website.

According to Rai, the Ethics Committee had raised few concerns in the protocol submitted for carrying out of the trial.

"Those concerns were addressed to the following which the EC gave its approval to begin the trial by the premier institute," he said.

COVID-19 vaccine candidate Covaxin, developed by the Hyderabad-based Bharat Biotech in collaboration with the ICMR and the National Institute of Virology (NIV), had recently got the nod for human clinical trials from the Drugs Controller General of India (DCGI).

Noting that this was the first indigenous vaccine being developed by India, ICMR Director-General Dr Balram Bhargava in a letter to principal investigators of the 12 sites recently had asked them to fast-track the human clinical trial approvals stating it is one of the "top priority projects which is being monitored at the top-most level of the government".

The trials have so far started in AIIMS, Patna, and some more sites.

The DCGI has permitted two vaccines -- one developed by the Bharat Biotech International Limited in collaboration with the ICMR and another one by Zydus Cadila Healthcare Ltd to go in for phase I and II human clinical trials.



COVID-19 vaccine candidate Covaxin had recently got the nod for human clinical trials from DCGI.

Dr Balram Bhargava had said these two vaccine candidates have undergone successful toxicity studies in rats, mice, and rabbits, and these data was submitted to DCGI following which both got clearance to start the early phase human trials early this month.

They have got their sites ready and approximately 1,000 human volunteers would be participating in the exercise for each of the two indigenously developed vaccine candidates, he had said.

Since India is one of the largest vaccine producers in the world, it is the country's "moral responsibility" to fast-track the vaccine development process to break the chain of coronavirus transmission, he had said.

<https://www.ndtv.com/india-news/aiims-panel-gives-nod-to-human-clinical-trial-of-anti-coronavirus-drug-covaxin-2265180>

 **The Indian EXPRESS**

Mon, 20 July 2020

Seven Indian pharma players race to develop COVID-19 vaccine

Bharat Biotech, Serum Institute, Zydus Cadila, Panacea Biotec, Indian Immunologicals, Mynvax and Biological E are among the domestic pharma firms working on the coronavirus vaccines in India

New Delhi: At least seven Indian pharma companies are working to develop a vaccine against coronavirus as they join global efforts to find a preventive to check the spread of the deadly virus that has already infected more than 14 million globally.

Bharat Biotech, Serum Institute, Zydus Cadila, Panacea Biotec, Indian Immunologicals, Mynvax and Biological E are among the domestic pharma firms working on the coronavirus vaccines in India.

Vaccines normally require years of testing and additional time to produce at scale, but scientists are hoping to develop a coronavirus vaccine within months because of the pandemic.

Bharat Biotech has received approval to conduct phase I and II clinical trial for its vaccine candidate Covaxin, that has been developed and manufactured in the company's facility in Hyderabad. It last week started human clinical trials.

Leading vaccine major Serum Institute of India has said that it is hoping to develop a COVID-19 vaccine by the year-end.

"At present, we are working on the AstraZeneca Oxford vaccine which is undergoing phase III clinical trials. In addition to this, we will also start human trials in India in August 2020. Based on the current situation and most recent updates on the clinical trials, we are hoping that the AstraZeneca Oxford vaccine will be available towards the end of this year," Serum Institute of India CEO Adar Poonawalla told PTI.

The company is also developing a live attenuated vaccine with US-based biotech firm Codagenix, which is undergoing pre-clinical trials, he added.

"Apart from AstraZeneca Oxford vaccine and Codagenix, we have associated with multiple institutions worldwide as manufacturing partners for vaccine candidates that are being developed. These include Austria's Themis along with two others," Poonawalla said.



These vaccines will be for India and middle and low income countries across the world (GAVI countries), he added. (File)

On the partnership with AstraZeneca, Poonawalla said: “Serum Institute of India has entered a manufacturing partnership with AstraZeneca to produce and supply 1 billion doses of the COVID-19 vaccine being developed by Oxford University.”

These vaccines will be for India and middle and low income countries across the world (GAVI countries), he added.

Pharma major Zydus Cadila has said that it is looking to complete clinical trials of its COVID-19 vaccine candidate ZyCoV-D in seven months.

