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COVID-19: DRDO's Contribution

The Sentinel
of this land, for its people

Thu, 09 July 2020

1,000-bed COVID-19 hospital in Delhi to serve as tribute to Galwan Valley martyrs

The 1,000-bed hospital was set up in a record time of 12 days by the DRDO, the Union health and home ministries, the Delhi Government, among others

Guwahati: India's Government has chosen to pay tribute to the 20 martyred jawans by dedicating the 1,000 bed Sardar Vallabhbhai Patel COVID Hospital, which became operational today, to their memory.

In this COVID-19 hospital dedicated to the memory of the martyrs, the Defence Research and Development Organisation (DRDO) will name the different wards after troops who lost their lives in the recent clashes in the icy terrains of the Galwan Valley.

This unique facility will have 1,000 beds with 250 Intensive Care Units (ICU), which will be operated exclusively by the personnel of the Armed Forces Medical Services.

The state-of-the-art hospital was set up in a record time of 12 days by the DRDO, the Union health and home ministries, the Delhi Government, as well as other industry players (such as TATA Sons).

The ICU and Ventilator Ward in the hospital has been named as Col B Santosh Babu Ward, after the leader of the Bihar Regiment column which was killed in a clash with Chinese soldiers in the contested area in Ladakh.

Defence sources said that this is as much about fighting the Covid-19 pandemic on a war footing, as it is about honoring the fallenGalwan Warriors. The development of this facility has been termed as "a very noble initiative by the Government", by the defence PRO.

In late May, Chinese forces objected to Indian road construction in the Galwan River valley, which led to a rise in tensions between the two nations. According to Indian sources, melee fighting on 15-16 June resulted in the deaths of 20 Indian soldiers (including an officer) who had gone to check whether the Chinese had deserted an area as promised earlier. According to reports, 43 Chinese soldiers (including an officer) were also killed in the skirmish. Several news outlets stated that 10 Indian soldiers, including 4 officers, were taken captive and then released by the Chinese days after the clash, on June 18.

https://www.sentinelassam.com/national-news/govt-forms-inter-ministerial-committee-to-probe-legal-violations-by-rajiv-gandhi-foundation-487524?infinitescroll=1

The Tribune

Thu, 09 July 2020

Nano-coated filter made by IIT-M for Covid warriors

Use of filter in face masks can enhance particle filtration efficiency

A nano-coated filter for healthcare workers treating COVID-19 patients has been developed by researchers at IIT-Madras. The filter's coating properties are optimised for efficient removal of sub-micron sized dust particles in the air, a press release said.

The nano-coating can be positioned according to the need to enhance surface/depth filtration for healthcare workers or public responders, professor K Arul Prakash of the Department of Applied Mechanics, IIT-Madras, said. "The novel filter with multiple nano-coating can filter particles of the order of one micron size, which is a remarkable achievement," he was quoted as saying in the release.

The use of the filter in face masks can enhance particle filtration efficiency. The filter can be used in respirator devices, air purification system in operation theatres, cabin air filters for the comfort and health of air passengers and air filters for armoured vehicle engines. The work of developing the filter has been funded by the Defence Research Development Organisation (DRDO) and the nano-coated filter is in the process of being field tested in practical applications.

Upon validation through field trials, the filter would be recommended for mass manufacture through industry collaborations, the release added. PTI

https://www.tribuneindia.com/news/schools/nano-coated-filter-made-by-iit-m-for-covid-warriors-110160

THE TIMES OF INDIA

Wed, 08 July 2020

IIT-Madras develops tech for more efficient face masks

Chennai: A team of researchers from IIT-Madras have developed a nano-coated filter media to make face mask for healthcare workers treating Covid-19 patients, as it found to effectively filter particles as small as 0.25microns. The project funded by DRDO also has a defence application, where it can be used as a filter for armoured vehicle engines.

The researchers said the nano-coated filter has been fabricated with a nylon-based polymer coating on a cellulose paper through electrospinning fibre production method. Some of the applications for the filter according to the researchers include face mask, respiratory devices, air purification systems in operation theatres, cabin air filter in aircraft, air filters for armoured vehicle engines and computer hard disk drive filters.

Professor K Arul Prakash, department of applied mechanics, IIT Madras, said the nano-coating fabricated through the electrospinning process has fibre diameter less than 1micron and can be positioned according to the need to enhance surface/depth filtration for healthcare workers or public responders.

"Nano-coated filter media have much better reverse cleanability behaviour, resulting in an extended durability of air filters. This will save a huge cost for defence applications, where the filters are currently imported from developed countries," he added.

The project was a collaborative effort with faculty from various departments of IIT-M. At present, researchers are working to optimize the coating parameters of nanomaterials for bulk manufacturing at an affordable cost and testing the antiviral properties.

https://timesofindia.indiatimes.com/city/chennai/iit-madras-develops-tech-for-more-efficient-face-masks/articleshow/76831795.cms

DRDO Technology News

Wed, 08 July 2020

Indian Army DRDO WhAP 8x8 armored vehicle tested in high altitude

The Indian company Tata Motors unveiled its Wheeled Armoured Platform (WhAP) at Defexpo 2014 in Delhi. The vehicle platform is developed jointly with the DRDO's Vehicle Research & Development Establishment (VRDE) in Pune. The WHaP is still in the trial phase including high-altitude and floating tests. Considering the high tension between India and China over border issues, these high-altitude tests get a particular interest.

WHaP during high-altitude tests (Picture source: Indian Army/DRDO)

Tata Motors is the first private sector OEM in India which has developed WhAP (Wheeled Armored Amphibious Platform), an Infantry Combat Vehicle, designed for optimized survivability, all-terrain performance and increased lethality jointly with the Indian Defence Research and Development Organization (DRDO).

In recent years, Tata Motors has made a strategic shift from the Logistic vehicles space to the Combat vehicle space by focusing on the development of contemporary state-of-the-art combat vehicle platforms (tracked and wheeled); with the dual purpose of empowering India's Defence Forces with breakthrough technologies and increasing the nation's self-reliance in this critical area. The idea is to ensure high mobility, firepower and protection to the forces for their various missions by developing world-class armored fighting vehicles.

WHaP demonstrated at DefExpo 2018 near Chennai (Picture source: Army Recognition)

The WhAP with its BMP-2 turret offers a new generation of combat vehicle offering a high level of protection, mobility based on an 8x8 chassis and firepower with the turret armed with a stabilized 30 mm cannon 2A42 and a 7.62 mm PKT coaxial machine gun mounted to the left of the main

armament with 2,000 rounds. Mounted on the turret roof between the gunner's and commander's hatches is a launcher for an AT-4 Spigot or AT-5 Spandrel ATGM (Anti-Tank Guided Missile) which has a maximum range of 4,000m.

WHaP during floatation tests (Picture source: Indian Army/DRDO)

The WhAP has a weight of around 25 tons and is powered by a 600 hp. diesel engine. It can reach a maximum road speed of 100 km/h. For amphibious operations, the WhAP is propelled in the water at a maximum speed of 10 km/h thanks to two hydrojets mounted at the rear of the vehicle.

https://armyrecognition.com/defense_news_july_2020_global_security_army_industry/indian_army_drdo_whap_8x8_armored_vehicle_tested_in_high_altitude.html

THE TIMES OF INDIA

Thu, 09 July 2020

CSL awaits engineers from abroad for vessels' sea trial

Kochi: Cochin Shipyard Ltd (CSL) completed the construction of a technology development vessel (TDV) for DRDO and a vessel with 500 passenger capacity for Andaman and Nicobar Islands fighting all the odds. Now, the CSL is awaiting to carry out the sea trial which can be done only in the presence of service and commissioning engineers of various original equipment manufacturer (OEM) firms who are now stationed at different parts of the world. They can fly down only after the international flights resume operations.

Immediately after the restrictions as part of the first phase of lockdown was eased, the CSL resumed works using as much manpower as possible for completing the works on these vessels. But the vessels can be delivered only after sea trials. "Three major vessels including are ready for sea trial. We are waiting for service and commissioning engineers to arrive from Norway, Italy, Korea, etc.," said Cochin Shipyard Ltd CMD Madhu S Nair.

The company which had been on complete lockdown since March 20 resumed operations with three shifts and reduced timings from May 6. The CSL is constructing two vessels each with passenger capacity of 500 and 1,200 respectively for Andaman and Nicobar. It is the first vessel with a passenger capacity of 500 that is waiting for sea trials. Other three vessels are in different stages of construction. "Some of the engineers required for the sea trials of the vessel for Andaman and Nicobar have arrived in Kochi from abroad. They are under quarantine," an official with CSL said.

According to the CSL authorities, there are many impediments which stand in the way of completing projects on time. Non-availability of sufficient skilled labourers and deferred supply of raw materials and other machinery by firms in different parts of the country as well as abroad are major hindrances. All efforts are being taken by CSL to overcome these constraints and move ahead. In general, the company expects three-four months of overall impact on projects due to the Covid-19 situation, officials with CSL said.

https://timesofindia.indiatimes.com/city/kochi/csl-awaits-engineers-from-abroad-for-vessels-sea-trial/articleshow/76842646.cms

Thu, 09 July 2020

Kestrel Mobile Gun System can act as a stop-gap measure for Light tank requirement on LAC

By Tushkar Shirodkar

Chinese ZTQ-15 light tank equipped with a 105-millimeter gun was recently in Chinese propaganda video which according to Chinese mouthpiece was moved to Tibet and close to LAC after a two-month recent standoff with the Indian Army in Galwan Valley with the Chinese troops, in response to the ZTQ-15 light tank being moved to the LAC, India airlifted T-90 and T-72 tanks which have better armor and firepower then ZTQ-15 but it is not made for mountain terrain and will be difficult to operate in narrow ridges of the terrain in case conflict does take place in the region.

Many defense analysts have been advocating India to develop a light tank for such terrain but such tanks can be stuck in long developmental delays and the cheaper and easier option could be to mount a 105-millimeter gun on DRDO-TATA developed Kestrel armored personnel carrier which was supposed to have a light tank variant to act as a stop gap measure.

M1128 Mobile Gun System

The Kestrel has a high power-to-weight ratio for mountainous terrain and is powered by a 600 hp turbocharged diesel engine and Army owned Kestrel has been tested in LAC and Sikkim for Mobility of Troops in the region. India can import a 105mm M68A1E4 rifled cannon with a muzzle brake and an autoloader from Royal Ordnance L7 for initial batches till an alternative indigenous gun is developed for the same and later for the Light Tank.

Kestrel Mobile Gun System In one to one battle with ZTQ-15 light tank would probably lose and No MGS can expect to last long in a sustained firefight against a determined foe but its role here is to match the firepower to destroy thin-skinned vehicles like Vehicle-mounted howitzers, Armored personnel carriers and provide anti-personnel fragmentation in a difficult terrain where the movement of tracked tanks are difficult.

https://idrw.org/kestrel-mobile-gun-system-can-act-as-a-stop-gap-measure-for-light-tank-requirement-on-lac/#more-230588

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

Thu, 09 July 2020

Most capable fighter jets in the Indian Air Force: from the heavyweight Su-30MKI to the lightweight Tejas and MiG-21

The Indian Air Force today fields one fo the most diverse fleets of fighters jets in the world, and since the retirement of the MiG-27 strike fighter and accompanying MIG-23 trainers in December 2019 it has fielded six classes of fighters – alongside the ageing Jaguar attack jet. In the Air Force in particular, India's force composition has long been premised on the need to maintain at least some form of parity with neighbouring China and Pakistan, the former which fields one of the most modern and sophisticated fleets in the world today while the latter continues to benefit from considerable transfers of Chinese technologies. A look at the six classes of fighter in Indian service, and a ranking of these jets based on their capabilities, can provide considerable insight into the overall capabilities of the country's Air Force.

Su-30MKI

The heaviest and most capable fighter in the Indian inventory, the Su-30MKI forms the backbone of the Indian Air Force with over 250 in service and dozens more planned. Acquired from 2002, the elite Russian air superiority platform represents an extensive modernisation of the Soviet Su-27 Flanker design, and has proven itself several times in war games against two of the Western Bloc's foremost combat jets, the British Royal Air Force's Eurofighter Typhoon and U.S. Air Force's F-15C with overwhelming victories in both cases. The fighter's primary air to air armaments are the R-77 and R-27ER air to air missiles with ranges of 110km and 130km respectively, and the shorter ranged R-73. The platform can also deploy the long ranged Astra, co developed with Russia with a range of approximately 105km, the short ranged British ASRAAM, and the K-100 'AWACS killer' with a 300km range. The fighter's sensor suite is both sophisticated and extremely large, providing a considerable situational awareness advantage even against newer AESA radar equipped platforms such as the Rafale or F-16V due largely to the fighter's capacity for a much heavier radar.

The Su-30MKI can also be equipped for a strike role with the BrahMos cruise missile, and as a bomber with a range of guided munitions including both indigenous platforms and the Israeli SPICE 2000. The fighter's airframe is extremely manoeuvrable, which is further complemented by two dimensional thrust vectoring engines making it extremely difficult to hit in both visual and beyond visual range engagements. The gap between the Su-30MKI and its nearest rivals its likely to only be widened in future, as the fighter continues to incorporate more modern technologies. Perhaps the greatest enhancement could come from the integration of Su-35 technologies, currently under consideration, which include the possibility of both AL-41 engines and an Irbis-E radar. This

would further improve flight performance, range and manoeuvrability, while providing a greatly expanded situational awareness. Integration of the Irbis-E would also allow the fighter to deploy more modern classes of air to air missile such as the Mach R-37M, which with a 400km range will provide a massive advantage over rival aircraft.

An even longer ranged hypersonic air to air missile is currently under development with Russia specifically to outfit the Su-30MKI, which will be specialised in neutralising enemy support aircraft and replace the K-100 in this role. Even without these upgrades however, the Su-30MKI in its current form remains the most capable fighter in the Indian Air Force by a considerable margin.

Rafale

India's purchase of the Rafale medium fighter from France has been the subject of considerable controversy, with the acquisition widely derided as a political purchase and corruption widely speculated. Despite its relatively limited capabilities and light weight, fighter has cost 50% more per unit that the state of the art American F-35A stealth fighter – and come at well over four times the cost of the Su-30MKI – both jets which are overwhelmingly more capable than the Rafale. Rafale fighters have only in recent years began to integrate AESA radars, which compensates for the very radar capacity the aircraft has meaning its sensor suite will always be much smaller than those on higher end aircraft. The aircraft's twin Snecma M88 engines put out just 100kN of thrust between them, which even for the aircraft's light weight is underwhelming and seriously restricts its flight performance. The Rafale has limited manoeuvrability, particularly when compared to serving Indian jets such as the MiG-29 and Su-30, and is restricted to flying at much lower speeds of Mach 1.8 – below average meaning even the F-16 and MiG-21 are faster – and at altitudes below 15km which are extremely low for a twin engine jet.

While the Rafale's performance in many fields is underwhelming, the fact that India has not modernised its MiG-29s or any classes of fighter other than the Su-30MKI to even a basic '4+ generation' standard gives it some advantages. Although its airframe and flight performance are inferior to the MiG-29, the Rafale's avionics, electronic warfare systems and radar are considerably more modern – at least on the higher end variants being sold to India. These include an AESA radar, which though light is highly sophisticated and ensures a smaller radar signature. A key weakness of the fighter today is its reliance on the ageing MICA air to air missile for long range engagements – placing it at a disadvantage against the MiG-29, Su-30, Tejas and even the MiG-21BiS which can all deploy more capable munitions such as the R-77. This issue will be circumvented in future as the Rafale begins to incorporate the Meteor missile, which with a 300km range will have an advantage over the R-77 and help to compensate for the fighter's other shortcomings.

https://www.defenceaviationpost.com/2020/07/most-capable-fighter-jets-in-the-indian-air-force-from-the-heavyweight-su-30mki-to-the-lightweight-tejas-and-mig-21-2/

DefenceNews

Thu, 09 July 2020

After Chinese pullback, Indian troops also move 1.5 km away from Galwan Valley clash site

Indian troops have moved back 1.5 km from the site of the June 15 clash at the Galwan Valley in eastern Ladakh, creating a buffer zone, which will be off-limits for foot patrolling by them for the next 30 days, a senior government official has told The Hindu.

This is as per the agreement reached during the Corps Commander-level talks on June 30.

According to a defence source, the Chinese have fully moved out of the Patrol Point 14 area, the clash site, and thinning down of troops is under way at Hot Springs and Gogra, which could take two or three days to complete.

Marginal at Pangong Tso

However, sources termed the disengagement by China at Pangong Tso as marginal.

"At Galwan, only 30 people on each side are deployed now; the distance between them is 3.6-4 km, the agreed buffer zone. The primary objective of the first phase of disengagement was to have no eyeball-to-eyeball positions, which has been achieved through this arrangement. The next layer of deployment of 50 personnel on each side is about 1 km further behind. Within 6 km, there are just 80 people on both sides," the official said.

The Indian Army, which used to patrol till Patrol Point 14 until the recent stand-off, could lose that right if a final solution is not found, said an official.

The official said this was a cause of concern as the Chinese had entered well within the Indian perception of the Line of Actual Control (LAC).