The company had last week started clinical trials of its COVID-19 vaccine candidate with the first human dosing.

Depending on the study outcomes and if the data is encouraging and the vaccine is found to be effective during the trials, it could take a total of seven months for the trials to be completed and for the vaccine to be launched, Zydus Cadila Chairman Pankaj R Patel said in a statement.

Hyderabad-based Bharat Biotech last week started human trials of its vaccine Covaxin at Rohtak’s Post-Graduate Institute of Medical Sciences.

The phase I and II clinical trials of the vaccine for SARS-CoV-2 by Bharat Biotech have been approved by the Indian drug regulator after pre-clinical studies demonstrated safety and immune response.

The company has developed the vaccine in collaboration with the Indian Council of Medical Research (ICMR) and the National Institute of Virology (NIV).

Panacea Biotech in June said that it was setting up a joint venture firm in Ireland with US-based Refana Inc to develop a vaccine for COVID-19.

The company in partnership with Refana aims to manufacture over 500 million doses of COVID-19 candidate vaccine, with over 40 million doses expected to be available for delivery early next year, Panacea Biotech had said.

Indian Immunologicals, a subsidiary of National Dairy Development Board (NDDB), has inked an agreement with Australia’s Griffith University to develop a vaccine for coronavirus.

Others like Mynvax and Biological E are also working to develop vaccines for COVID-19.

Vaccines typically provide the immune system with harmless copies of an antigen: a portion of the surface of a bacterium or virus that the immune system recognises as foreign. A vaccine may also provide a non-active version of a toxin a poison produced by a bacterium so that the body can devise a defence against it. They must follow higher safety standards than other drugs because they are given to millions of healthy people.

Vaccine testing is a four-stage process — pre-clinical testing on animals, phase I clinical testing on a small group of people to determine its safety and to learn more about the immune response it provokes, phase II trials are expanded safety trials, and phase III testing is done by administering it to thousands of people to confirm its efficacy.

Globally, the World Health Organisation (WHO) is tracking around 140 candidates vaccines, of which around two dozen are in various phases of human clinical trials.

Chinese company Sinovac Biotech is moving into phase III trials in Brazil while University of Oxford/AstraZeneca is in a combine phase II/III trial in the UK and has recently gone into phase III trials in South Africa and Brazil.

US-based Moderna expects to start phase III trials of its vaccine candidate this month.

Among other leading players, German firm BioNTech is collaborating with pharma major Pfizer to develop a vaccine for COVID-19.

The companies have received fast track designation from the US Food and Drug Administration (USFDA) for two investigational vaccine candidates being developed to help protect against SARS-CoV-2.

<https://indianexpress.com/article/india/seven-indian-pharma-players-race-to-develop-covid-19-vaccine-6513425/>

India begins study on BCG vaccine impact on Covid-19

The study will involve around 1,000 healthy volunteers above 60 years of age in six states that have reported a high Covid-19 disease burden so far

By Rhythma Kaul

New Delhi: The Indian Council of Medical Research-National Institute for Research in Tuberculosis (ICMR-NIRT) has initiated a multi-centric study to see if tuberculosis vaccine, Bacille Calmette Guerin (BCG), can reduce the severity of Covid-19 among people aged 60 and above residing in hot spots for SARS-CoV-2, the virus that causes the disease, said the Union health ministry release issued on Saturday.

The study will involve around 1,000 healthy volunteers above 60 years of age in six states that have reported a high Covid-19 disease burden so far. "A lot is being talked about the protective effect of BCG vaccine in terms of Covid-19. This study was in the pipeline for some time and now we have begun the process. It is being done to generate India-specific evidence," said an ICMR official, who did not wish to be identified.

The inexpensive and widely used BCG vaccine, which protects against childhood tuberculosis, could also prevent severe infection and deaths in some Covid-19 patients, concluded two peer-reviewed studies released recently. One of the studies was led by researchers from New Delhi's Jawaharlal Nehru University (JNU). The second study conducted in the US was published in the Proceedings of the National Academy of Sciences. It also linked BCG vaccination with reduced Covid-19 deaths.