The defence source cited above said that the initial process of disengagement at several places and the verification is expected to take two weeks, stating that it is going to be a long process for full disengagement.

Another round of talks will be held after that to take the process forward.

On the activity at Finger 4 area of Pangong Tso, two defence sources independently said while some tents have been removed and some troops and vehicles have moved back, the movement is marginal unlike other areas and is being closely watched.

The level of disengagement so far at Finger 4 is minuscule, considering the heavy buildup the Chinese have undertaken between Finger 4 to Finger 8, the defence source stated.

"Till that bend (PP 14), where the clash took place, India has built a road. The point where the Indian troops have retreated now is the point where the Army used to initiate its patrols. As per the moratorium, India will not be able to patrol the distance now and this will have to be seriously worked out. It cannot be turned into a permanent arrangement," said the official.

Rivers in spate

The official added that with the Galwan and Shyok rivers in spate due to the monsoon, it was not in the interest of both India and China to stay put there.

"The Chinese are now claiming the entire Galwan Valley but this was not the case earlier. They transgressed when they saw culverts, bridges and roads being constructed this side...culminating in the June 15 violent clashes," said the official.

While the disengagement is underway, defence sources have expressed caution on the outcome. A second defence source cited three cases as reason for exercising extreme caution. The first instance is of Chinese claims on Galwan Valley. In 1959, China had agreed to area of Patrolling Point (PP) 14 and there has been no cases of faceoffs, no patrolling by China and very rare helicopter recce till recently, he said.

"In April 2020, China started objecting to construction of a bridge at the mouth of the Galwan and now are claiming beyond earlier stance of 1959 stating entire Galwan belongs to China. As the events unfolded, PLA claim shifted to Nala junction which is 800m on the Indian side of China's claim of 1959," the source stated.

The other instance is of Naku La in North Sikkim where China is creating a dispute by disregarding "principle of watershed". The third instance is of China pushing Nepal to not only make claims in Lipulekh area and publish new maps but also to deploy new border posts, , the source said.

https://www.defencenews.in/article/After-Chinese-pullback,-Indian-troops-also-move-15-km-away-from-Galwan-Valley-clash-site-861514

hindustantimes

Thu, 09 July 2020

At top panel meet on China border, India reviews troop pullback and possible red flags

The top panel assessed the deployment of Chinese troops close to the Line of Actual Control (LAC). A point made at the meeting more than once was that the PLA needs to withdraw from all areas along the 1,597 km LAC in Ladakh as well as along the 1,126 km LAC in Arunachal Pradesh

By Shishir Gupta

New Delhi: India's top strategy group on China led by National Security Advisor Ajit Doval met on Wednesday to review the withdrawal of People's Liberation Army (PLA) soldiers from the standoff points in eastern Ladakh and decide the government's next steps.

This was their first meeting after Chinese troops started withdrawing troops from three of the standoff points after Ajit Doval's two-hour-long conversation with Chinese foreign minister Wang Yi on Sunday evening, people familiar with the development told Hindustan Times.

Doval will have a second conversation with Qang Yi in about three weeks when the two sides will discuss the border situation again before the next step of de-escalation is ordered.

Apart from the country's top civil servant Cabinet Secretary Rajiv Gauba, officials of the ministries of defence, external affairs and home, Wednesday's meeting of the China Study Group was also attended by some special invitees including some senior ministers.

Government and military officials said the Chinese troops are falling back from Patrolling Point 14 (Galwan Valley), Patrolling Point 15 (Hot Springs) and Patrolling Point 17 (Gogra) in Ladakh's Galwan region. The Galwan Valley, or Patrolling Point 14, was the site of the violent scrap of June 15 that led to casualties on both sides. It is here that the Chinese PLA has withdrawn around 1.5km with its tents dismantled and armoured personnel carriers pulled back.

The thinning out of Chinese soldiers is the slowest around the fourth standoff point near Pangong Tso, the saltwater glacial lake spread across 700 sq km. It is here that, according to the Indian assessment, the Chinese forces had an edge over Indian troops since they have built a road up to Finger 4 - the finger area refers to a set of eight cliffs jutting out of the Sirijap range that overlooks the lake - and had set up bunkers, pillboxes as well as observation posts.

Field reports have indicated that the Chinese PLA Air Force activity has declined considerably in the Ladakh sector but the PLA ground troops are fully deployed, and on high alert in the depth areas of both Tibet and Xinjiang region. There is also a build-up across the Arunachal Pradesh LAC.

At Wednesday's meeting, government sources told Hindustan Times, the study group also made an assessment of the deployment of PLA troops close to the Line of Actual Control (LAC). A point made at the meeting more than once was that the PLA needs to withdraw from all areas along the 1,597 km LAC in Ladakh as well as along the 1,126 km LAC in Arunachal Pradesh.

For one, government and military officials pointed that the Chinese troops continue to remain in an aggressive posture in the Depsang Plains at 17,000 feet or the Raki nullah area. The Raki Nullah near Burtse is key to Indian patrolling in the Depsang plains and has seen incursions by the Chinese side on more than one occasion. One such incursion that was quickly detected by the border guards in April 2013 also led to a face-off between two sides. This Depsang incursion at Raki Nullah was designed to prevent the Indian patrols from reaching Points 10, 11, 11A and 13. Patrolling Point 12 lies outside the patrol line.

A top military commander said the army had also scaled up its presence in the area to match the adversary in troop numbers and support elements as a precautionary measure.

Government officials said it was on account of a gradual, and graded pullback of troops by the Chinese side that New Delhi had adopted a cautious approach and in the Ladakh sector, closely tracking troop movements around Pangong lake and Depsang plains as well.

Some officials believe that the softening in Beijing's stand, which came a day after Prime Minister Narendra Modi's Ladakh visit, could have been influenced by Washington deploying its two US supercarriers for exercises in South China Sea and the need for Beijing to focus its energies on that side of its boundary dispute with ASEAN, Japan and Australia.

There may not be a link between the American stepping up pressure over the South China Sea and the Ladakh standoff, an official said, "but it just turned out to be bad timing for the Chinese".

The official suggested it is possible that China may believe that there was a link between India's stand in Ladakh and the US belligerence in the South China Sea and could calibrate its troop withdrawal from Ladakh in line with easing of tensions with the US in the South China Sea.

The United States is working hard to mobilise support against China and will reach out to the European Union, US Secretary of State Mike Pompeo told a news conference on Wednesday.

Pompeo referenced the large number of boundary and maritime disputes that China had opened with its neighbours to accuse it of practising a revisionist approach to enlarge its territory. "There aren't many neighbours that can satisfactorily say that they know where their sovereignty ends and the Chinese community party will respect that sovereignty. That is certainly true now for the people of Bhutan as well," Pompeo - who referenced his conversations with Foreign Minister S Jaishankar - said, underscoring that the world will come together to respond to China "in a way that is powerful and important".

The Trump administration, who had earlier declared that the US was moving its military resources from Europe to focus on the threats from China, has already parked its two US aircraft carriers - USS Ronald Regan and USS Nimitz - to add muscle to its allies in southeast Asia. Analysts say that the US and PLA are using missions in the South China Sea to send a message to each other in the absence of any direct communication.

US aircraft carriers Ronald Reagan and Nimitz are exercising full spectrum in the South China Sea and clearly laying down red lines for China on Taiwan. Of particular interest is the Bashi Channel, the waterway between the Philippines' Y'Ami Island and Taiwan's Orchid Island from where undersea internet cables run down to South East Asia, and Taiwan. The channel is also an important passage for military operations by the US and China.

https://www.hindustantimes.com/india-news/at-top-panel-meet-on-china-border-india-reviews-troop-pullback-and-possible-red-flags/story-YUUf6GlXPzAB4OUKTXgjdI.html

THE TIMES OF INDIA

Thu, 09 July 2020

India-China LAC row: Buffer zones to be set up at two friction points

New Delhi: The creation of 'buffer zones' at the two frictions points in the larger Gogra-Hot Springs area is likely to be completed in the next couple of days as part of the ongoing Phase-I of the stepwise de-escalation plan finalised by the Indian and Chinese corps commanders on June 30.

The so-called buffer zone with no military presence at 'Patrolling Point-14' (PP-14) in the Galwan Valley region, the site of the bloody clashes on June 15, had already been set up, with the rival troops pulling back 1.5 km each, as was reported by TOI on Tuesday.

India-China LAC row: Buffer zones to be set up at two friction

One of the major aims behind the intrusion of the People's Liberation Army (PLA) into the PP-14 area was to threaten the Darbuk-Shyok-Daulat Beg Oldie road, which India completed last year.

The buffer zones are to avoid confrontations during the disengagement process and once this is over, Indian troops will resume their regular patrols.

"PLA troops have now gone back to their side of the LAC after vacating the area near PP-14. The pullback includes dismantling of structures erected in recent weeks," a source said. Similarly, the buffer zone at PP-15 should be in place by Wednesday, while the one at PP-17A (Gogra) will take a day or two more. "The PLA has also taken down some tents and slightly reduced its troops in the Finger-4 area of Pangong Tso," he added.

Officials also took pains on Tuesday to stress that the buffer zones were a "mutual temporary arrangement" to ensure there were "no inadvertent clashes" between the rival troops during the disengagement process.

"Local Indian and Chinese commanders are in constant touch. There will be no patrols during the month-long stabilisation period after the buffer zones are created at the friction points. But once the disengagement is complete, we will resume our patrols to our perceived LAC, including PP-14. We have not relinquished our right to patrol till there," an official said.

The next round of disengagement will begin after both sides verify Phase-I of the plan, through physical monitoring on the ground as well as through drones and satellites, and sort out any lingering issues to resolve the trust deficit between them. The fourth round of talks is likely to be held after a couple of weeks.

https://timesofindia.indiatimes.com/india/india-china-lac-row-buffer-zones-to-be-set-up-at-two-friction-points/articleshow/76843602.cms

Thu, 09 July 2020

Moving back 2 km, China's exit from Hot Springs Sector complete; Gogra disengagement up next

China's People's Liberation Army on Wednesday moved back two kilometres in Patrolling Point 15 in Ladakh's Hot Springs sector as a part of efforts to reduce tensions along the Line of Actual Control. The disengagement in Gogra is expected to be complete by Thursday. Sources said that even there, the PLA will move back 2 kilometres. China had earlier pulled back entirely from Patrolling Point 14 and are said to be "well within their side of the Line of Actual Control (LAC) in the valley", satellite pictures of their positioning show.

The development came after talks between China's Foreign Minister Wang Yi and National Security Advisor Ajit Doval, which Beijing termed as "positive".

Wang and Doval, who are the special representatives for boundary talks between China and India, held a telephonic conversation on Sunday evening.

The troops of India and China are locked in an eight-week standoff in several areas in eastern Ladakh including Pangong Tso, Galwan Valley and Gogra Hot Spring. The Chinese military on Monday began withdrawing troops from the Galwan Valley and Gogra Hot Spring.

India has made it clear to Beijing that the Chinese side took "pre-meditated and planned action" that was directly responsible for the resulting violence and casualties.

"It reflected an intent to change the facts on ground in violation of all our agreements to not change the status quo," External Affairs Minister S Jaishankar told Wang during their phone conversation on June 17.

https://idrw.org/moving-back-2-km-chinas-exit-from-hot-springs-sector-complete-gogra-disengagement-up-next/

Thu, 09 July 2020

Spin recovery parachute integrated HJT-36 Sitara IJT ready for fresh trials

Hindustan Aeronautics Limited (HAL) has integrated the Spin recovery parachute with the HJT-36 Sitara Intermediate jet trainer (IJT) which will restart crucial spin trials later this month as per latest media reports. Bihrle Applied Research Inc (BAR) was hired by the Hindustan Aeronautics Limited (HAL) to act as an external consultant for the HJT-36 Sitara program after the Ministry of Defence (MOD) pulled out of the official funding to the program due to prolonged delays.

HJT-36 Sitara has gone through a major modification to the airframe which according to sources close to idrw.org has resulted in much-improved maneuverability at all flight regimes but the

crucial spin tests were pending for want of integration of the spin recovery parachute as recommended by BAR.

HAL restarted flight testing of its HJT-36 Sitara IJT on 17 April last year and had to perform basic flight regime testing again due to major modifications to the airframe. HAL will be approaching IAF again to carry out Internal trials of the IAF to verify and restart the program officially if internal trials are successful.

HAL already has manufactured 16 limited serial production HJT-36 ready with it and if things go as planned then it will re engage with IAF in talks for manufacturing 83 IJTs and some more orders for the Navy with upgraded features.

https://idrw.org/spin-recovery-parachute-integrated-hjt-36-sitara-ijt-ready-for-fresh-trials/#more-230586

INDIAN DEFENCE RESEARCH WING

Thu, 09 July 2020

Ladakh Scouts, Indian Army's regiment which acts as eyes and ears at LAC

Amid the rising border tensions between India and China at lAC, the jawans of 'Ladakh Scouts' are fully ready with the Indian Army to fight against the enemy on the high hills of Ladakh.

The soldiers of this regiment are recruited from Ladakh because they know every details of the area and are skilled enough to survive on this barren land. Several battalions of Ladakh Scouts are stationed at the Line of Actual Control during the ongoing tension between India and China. The 'Ladakh Scouts' are also called the eyes and ears of other soldiers deployed in the region as they save their lives from enemies.

Ladakh is the only region of India that faces the conspiracy of both Pakistan and China. In 1947, Pakistani intruders attempted to loot the Buddhist monasteries of Ladakh via Kargil, but were driven out by the Ladakhi civilians. During that time, Ladakhi youth had formed 7th and 14th Jammu and Kashmir militia and both these battalions took strong positions in areas like Daulat Beg Oldi, Galvan, Hot Spring, Pangang, Chushul during the 1962 Chinese attack. Later the 'Ladakh Scouts' were formed from these two battalions, which was made into a regiment after they displayed exemplary courage and valour during 1999 Kargil war.

Currently, there are 5 battalions in the Ladakh Scouts Regiment, which is made up of youth living in the most difficult regions of Ladakh. These youth are well-trained to function in low oxygen, extremely cold and high altitude operations. The soldiers of 'Ladakh Scouts' are are posted in small teams in the most difficult areas of LAC. There are often soldiers from other regiments who patrol the most difficult areas of the LAC and soldiers of 'Ladakh Scouts' protect them from several threats.

https://idrw.org/ladakh-scouts-indian-armys-regiment-which-acts-as-eyes-and-ears-at-lac/

DNA
DAILY NEWS & ANALYSIS

Thu, 09 July 2020

As border tension with China rages on, Ladakh Scouts joins Indian army to thwart potential Chinese aggression

As border tensions with China escalates, the Ladakh Scouts have joined the Indian Army to give a befitting reply to Chinese aggression on the high hills of Ladakh

Edited By Arijit Saha

As border tensions with China escalates, the Ladakh Scouts have joined the Indian Army to give a befitting reply to Chinese aggression on the high hills of Ladakh.

The Ladakh scouts battalions have been deployed at the Line of Actual Control as the ongoing border tension between India and China rages on. These soldiers have been recruited from Ladakh as they are well versed in the geography of the area. The 'Ladakh Scouts' are appropriately called he eyes and ears of other soldiers who are stationed in the region.

As of now, there are 5 battalions in the Ladakh Scouts Regiment. The regiment constitutes youths who lived in the most difficult terrains of Ladakh. They are also skilled enoght to survive on this barren land.

They are posted in small teams in the difficult terrains of the LAC.

The 'Ladakh Scouts' are trained to function in extremely cold weathers, and high altitude operations.

Notably, in 1947, Ladakhi youth formed had formed 7th and 14th Jammu and Kashmir militia, which took positions in areas like Daulat Beg Oldi, Galvan, Hot Spring, Pangang, Chushul during the 1962 Chinese attack.

The 'Ladakh Scouts' were formed from these two battalions which was turned into a regiment after their impressive display of courage and valour in 1999 Kargil war.

Meanwhile, India and China have agreed to de-escalate along the LAC with the Chinese troops retracting from their positions. India's National Security Advisor (NSA) Ajit Doval on Monday spoke with Wang Yi, State Councillor and Minister of Foreign Affairs of China, to discuss de-escalation along the India-China border in eastern Ladakh.