Tamil Nadu, Maharashtra, Gujarat, Madhya Pradesh, Rajasthan, and Delhi are the states where the ICMR-NIRT study has been planned, and where the trial subjects will be picked from. The study will be done in collaboration with the Greater Chennai Corporation and the public health department in Tamil Nadu.

The study will focus on whether the BCG vaccine can prevent the occurrence of SARS-CoV-2 infection and its progression and deaths associated with Covid-19 in the elderly population. The BCG vaccine administered to newborns as a part of the national immunisation programme for over 50 years in the country will be used for the study.

Preset criteria will decide the eligibility of a volunteer to participate in the study and the approximately 1,000 participants enrolled for it will be followed closely for six months post-vaccination.

"Those who got BCG vaccination, not just in India but in other countries, are more protected than those who were not [vaccinated], shows this analysis of data for countries with over 1,000 reported cases. We think BCG-mediated immune response would help in lowering both incidence and severity of infection," said Gobardhan Das, the author of the JNU study. Das is the chairperson of JNU's Centre for Molecular Medicine.

Around 100 million children around the world get the BCG vaccine annually. In India, BCG vaccination of children began in 1949. The vaccine protects against disseminated tuberculosis and meningitis in childhood. But it does not offer protection from adult pulmonary tuberculosis, which has led to several countries discontinuing its use.

<https://www.hindustantimes.com/india-news/india-begins-study-on-bcg-vaccine-impact-on-covid-19/story-UG70g0qxgu6dp7XWiEVbiN.html>

Russia to make coronavirus vaccine available to public next month: Report

- *Vaccine will start phase 3 trials in thousands of people on 3 August in Russia as well as in Saudi Arabia and the United Arab Emirates, Dmitriev said*
- *President Vladimir Putin has made finding a vaccine a top priority*

Amid reports of world's first Covid-19 vaccine from Russia pouring in since the last few days, Russian health minister said they will make a coronavirus vaccine candidate it is working on available to general public before it clears the third and last phase of clinical trials, according to a new report.

"The government's decree implies this. It will be imperative that additional clinical research of an approved vaccine be conducted simultaneously," Murashko told reporters during a working trip to the central Russian city of Yekaterinburg, according to Sputnik News report.



The first potential coronavirus disease (COVID-19) vaccine (REUTERS)

According to a Bloomberg report, Kirill Dmitriev, the chief executive of the government-backed Russian Direct Investment Fund (RDIF), said researchers in Russia are testing two different types of adenovirus vectors in order to reduce the chances of pre-existing immunity reducing the vaccine's effectiveness. That vaccine will start phase 3 trials in thousands of people on Aug. 3 in Russia as well as in Saudi Arabia and the United Arab Emirates, Dmitriev said. Russia could make 30 million doses domestically in 2020, and 170 million abroad, with five countries expressing interest in producing the vaccine and others willing to produce it, he said.

Earlier, Russia's Sechenov University announced that it had successfully completed clinical trials of a coronavirus vaccine, developed by Russia's Defense Ministry's Gamalei Institute of Epidemiology and Microbiology. Alexander Lukashov, the director of Sechenov's Institute of Medical Parasitology, Tropical and Vector-Borne Diseases, told Sputnik that the trials had established the vaccine's safety on human health. It has recently cleared the first stage of trials in a small group of volunteers. Murashko described the outcome as "positive."

Moreover, the research institute head also said that the Covid-19 vaccine is "patented and more advanced than Western competitors and will be happy to share the technology with foreign colleagues, should they require," as per reports.

The statement came after UK, US and Canadian governments accused Russian state intelligence of hacking international research centers that are racing to develop a Covid-19 vaccine.

In a dramatic statement on Thursday, Britain's National Cyber Security Centre (NCSC) said vaccine and therapeutic sectors in multiple countries have been targeted by a group known as APT29, which it said is "almost certainly" part of Russian state intelligence. Security agencies in the U.S. and Canada later issued their own statements backing up the findings, reported Bloomberg.

However, the Kremlin has refuted the allegation.

"Our technology is patented, unique and with parameters which, I feel confident to claim, exceed the capabilities of analogous products being developed in the West," Gintsburg said, adding that "most probably, if there is any borrowing, it will be our immunization scheme to be borrowed, and we will be happy to share our hacks with the colleagues, should they need."