The border dispute reached a fever pitch after Indian and Chinese troops clashed in Galwan Valley in Eastern Ladakh last month in which at least 20 Indian Jawans died.

https://www.dnaindia.com/india/report-as-border-tension-with-china-rages-on-ladakh-scouts-joins-indian-army-to-thwart-potential-chinese-aggression-2831364

अमर उजाला

Thu, 09 July 2020

बड़ा फैसलाः अब युद्ध के माहौल में अभ्यास करेंगे जवान, वायुसेना ने बेड़े तैयार रखने का आदेश दिया

मोहित धुपड़

चंडीगढ़: लाइन ऑफ एक्चुअल कंट्रोल (एलएसी) पर चीन के साथ चल रहे मौजूदा तनाव के चलते हुए अब थल और वायु सेना पहले से भी ज्यादा युद्ध जैसे माहौल में अभ्यास करेगी।

एयरफोर्स अपने लड़ाकू विमानों और हेलीकॉप्टरों के साथ एलएसी पर नाइट ऑपरेशन भी शुरू कर चुकी है। वहीं, वेस्टर्न एयर कमांड के तमाम एयरबेस पर भी युद्धाभ्यास और तेज करने के आदेश दे दिए गए हैं। उधर, वायुसेना प्रमुख ने एयरफोर्स के बेड़ों को तैयार रखने को कहा है। एलएसी पर एक वारगेम के साथ आर्मी की अग्रिम चौकियों और फॉरवर्ड एयरबेस पर युद्ध सरीखे रणनीतिक ढंग से तैयारियां की जा रही है।

हालांकि, चीन ने गलवां घाटी से अपनी सेना को कुछ पीछे जरूर किया है, लेकिन ड्रैगन की चालबाजियों को लेकर भारतीय सेना पूरी तरह सजग है। इसलिए वायुसेना अपने घातक लड़ाकू विमान और हेलीकॉप्टर पहले ही एलएसी पर तैनात कर चुकी है। अभी तक वहां इन विमानों द्वारा दिन में एक्सरसाइज की जा रही थी, लेकिन अब घातक विमानों और हेलीकॉप्टरों ने नाइट ऑपरेशन भी शुरू कर दिया है।

एयरफोर्स के पास अब रात को भी दुश्मन के दांत खट्टे करने का मादा रखने वाला खतरनाक अपाचे एएच-64 ई लड़ाकू हेलीकॉप्टर भी है। रात में आंधी, तूफान या भारी बारिश क्यों न हो, अति दुर्गम पहाड़ियों के बीच अपाचे दुश्मन के अड्डों को नेस्तनाबूद करने में सक्षम है। इसलिए मिग-29 के साथ अपाचे भी एलएसी पर रात में लगातार एक्सरसाइज करेगा। दूसरी ओर, आर्मी ने भी एलएसी पर पैराट्रूपर्स के साथ एक्सरसाइज शुरू कर दी है। एलएसी के कुछ दुर्गम इलाकों में इसी युद्धाभ्यास के चलते सेना के जांबाजों ने पैराड्रॉपिंग भी की।

वायुसेना प्रमुख एयर चीफ मार्शल आरकेएस भदौरिया ने वेस्टर्न एयर कमांड के अधिकारियों को आदेश दिए हैं कि मौजूदा परिस्थितियों को देखते हुए वायुसेना बेड़ों को तैयार रखा जाए। विभिन्न एयर कमांड के आला अफसरों से बातचीत करते हुए भदौरिया ने मौजूदा सुरक्षा माहौल का जायजा लिया। उन्होंने एयरफोर्स की ऑपरेशनल तैयारियों और फॉरमेशन पर भी चर्चा की। इस दौरान उन्होंने ऑपरेशन संबंधी क्षमताओं को बढ़ाने व मौजूदा विकट परिस्थितियों में मिशन को कैसे कामयाब बनाया जाए इत्यादि बिंदुओं पर अफसरों से बातचीत की।

https://www.amarujala.com/photo-gallery/chandigarh/indian-army-and-indian-air-force-practice-session?pageId=5

THE WEEK

Thu, 09 July 2020

Countering IAF Apaches? China touts deployment of attack helicopters

The Z-10 is the first modern indigenous attack helicopter of the Chinese military

Even as the Indian and Chinese armies continue the disengagement of their forces in eastern Ladakh, Chinese state-run media is engaging in propaganda about the People's Liberation Army's capabilities.

A collage showing a Z-10 helicopter (China's Ministry of National Defense) and an IAF AH-64 Apache (Twitter handle of ANI)

Since May, when the Chinese forces began attempting intrusions into Ladakh, the *Global Times* newspaper and other Chinese outlets have repeatedly reported about deployment of new weapons in "plateau" regions and for "high-altitude" warfare, in a reference to the standoff with India.

On Tuesday night, *Global Times* reported "China had deployed a variety of advanced weapons fit for high-altitude combat to the country's western plateau regions as India continued to move forces and hold drills amid border tensions between the two countries."

Global Times reported that the deployment came "before the latest consensus reached by both countries on de-escalating border tensions".

Global Times claimed, "The weapons, including the PHL-03 and PHL-11 self-propelled multiple rocket launcher systems, PCL-181 vehicle-mounted howitzers, HJ-10 anti-tank missiles, towed 35mm anti-aircraft guns, Type 15 light tanks and Z-10 attack helicopters were deployed to Northwest China's high-altitude desert regions and Southwest China's Qinghai-Tibet Plateau..."

Interestingly, nearly all of the weapon systems mentioned by *Global Times* on Tuesday were reported to have been deployed on the border with India in late May. The notable exceptions were the rocket launchers, 35mm anti-aircraft guns and the Z-10 attack helicopters, which the *Global Times* appears to have mentioned for the first time with respect to the standoff with India.

The revelation of the presence of attack helicopters and anti-aircraft guns may not be a coincidence as multiple Indian media outlets on Tuesday carried videos showing the AH-64 Apache attack helicopters of the Indian Air Force conducting night-time sorties at Ladakh, along with MiG-29 fighters and Chinook transport helicopters.

Global Times itself mentioned the deployment of the Apache helicopters and T-90 tanks by India. *Global Times* quoted a Chinese military expert as saying, "China's rockets and artillery can target hostile fortifications and other ground targets, anti-aircraft guns can clear the sky, anti-tank missiles and attack helicopters can wipe out enemy tanks, and friendly tanks can take the ground."

The Z-10 is the first modern indigenous attack helicopter of the Chinese military, with a design layout similar to that of the AH-64 Apache, which was first delivered to the Indian Air Force last year. The Z-10 was believed to have been designed with Russian assistance and made its first flight in 2003. In 2016, the PLA announced that the Z-10 had been deployed with all its aviation units.

Like the Apache, the Z-10 can carry air-to-ground anti-tank and air-to-air missiles as well as rockets and nose-mounted cannon. Earlier this year, media reports claimed Pakistan was considering purchasing the Z-10.

https://www.theweek.in/news/world/2020/07/08/countering-iaf-apaches-china-touts-deployment-of-attack-helicopters.html

the quint

Thu, 09 July 2020

Is Indian Air Force ready to ward off China's PLAAF in Northeast?

China's old claim on parts of Arunachal would be the driving factor towards continuance of hostilities in northeast

By Wing Commander Amit Ranjan Giri (Retd)

Snapshot

- ***The surface-to-surface ballistic missile (SSBM) force of China is indeed huge.***
- ***However, its efficacy in conventional warfare is greatly suppressed, especially so when the Indian Air Force (IAF) has adequate bases all over to scatter its assets.***
- ***It's not that the IAF would not have to worry about China's rockets, but it definitely is not a 'no win' situation.***
- ***The total requirement for putting out an entire airbase, for a specified time, using only SSBMs, is substantially high.***
- ***However, it is safe to say that the IAF has adequate depth and diversity to nullify the effect of SSBM rain.***

If India and China were to go to a full-fledged war, a rather long shot under present circumstances, India's northeastern sector would definitely be in for some hardcore action. China's old claim on parts of Arunachal Pradesh would be the driving factor towards the continuance of hostilities in this sector.

Given the geography of the area, it would mainly be a mountainous warfare with the armies at it 'tooth for nail'. The air forces, given the impermanent nature of their action and effect thereof, would largely be fighting a supporting role – softening up the enemy, cutting the supply lines, denying enemy fighters the chance to attack, and pounding the enemy army in the tactical battlefield area (TBA).

How Effective Would the Chinese Rocket Force Be?

This question is often asked whenever warfare between the two countries is discussed, and rightly so, given the mammoth assets that the People's Liberation Army Air Force (PLAAF) holds. The surface-to-surface ballistic missile (SSBM) force of China is indeed huge. However, its efficacy in conventional warfare is greatly suppressed, especially so when the Indian Air Force (IAF) has adequate bases all over to scatter its assets.

It's not that the IAF would not have to worry about the'Dragon's rockets', but it definitely is not a 'no win' situation.

The total requirement for putting out an entire airbase, for a specified time, using only SSBMs, is substantially high. However, it is safe to say that the IAF has adequate depth and diversity to nullify the effect of SSBM rain.

Force Comparison: PLAAF Vs IAF

Much has already been said on various forums, about the comparable aircraft strength of both air forces, but what actually needs to be discussed here are the launching bases on both sides.

The PLAAF is at a huge disadvantage here. Hoping, Kongka Dzong, Pangta and Linzhi are the only credible ones for this sector. Most of these bases already pay altitude penalties apart from being bereft of the famed Chinese aircraft shelters. Airfields in the lower Chengdu district and the Ganzhou district can virtually be ruled out as a threat, due to their distances as well as the requirement to overfly Myanmar to reach India. Chengdu may be the only base worth its existence, but at a considerable distance.

The IAF bases, on the other hand, are plenty and well spread out, thanks to the colonial infrastructure for 'hump operations' and the government's present 'look east' policy.

Base-wise, the IAF ups the count – two to one, maybe even a little more, if the forward Advanced Landing Grounds (ALG) are taken into account.

The IAF has recently developed a fair number of them in the northeast.

We must also give it to the IAF – as regards its ability to move forces quickly – its present strategic move capability and performance is definitely the envy of most nations. Exploiting the plethora of bases with this capability, provides operational redundancy to a very large extent.

The other worry for the IAF would definitely be the PLAAF's air defence setup.

It is layered, it is mobile and lethal – and it is known to defend its bases very effectively. Their arsenal of surface weapons to shoot down Indian raiders are multi-fold. The layers consist of the high rate of fire 'ack ack' guns as the inner most, followed by the entire HQ series of SAMs for various ranges, polishing off with the highly mobile and lethal S 300 / S 400 series – numbers being indicative of the max range of the systems in kms. The People's Liberation Army (PLA) is also known to move around with a similar robust air defence system for the TBA, giving its army the edge over the opponent.

What Role Would the IAF Fighters Play?

First and foremost, the IAF must take full advantage of its abundance of bases and its strategic lift capability. Assets need to be dispersed to ensure that the PLAAF SSBMs don't dent operations when the IAF decides to 'give it back'.

Warfare in mountains is always tricky for airforces. Targeting the system and traditional methods of calculations take a huge beating when the ground around the aircraft keeps rising and falling. Of course, it does gives the pilot the benefit of terrain-masking.

The IAF, here, would mainly fight a defensive battle — this in no way means that the ferocity of action would be reduced.

It basically means that the IAF raids on the enemy airfields would be lesser as compared to other campaigns; there are hardly any enemy airfields available in this sector to make raids worthwhile.

The IAF thereafter, needs to make sure that supplies to the enemy army are interrupted, it needs to make raids on lines connecting the front to inlands. Concurrent to this, the PLA needs to be battered and softened for the Indian Army to overwhelm. Let no doubt be there that the Chinese would also resort to similar missions, hence, the major effort of the IAF would go into shooting down the raiding PLAAF.

How Would the Transport & Helicopter Arm Contribute?

The lift-capability of the IAF plays a major role. Shifting forces between battlefield in quick time and redeploying before the enemy predicts, is the main advantage of having a formidable airlift capability.

The transport fleet would generally be shifting troops between nodal points, while the helicopters would be the ones to provide the end point connectivity and replacement rapidity. The IAF, for sometime now, has been very effectively practising these exercises in the northeast, wherein army troops are shifted between valleys in quick time to boost another action area.

Of course, the new Apaches would help in giving the troops on ground the firepower support from the air.

The northeast, for a very long time, was not paid due attention, but the change in the last few years has definitely given the IAF an edge over the PLAAF in this sector.

(Amit Ranjan Giri is a Wing Commander (Retd) of the Indian Air Force. This is an opinion piece, and the views expressed are the author's own. The Quint neither endorses nor is responsible for them.)

https://www.thequint.com/voices/opinion/india-china-air-force-air-fields-fighters-northeast-india-defence-capability-warfare-strategy

THE FINANCIAL EXPRESS

Thu, 09 July 2020

Military lessons yet to be learnt: Better late than ever

India must remain on guard against such sinister operations being launched in future by either Pakistan or China

There are no secrets to Military success. It is the result of preparation, hard work, and learning from past failures however small they are. To err is human nature, to rectify error is glory but to ignore it is a death wish.

Kargil — In 1999 the Indian Territory was invaded and occupied by a few hundred Pakistani soldiers disguised as Kashmiri militants, which necessitated the mobilisation of virtually a fifth of the Indian army. After weeks of bloody fighting and expending hundreds of lives and millions of dollars, the Indian army wrested back posts that were ours, to begin with. While 527 Indian troops laid down their lives in evicting the Pakistani intruders from Mushok to Chorbat La in the Batalik sector, the victory did not extract a heavy price from Islamabad, apart from losing more or an equivalent number of soldiers.

Military experts believe that despite whatever effort there may be to prevent it, there may be a war at any time. And the nation that neglects this fundamental reality, makes itself vulnerable to military surprises. We have to be prepared for war or even low-intensity conflicts with our not so friendly neighbours. It is pertinent to understand that whenever there is a territorial dispute, proxy war is very possible. And India today is facing this situation on both the Pakistan and China sides.

Status Quo: We neither damaged Pakistan's war-waging capabilities, nor gained any territorial advantages, nor diminished the Pakistani army's adventurism which continues till date. Beyond a few months of international isolation, it did little to change Pakistan's international policies which are based on canards and denials as displayed a decade later.

Nearly two decades later when India is engaged in a standoff with China on Doklam even as its relations with Pakistan continue to be fragile, the concerns about India's battle-readiness remain. Besides strategic restraint in not crossing, our forces were hobbled by shortages in almost 50 % of their arsenal, mainly artillery ammunition and laser-guided bombs for Mirages. Had Israel and South Africa not chipped in, the war could have stretched a few weeks longer. In a limited war, such lapses are a recipe for defeat. There is an urgent need to upgrade our tactical surveillance and reconnaissance capability as well as create an integrated battlefield management system.

Our forces still await:-

The indigenous Software-defined Radio (SDR) is yet to be implemented in the forces. This will enable troops on the ground carrying Handheld Man-portable SDR versions to achieve integration with higher echelons to accomplish true C4I capability. Also, with SDR technology, the possibility of swarms of Unmanned Aerial Vehicles (UAVs) operating on the battlefield looks encouraging.

The much-needed indigenous Battlefield Management System (BMS) was shelved by the Ministry of Defence (MoD) in 2017. BMS integrates frontline troops of infantry battalions and armoured corps to efficiently and effectively share the realtime combat information to the Commanders for better Tactical appreciation and faster decision making. It will provide the ability to quickly close the sensor to shooter loop by integrating all surveillance means to facilitate engagement through an automated decision support and command and control system, exploiting technology for mission accomplishment in the Tactical Battle Area.

The Extreme Cold Climate (ECC) clothing including boots, goggles, gloves etc are still not held with the Army in surplus. When the new war doctrines of our forces claim preparation for a two-front war which would require the quick mobilisation of our troops leading to non –

acclimatisation. The un-acclimatised troops, when rushed without proper gears especially during peak winters, would lead to avoidable casualties.

Indian Army is solely dependent on Ordnance Factory Board (OFB) for ammunition and that's why it can get away with substandard products. It is rare that production of ammunition is stopped due to deficiency in material, process or quality, which exhibits a lack of accountability in OFB. The ordnance factories mission should be to compete with global leaders in the ammunition industry but that will not happen unless serious reform measures are undertaken by the government.

Accidents are causing loss of precious lives and have serious operational ramifications. At present, almost 80 per cent of the ammunition requirement of the Armed Forces is supported by OFB. Ammunition Factory Khadki, Ordnance Factory Ambajhari, Gun and Shell Factory Cossipore, etc. specialize in small, medium and large calibre ammunition and explosives. While they continue to be the primary supplier for ammunition, OFs lack capacity to fulfil the entire requirement of the Armed Forces.

The most important lesson that India should have learnt from the Kargil imbroglio is that the essential requirements of national security should not be compromised. Successive governments in Islamabad have sought with varying degrees of intensity to destabilise India, wreck its unity and challenge its integrity and this is unlikely to change. Similarly, in international politics, the policy of mutual friendship and cooperation with one's neighbours has to be balanced with vigilance. A neighbour's capacity to damage one's security interests should never be underestimated, leave alone disregarded.

Two decades later, Prime Minister Narendra Modi has changed the paradigm with the Balakot airstrike, as future Indian battles may now be fought on enemy territory. The firm and the strong Govt of India have conveyed unequivocally that "If you want a Fight…we will bring the Fight to your door and beat you at it". In 2017, India and China agreed to amicably resolve the Doklam standoff that lasted for more than two months. No blood was shed and no shots fired. Once again Prime Minister Modi & team had been very careful not to upset China's domestic and geopolitical sensitivities.

However, this time around India decided to stare down the dragon at Galwan valley and carried out massive mobilisation and reinforcement of troops, artillery and armoured vehicles besides gaining the complete air superiority and dominance by Indian Air Force (IAF) in the region. The breakout of pandemic COVID19 which originated from Wuhan led to the death of millions of innocent humans around the world, its border issues with many neighbouring countries, illegal claims in the South China Sea, issues in HongKong and Taiwan etc turned the world against China and its hegemonic global aspirations.