Earlier, the Russian Defence Ministry clarified that tests of the vaccine against coronavirus are being conducted in full compliance with methodological regulations, with no attempts to reduce the duration of the research.

"The Russian Defence Ministry tests the vaccine on volunteers in full compliance with the acting legislation and scientific methodological regulations, in order to prevent further risks, without any attempt to reduce the duration of the research", the ministry said in a statement, as reported by Sputnik.

President Vladimir Putin has made finding a vaccine a top priority. Russia has recorded more than 750,000 Covid-19 cases, making it the fourth most-affected country in the world. In Russia's race to be the first to find a vaccine against Covid-19, it's taking an approach that would be shunned in other countries, claiming it will know in just three months of trials whether its leading candidate works.

<https://www.livemint.com/news/india/russia-to-make-coronavirus-vaccine-available-to-public-next-month-report-11595155208146.html>

THE TIMES OF INDIA

Mon, 20 July 2020

Coronavirus is not transmitted by mosquitoes, study shows

Washington: Scientists have confirmed for the first time that the novel coronavirus behind the Covid-19 pandemic cannot be transmitted to people by mosquitoes, a finding that adds evidence to WHO's claim that the disease is not mosquito-borne.

The research, published in the journal Scientific Reports, provided the first experimental evidence on the capacity of SARS-CoV-2, the virus that causes Covid-19 disease, to infect and be transmitted by mosquitoes.

"Here we provide the first experimental data to investigate the capacity of SARS-CoV-2 to infect and be transmitted by mosquitoes," the study noted.

"While the World Health Organization (WHO) has definitively stated that mosquitoes cannot transmit the virus, our study is the first to provide conclusive data supporting the theory," said Stephen Higgs, a co-author of the research from Kansas State University in the US.

According to the study, conducted at the university's Biosecurity Research Institute, the virus is unable to replicate in three common and widely distributed species of mosquitoes -- *Aedes aegypti*, *Aedes albopictus* and *Culex quinquefasciatus*, and hence cannot be transmitted to humans.

Samples collected by the scientists within two hours of inoculation in mosquitoes confirmed efficient delivery of infectious viruses to these insects.

However, based on the lack of detectable infectious virus in any of the 277 samples collected at all time points beyond 24 hours post-inoculation, the scientists said SARS-CoV-2 cannot replicate in mosquitoes.

"Even if a mosquito fed on a person with virus in the blood, the mosquito would not be a vector if feeding on a naive host," they concluded.

"We demonstrate that even under extreme conditions, SARS-CoV-2 virus is unable to replicate in these mosquitoes and therefore cannot be transmitted to people even in the unlikely event that a mosquito fed upon a viremic host," the scientists wrote in the study.

<https://timesofindia.indiatimes.com/home/science/coronavirus-is-not-transmitted-by-mosquitoes-study-shows/articleshow/77049419.cms>

Oxford University's team 'absolutely on track', coronavirus vaccine likely to be available by September

Oxford University's coronavirus vaccine trial team is 'absolutely on track' and the vaccine could be available as early as September, David Carpenter, Chairman of the Berkshire Research Ethics Committee, which approved the Oxford trial has said

New Delhi: Oxford University's coronavirus vaccine trial team is 'absolutely on track' and the vaccine could be available as early as September, David Carpenter, Chairman of the Berkshire Research Ethics Committee, which approved the Oxford trial has said. This comes as a big breakthrough in the fight against coronavirus. 'The Lancet' medical journal has confirmed that it would be publishing early-stage human trial data from the Oxford team on Monday.

"Nobody can put final dates... things might go wrong but the reality is that by working with a big pharma company, that vaccine could be fairly widely available around September and that is the sort of target they are working on," David Carpenter said.

The vaccine development, by the university's Jenner Institute, is being supported by the UK government and AstraZeneca, which will support the production phase. Oxford's potential Coronavirus Vaccine has been licensed to AstraZeneca.



A staff member tests samples of a potential COVID-19 vaccine at a production plant.

Oxford's extremely promising breakthrough on coronavirus vaccine

Researchers at the University of Oxford believe they may have a breakthrough in their search for a COVID-19 vaccine after the team discovered that the jab could provide "double protection" against the deadly coronavirus following early-stage human trials, according to media reports in the UK.

Blood samples taken from a group of UK volunteers given a dose of the vaccine showed that it stimulated the body to produce both antibodies and "killer T-cells", a senior source from the trial was quoted by 'The Daily Telegraph' as saying.

The discovery is promising because separate studies have suggested that antibodies may fade away within months while T-cells can stay in circulation for years.

However, the source cautioned that the results, while "extremely promising", did not yet prove that the Oxford vaccine provides long-lasting immunity against the deadly virus.

"I can tell you that we now know the Oxford vaccine covers both bases – it produces both a T cell and an antibody response. It's the combination of these two that will hopefully keep people safe. So far, so good. It's an important moment. But we still have a long way to go," the source said.

Another source close to the team described the presence of both antibodies and T-cells as a "double defence" against COVID-19.

Phase 3 trial of vaccine begins

The pharmaceutical company said last month that phase one trials were due to finish and a phase three trial had begun which will see the vaccine given to thousands of people so it can be tested for efficacy and safety.

"The COVID-19 vaccine trial team have been working hard on assessing the safety and immunogenicity of ChAdOx1 nCoV-19, and preparing to assess vaccine efficacy," Sarah Gilbert,

professor of vaccinology at the university's Jenner Institute who is leading the research, had said back in May.

What Oxford University's COVID-19 vaccine is based on

The vaccine, named ChAdOx1 nCoV-19, is based on a weakened version of the common cold that causes infections in chimpanzees. It also contains the genetic material of the spike protein of SARS-CoV-2 – the strain of coronavirus that causes the COVID-19 illness.

The Oxford University vaccine is one of more than 100 in development as the novel coronavirus continues to spread – infecting more than 13 million people and killing at least 582,000 worldwide.

(With inputs from PTI)

<https://www.indiatvnews.com/news/good-news/coronavirus-vaccine-by-september-oxford-university-trial-on-track-astrazeneca-634907>

ScienceDaily®

Sat, 18 July 2020

Enhanced water repellent surfaces discovered in nature

Researchers have theorized a coating that mimics the unique nanostructure could improve virus repellent face masks

Summary:

Through the investigation of insect surfaces, researchers have detailed a previously unidentified nanostructure that can be used to engineer stronger, more resilient water repellent coatings.

Through the investigation of insect surfaces, Penn State researchers have detailed a previously unidentified nanostructure that can be used to engineer stronger, more resilient water repellent coatings.

The results of this research were published today (July 17) in *Science Advances*.

With an enhanced ability to repel droplets, this design could be applied to personal protective equipment (PPE) to better resist virus-laden particles, such as COVID-19, among other applications.

"For the past few decades, conventionally designed water repellent surfaces have usually been based on plants, like lotus leaves," said Lin Wang, a doctoral student in the Department of Materials Science and Engineering at Penn State and the lead author of the paper.

Classical engineering theories have used this approach to create superhydrophobic, or water repellent, surfaces. Traditionally, they are manufactured with low solid fraction textures, which maintain an extremely thin layer of air above a low density of microscopic, hair-like nanostructures, which the researchers liken to an air hockey table.

"The reasoning is if the droplet or object is floating on top of that air, it won't become stuck to the surface," said Tak-Sing Wong, the Wormley Early Career Professor of Engineering, associate professor of mechanical and biomedical engineering and Wang's adviser.

Since it works effectively, human-made coatings tend to mimic the low density of these nanostructures.

However, this paper details an entirely different approach. When examining surfaces like the eye of a mosquito, body of a springtail or the wing of a cicada under high resolution electron microscopes, Wang found that the nanoscopic hairs on those surfaces are more densely packed, referred to in engineering as high solid fraction textures. Upon further exploration, this significant departure from plants' structure may imbue additional water repelling benefits.

"Imagine if you had a high density of these nanostructures on a surface," Wang said. "It could be possible to maintain the stability of the air layer from higher impact forces."

This could also mean the more densely packed structures may be able to repel liquid that is moving at a higher speed, such as raindrops.

While the design concept is new to humans, the researchers theorize this nanostructure boosts the insect's resiliency in its natural environment.