India must remain on guard against such sinister operations being launched in future by either Pakistan or China.

Modernisation through Indigenisation

We need to have better technology weapons and equipment. 'Make in India' or being self-reliant was one of the most significant lessons that one had learnt from the entire episode. There is a need to encourage the participation of Pvt Industry and providing a level-playing field for the private sector in manufacturing defence equipment. So, have we learnt actually? If Self reliance or Atmanirbharta in defence sector remains only on papers, then once again the nation will have to dispatch procurement teams to various countries to buy Arms & Ammo in emergency and end up with duds like last time.

The government has recently sanctioned some funds and delegated financial powers to the three services to acquire the wherewithal necessary for combat readiness. However, unless the remaining deficiencies in weapons, ammunition and equipment are also made up quickly through indigenisation/Make in India, thoughts of critical hollowness in defence preparedness will continue to haunt India's defence planners.

The supreme test of a country's resilience is its capacity to turn a crisis into an opportunity for introspection and renewal. Our victory in Kargil will thus not be complete if we do not learn some important lessons from it for the future. War is a very expensive way to learn lessons and hence wasting opportunities to learn from past operations is a criminal dereliction of duty. The lessons are relevant to the conflicts or wars that we are likely going to fight in the future. Future wars are going to be short and of high intensity.

(The author is an Indian Navy Veteran. Views expressed are personal.)

https://www.financialexpress.com/defence/military-lessons-yet-to-be-learnt-better-late-than-ever/2017496/

hindustantimes

Thu, 09 July 2020

Analysts in Beijing link Doklam to Galwan, say India aggressor in both cases

Not everyone, however, agrees to the Doklam link. This line of argument is also contrary to international perception, where Beijing is clearly viewed as the aggressor

By Sutirtho Patranobis

Beijing: The June 15 violent clash in eastern Ladakh's Galwan Valley could be linked to the 2017 Doklam standoff, which was resolved through talks despite Indian troops remaining in territory claimed by China for 73 days, experts and local state media In China said.

The experts suggest that China lost face in Doklam and was waiting for an opportunity to get back.

In 2017, Indian troops had crossed over to Doklam (Donglang in Chinese) - a territory disputed between Bhutan and China - to prevent the People's Liberation Army (PLA) from building a road in the area as it could impact India's strategic interests. New Delhi has historically supported Thimphu's claim and said it was interceding on the latter's behalf.

An Indian Army convoy moves along a highway leading to Ladakh, at Gagangeer in Kashmir's Ganderbal district.(Reuters File Photo)

Linking it to the 2017 Doklam standoff, Beijing-controlled state media has said the current tension in eastern Ladakh was triggered after the Indian Army crossed over to Chinese side to illegally build structures.

India insists that the Chinese were the transgressors in Galwan in Eastern Ladakh.

There is no official acknowledgment of it but the possibility of a link between the two standoffs has been making the rounds of state media, military websites and among Chinese analysts.

Not said in as many words but the message from Chinese analysts is this: The PLA would not allow a new serious standoff, like in Doklam, in eastern Ladakh where it has better infrastructure, to end without a fight even if it sustained casualties in the process.

China has admitted but is yet to reveal the PLA's casualty figures but India lost 20 soldiers in the violent brawl between border troops on the night of June 15.

"After all, China is stronger than India, with advantages in all aspects and a higher GDP than India. Last time (Doklam), we had already put up with one step and lost face. China has blood in its veins and is definitely going to do something," Shanghai-based military expert Ni Lexiong told HT.

A television programme broadcast on national broadcaster CCTV on July 6, and then published on its English channel CGTN's YouTube handle directly, links the two recent most crises between India and China.

With undated photographs and satellite imagery, it claimed that Indian border troops crossed the Line of Actual Control (LAC) to the Chinese side.

The host of the programme asks the two Chinese analysts about the "...timing of this incident coincides with the third anniversary of the Donglang incident, on June 18, 2017, when it was also the time when the Indian border troops unilaterally crossed the China-India border to obstruct our personnel who were working within our Line of Control, operating normally. From Donglang to the Galwan Valley, in your analysis, what does India want?"

To be sure, this line of argument is also contrary to international perception, where Beijing is clearly viewed as the aggressor.

One of the guest analysts at the programme, Ruan Zongze from the China Institute of International Studies, had this to say: "First of all, from Donglang to the Galwan Valley to today's (current) developments, it shows that Indian side's illegal cross-border violations were not an isolated incident. Three years ago, and precisely in June, border troops on the Indian side also illegally crossed into the Chinese side of the border," Ruan said.

"The boundary of the Donglang incident was clearly demarcated in 1890 and has since been confirmed by successive Indian governments, without any issue, no controversy, but India still took the provocative action of crossing the border. So this time, I think it's a repeat of the same old trick," Ruan said.

This again seems to be an overstatement if not an outright lie - India hasn't accepted that Doklam is part of China.

However, the prevailing view in Beijing seems to be to paint India as the aggressor.

Beijing-based military expert Song Zhongping said: "This time, like the Donglang crisis, India provoked China on the western border in an attempt to change the status quo and create trouble. This time India's intentions are too obvious, the means are too extreme."

Talking to the nationalistic tabloid Global Times, Hu Zhiyong from the Shanghai Academy of Social Sciences had spoken on similar lines as early as May 18.

"...that the Galwan Valley is not like Doklam because it is in the Aksai Chin region in southern Xinjiang of China, where the Chinese military has an advantage and mature infrastructure. So, if India escalates the friction, the Indian military force could pay a heavy price".

Ni, the Shanghai-based military expert quoted earlier, said the perception about the 2017 standoff in China is that Beijing backed down.

Ni said: "There is not a lot of coverage in the country on the Doklam incident because we were the ones who backed down, I was thinking if that is the case, we are pretty furious, if we cannot build roads, then why India can build roads over there (Galwan Valley) now?"

"Then when the officers and soldiers on our side saw it, they thought we were building the road (in Doklam) and you would not let us, so how can you build it? It is not equal, it is not fair, so people just go over there and stir up things," Ni said.

Not everyone, however, agrees to the Doklam link.

Ketian Vivian Zhang, a China expert, who has written on how China uses coercion in face of national security issues, at George Mason University said if the core reason was about teaching India a lesson it would have made more sense for China to do it earlier.

"I personally do not think the recent events date back to Doklam or took place because of Doklam. As I said before, the trend of increased Chinese militarised patrol and presence along the border has started since 2006, way before Doklam," she said.

An article in the Communist Party-run current affairs website Utopia in June, however, clearly indicated retaliation.

Quoted by Hemant Adlakha, a professor of Chinese at Jawaharlal Nehru University, New Delhi in the Indian Defence Review, the article "...blamed Indian arrogance for its continuously provocative behaviour along the LAC. Irked and annoyed by India's unrelenting belligerence in recent years, in particular in what happened in Doklam three years ago, the Chinese or the PLA it seems were waiting for an opportunity to 'outpunch' and humiliate India."

"To permanently resolve Indian belligerent attitude against China and ensure security along China's western border, the time has now come for China to go for a decisive offensive against India and recover all Chinese territory under the Indian occupation, including southern Tibet," the article added.

https://www.hindustantimes.com/world-news/analysts-in-beijing-link-doklam-to-galwan-say-india-aggressor-in-both-cases/story-4x8cUUWwtXwBQO6naLum5L.html

Forbes

Thu, 09 July 2020

Could the Indian Navy strangle China's lifeline in the Malacca Strait?

By H I Sutton

India has enjoyed one area of strategic advantage over China for many years: Chinese industry relies on shipping routes that move goods and oil through the Malacca Strait between Malaysia and Indonesia. This narrow waterway is a perfect choke point. India's natural position in the Indian Ocean, with basing capabilities in the Andaman and Nicobar Islands at the mouth of the strait, would allow its navy to cut it off in the event of a crisis or war. But increasingly China may be able to, quite literally, get around this.

Gwadar port in Pakistan will open up an alternative route for Chinese Imports to avoid the Malacca Strait. The Northern Sea Route in the Arctic is another way that China will avoid the straits. H I Sutton

With tensions running high between the two countries, this threat is well understood by naval analysts. Talking to the Tac Ops podcast on July 5, the renowned naval author and creator of the Harpoon war game series, Larry Bond, said that China has a real concern that India could close the

Strait. “If India wanted to cut off trade with China, all that they have to do is park a bunch of ships at the Straits of Malacca. And that’s it, nothing else is getting through that way.”

Historically, the vast majority of China’s oil imports, from the Persian Gulf, Venezuela and Angola, go by this route. However, China is making moves that could render ineffective any Indian attempt to block the straits.