"For these insect surfaces, repelling water droplets is a matter of life and death. The impact force of raindrops is enough to carry them to the ground and kill them," Wang said. "So, it is really important for them to stay dry, and we figured out how."

With this knowledge gleaned from nature, the researchers hope to apply this design principle to create next generation coatings. By developing a water repellent surface that can withstand faster moving and higher impact droplets, the applications are abundant.

From small, flying robotic vehicles, such as the drones that Amazon hopes to deliver packages with, to commercial airliners, a coating that can emulate these insect surfaces could provide increased efficiency and safety.

However, in light of the COVID-19 pandemic, researchers have since realized this knowledge could have an additional impact on human health.

"We hope, when developed, this coating could be used for PPE. For example, if someone sneezes around a face shield, those are high velocity droplets. With a traditional coating, those particles could stick to the surface of the PPE," Wong said. "However, if the design principles detailed in this paper were adopted successfully, it would have the ability to repel those droplets much better and potentially keep the surface germ-free."

As seen in this work, the Wong Laboratory for Nature Inspired Engineering draws insights from biological phenomena to make humanity's innovations better and more effective.

"While we didn't imagine that application at the beginning of this project, COVID-19 made us think about how we can use this design principle to benefit more people," Wong said. "It's up to us as engineers to take these discoveries and apply them in a meaningful way."

The next step for this work will be developing a large scale, cost effective method that can manufacture a coating to mimic these properties.

"In the past, we didn't have an effective surface that could repel high speed water droplets," Wong said. "But the insects told us how. There are so many examples like this in nature; we just need to be learning from them."

This research was funded by the National Science Foundation, the PPG Foundation, the Wormley Family Early Career Professorship, the Humanitarian Materials Initiative Award sponsored by Covestro and the Materials Research Institute at Penn State. Additional contributors include Ruoxi Wang, an undergraduate alumna, and Jing Wang, a doctoral graduate, both in the Department of Mechanical Engineering.

Story Source:

[Materials](#) provided by [Penn State](#). *Note: Content may be edited for style and length.*

Journal Reference:

1. Lin Wang, Ruoxi Wang, Jing Wang, and Tak-Sing Wong. **Compact nanoscale textures reduce contact time of bouncing droplets.** *Science Advances*, 2020 DOI: [10.1126/sciadv.abb2307](https://doi.org/10.1126/sciadv.abb2307)
<https://www.sciencedaily.com/releases/2020/07/200717140740.htm>

Breakthrough blood test detects positive COVID-19 result in 20 minutes

Summary:

Researchers report a new method that detects positive COVID-19 cases using blood samples in about 20 minutes, and identifies whether someone has contracted the virus.

New research by Monash University in Australia has been able to detect positive COVID-19 cases using blood samples in about 20 minutes, and identify whether someone has contracted the virus.

In a discovery that could advance the worldwide effort to limit the community spread of COVID-19 through robust contact tracing, researchers were able to identify recent COVID-19 cases using 25 microlitres of plasma from blood samples.

The research team, led by BioPRIA and Monash University's Chemical Engineering Department, including researchers from the ARC Centre of Excellence in Convergent BioNano Science and Technology (CBNS), developed a simple agglutination assay -- an analysis to determine the presence and amount of a substance in blood -- to detect the presence of antibodies raised in response to the SARS-CoV-2 infection.

Positive COVID-19 cases caused an agglutination or a clustering of red blood cells, which was easily identifiable to the naked eye. Researchers were able to retrieve positive or negative readings in about 20 minutes.

While the current swab / PCR tests are used to identify people who are currently positive with COVID-19, the agglutination assay can determine whether someone had been recently infected once the infection is resolved -- and could potentially be used to detect antibodies raised in response to vaccination to aid clinical trials.

Using a simple lab setup, this discovery could see medical practitioners across the world testing up to 200 blood samples an hour. At some hospitals with high-grade diagnostic machines, more than 700 blood samples could be tested hourly -- about 16,800 each day.

Study findings could help high-risk countries with population screening, case identification, contact tracing, confirming vaccine efficacy during clinical trials, and vaccine distribution.

This world-first research was published July 18, 2020, in the journal *ACS Sensors*.

A patent for the innovation has been filed and researchers are seeking commercial and government support to upscale production.

Dr Simon Corrie, Professor Gil Garnier and Professor Mark Banaszak Holl (BioPRIA and Chemical Engineering, Monash University), and Associate Professor Timothy Scott (BioPRIA, Chemical Engineering and Materials Science and Engineering, Monash University) led the study, with initial funding provided by the Chemical Engineering Department and the Monash Centre to Impact Anti-microbial Resistance.

Dr Corrie, Senior Lecturer in Chemical Engineering at Monash University and Chief Investigator in the CBNS, said the findings were exciting for governments and health care teams across the world in the race to stop the spread of COVID-19. He said this practice has the potential to become upscaled immediately for serological testing.

"Detection of antibodies in patient plasma or serum involves pipetting a mixture of reagent red blood cells (RRBCs) and antibody-containing serum/plasma onto a gel card containing separation media, incubating the card for 5-15 minutes, and using a centrifuge to separate agglutinated cells from free cells," Dr Corrie said.

"This simple assay, based on commonly used blood typing infrastructure and already manufactured at scale, can be rolled out rapidly across Australia and beyond. This test can be used in any lab that has blood typing infrastructure, which is extremely common across the world."

Researchers collaborated with clinicians at Monash Health to collect blood samples from people recently infected with COVID-19, as well as samples from healthy individuals sourced before the pandemic emerged.

Tests on 10 clinical blood samples involved incubating patient plasma or serum with red blood cells previously coated with short peptides representing pieces of the SARS-CoV-2 virus.

If the patient sample contained antibodies against SARS-CoV-2, these antibodies would bind to peptides and result in aggregation of the red blood cells. Researchers then used gel cards to separate aggregated cells from free cells, in order to see a line of aggregated cells indicating a positive response. In negative samples, no aggregates in the gel cards were observed.

"We found that by producing bioconjugates of anti-D-IgG and peptides from SARS-CoV-2 spike protein, and immobilising these to RRBCs, selective agglutination in gel cards was observed in the plasma collected from patients recently infected with SARS-CoV-2 in comparison to healthy plasma and negative controls," Professor Gil Garnier, Director of BioPRIA, said.

"Importantly, negative control reactions involving either SARS-CoV-2-negative samples, or RRBCs and SARS-CoV-2-positive samples without bioconjugates, all revealed no agglutination behaviour."

Professor Banaszak Holl, Head of Chemical Engineering at Monash University, commended the work of talented PhD students in BioPRIA and Chemical Engineering who paused their projects to help deliver this game changing COVID-19 test.

"This simple, rapid, and easily scalable approach has immediate application in SARS-CoV-2 serological testing, and is a useful platform for assay development beyond the COVID-19 pandemic. We are indebted to the work of our PhD students in bringing this to life," Professor Banaszak Holl said.

"Funding is required in order to perform full clinical evaluation across many samples and sites. With commercial support, we can begin to manufacture and roll out this assay to the communities that need it. This can take as little as six months depending on the support we receive."

COVID-19 has caused a worldwide viral pandemic, contributing to nearly 600,000 deaths and more than 13.9 million cases reported internationally (figures dated 17 July 2020).

Story Source:

[Materials](#) provided by [Monash University](#). *Note: Content may be edited for style and length.*

Journal Reference:

1. Diana Alves, Rodrigo Curvello, Edward Henderson, Vidhishri Kesarwani, Julia A. Walker, Samuel C. Leguizamon, Heather McLiesh, Vikram Singh Raghuvanshi, Hajar Samadian, Erica M. Wood, Zoe K. McQuilten, Maryza Graham, Megan Wieringa, Tony M. Korman, Timothy F. Scott, Mark M. Banaszak Holl, Gil Garnier, Simon R. Corrie. **Rapid Gel Card Agglutination Assays for Serological Analysis Following SARS-CoV-2 Infection in Humans.** *ACS Sensors*, 2020; DOI: [10.1021/acssensors.0c01050](https://doi.org/10.1021/acssensors.0c01050)
<https://www.sciencedaily.com/releases/2020/07/200717101037.htm>