As part of the ‘Belt and Road Initiative’ they are building a new port in Pakistan. And the opening of the Northern Sea Route in the Arctic could create a ‘Polar Silk Road.’ Both offer ways around the Malacca vulnerability.

The new port in Pakistan is at Gwadar in the west of the country. Goods unloaded there will be shipped overland to China as part of the China Pakistan Economic Corridor (CPEC). On June 8 the Pakistani government approved a $7.2bn upgrade to a railway which will connect Gwadar to Kashgar, China. The port is not yet operating at capacity, but the direction seems clear.

Gwadar itself could be vulnerable to Indian Air Force attack, however. But it adds political and military risks as it is in a third country’s territory. Attempts to blockade the port, like the Malacca Strait, could also be considered. But this would draw Indian Navy assets away from the Malacca Strait and other missions.

Additionally India’s ability to threaten goods going via Gwadar, could be complicated by the increasing Chinese naval presence in the Indian Ocean. In fact the same goes for the Malacca Strait. China has already built a strong base in Djibouti on the Horn of Africa. And it seems likely that the Chinese Navy, known as the PLAN, will establish more substantial fleet there. Chinese submarines may also become a regular threat in the area.

The other route around the Malacca Strait is the Northern Sea Route, up and around Russia. The importance of this is underlined by China’s 2018 Arctic policy. It asserts, “Geographically, China is a “Near-Arctic State”, one of the continental States that are closest to the Arctic Circle.” The policy statement goes on to say, “China hopes to work with all parties to build a “Polar Silk Road” through developing the Arctic shipping routes.”

With ice receding in the Arctic, more ships can make the passage. China sent its first ship in 2013. Now China is investing in port infrastructure in the Arctic which connect to Europe.

And China launched its first locally built ice breaker, the Xue Long 2, in 2018. The vessel was built with design help from Finnish specialists Aker Arctic. Another larger ship has been proposed by the shipbuilders.

China is also developing a land route directly to Europe, mainly as a way to export goods. Thousands of trains have been travelling across Asia in recent years, the modern day version of the traditional Silk Road. This infrastructure could also play a part in reducing the criticality of China’s sea routes.

So, taken together the strategic importance of the Strait of Malacca to China will lessen over time. India will still be in a position to throttle Chinese supply lines there, but it will not have the same impact that it once would have.

https://www.forbes.com/sites/hisutton/2020/07/08/could-the-indian-navy-strangle-chinas-lifeline-in-the-malacca-strait/#4c753f6f78e8

Thu, 09 July 2020

How China lost the 1962 war with India, and what New Delhi now needs to learn from that defeat

"Five kilometres more land we have or five kilometres less — this is not important", the Soviet Union's premier, Nikita Khurshchev told Mao Zedong at a private meeting in the Chinese leader's home in the Zhongnanhai, a one-time imperial garden in Beijing. In August, 1959, the People's Liberation Army had overrun an Assam Rifles outpost in the village of of Longju, claiming the first lives of the simmering China-India border conflict. Khurshchev, to the ire of his host, counselled territorial concessions to India.

"The oak is also firm, but it breaks", the Soviet premier concluded; weakening Prime Minister Jawaharlal Nehru would lead him into the United States-led camp, and hurt the socialist bloc. The Chinese were having none of it: "our method will be more efficient", the PLA's Marshall Chen Yi snorted "yours is time-serving".

Now, as China and India contemplate the next steps from their disengagement in Galwan, it's critical for both to understand what happened next: in more senses than one, China lost the 1962 war.

The principles that govern geopolitics are different from the concerns of a Lajpat Nagar property dealer, involving things more significant than the occupation or loss of a few metres of property. Galwan ought to focus the minds of the political leadership in both countries on the actual strategic ends they seek.

Thirty-nine months after the Khrushchev-Mao meeting, the PLA swept aside India's defences in its north-east and Ladakh, securing land it had claimed since 1960. But, as Khrushchev had warned, the strategic outcomes were less roseate. The war of 1962 pushed India to seek military aid from the United States, which in turn compelled the Soviet Union to seek to deepen its strategic relationship with New Delhi; Nehru began allowing the Central Intelligence Agency to run subversion operations targeting Tibet.

Perhaps most important, in November 1964, Prime Minister Lal Bahadur Shastri authorised theoretical work on the Subterranean Nuclear Explosion for Peaceful Purposes project. For the metaphorical five kilometres of land it won, China ended up with a new—and nuclear-armed—adversary, locked in perpetual confrontation.

Inside five years, the Indian military had modernised enough to demonstrate it could inflict significant costs on the PLA, with troops under the command of Lieutenant-General Sagat Singh—later the hero of Dhaka—inflicting an estimated 340 dead for the loss of 88 of their own, in clashes at Nathu La and Cho La.

That modernisation, ironically, had not a little to do with the ally China had founded its own military rise on, the Soviet Union.

In December, 1962, Yu Zhan, deputy director of China's department of Soviet and European Affairs, and Nikolai Mesyatsev, the Soviet chargé d'affairs, met at the Embassy of Czechoslovakia to discuss the conflict with India. The ambassadors of Hungary, Poland, and Mongolia, as well as diplomats from North Korea and East Germany, listened as Yu complained bitterly about the Soviet Union building a MiG21 production line in India, on top of the supply of Antonov-12 and Illyushin-14 medium-transport aircraft.

Yu raged, according to declassified Soviet records, accusing Moscow of willingness to "abandon a class stand, betray proletarian internationalism, and betray Leninism"!

"Comrade Yu Zhan, please calm down", Metsyatev replied. "If the United States wanted to help India build factories, it may have moved complete sets of equipment and factories to India. Is the United States doing so to the benefit of socialism"?

The means nation-states use often seduce leaders, and become ends in themselves. In 1962, China's means, the PLA, succeeded spectacularly—but failed to deliver any of their intended ends.

This summer's crisis along the LAC, according to the thoughtful work of scholar Sun Yun, was shaped by two key concerns in Beijing. First, India's programme of border-defence modernisation has raised concerns in the PLA that New Delhi was seeking to hold territory it had until now only been able to loosely patrol. Thus, having delivered a series of warnings directed at India's border programme since 2013, the PLA moved to preempt India by pushing its troops as close as possible to the lines it occupied at the end of the war of 1962.

Perhaps more important, Beijing had become increasingly concerned with India's role in what it perceives as United States-led efforts to contain China's rise. As former National Security Advisor MK Narayanan has pointed out, the entire architecture of China-India border détente since 1993 was premised on New Delhi's neutrality in superpower contestation.

The LAC crisis, thus, may been intended to demonstrate the potential costs of taking sides—not just to India, but smaller, and more vulnerable, south-east Asian states.

Neither of these Chinese strategic ends, though, are likely to have been well-served by its means—the placing of military pressure on the LAC. Facing severe financial constraints, New Delhi's programme of military modernisation has stalled for several years. Leaders, though, will now be under pressure to spend more on defence, an outcome that does not serve China. Moreover, India is likely to seek geopolitical insurance by enmeshing itself more closely in the system of alliances led by the United States, a replay of its behaviour after 1962.

Prime Minister Narendra Modi's efforts to rid India of the Himalayan millstone around its neck, and secure a border deal, have been spurned by China since 2014. In Beijing's view, the unresolved border is a useful coercive tool. President Xi Jinping ought be asking himself if the strategic price-tag this tool comes with is worth what it yields.

New Delhi, too, has lessons to learn. The first has to do with developing strategic clarity on what India's red lines actually are. In the grand scheme of things, it matters little whether Indian troops are stationed on Finger 3 or Finger 6 in Pangong, or if the PLA is 500 metres ahead or behind a point in the Galwan river. Physical occupation of terrain is of ever-diminishing significance: the bridges, airfields and communications hubs of both countries will be obliterated hours into a future war by precision munitions guided by satellite imaging.

India has long hesitated to publish an official map of its claims to the LAC, fearing they will compromise any future territorial negotiation. Ambiguity, though, has favoured the stronger party, as it always does, enabling the PLA to push forward. Is is imperative to state clearly what India believes it is willing to fight to defend.

Poking dragons in the eye, secondly, may be gratifying, but it comes with risks. New Delhi also needs to become more adroit at anticipating—and preparing for—consequences. In Beijing, India's border roads programme, followed by the activation of the Daulat Beg Oldi airstrip and Union Home Minister Amit Shah's speech vowing to retake Aksai Chin, were read as threats. Indeed, in military-to-military talks, the PLA has alleged India initiated the confrontation in Galwan, by seeking to build a road and helipad.

Living with a superpower is never easy: more than one Latin American and Middle-Eastern regime, after all, has had the unhappy experience of finding caught in undertow of the United States' rise. Earlier imperial powers—from United Kingdom to classical Rome—behaved identically.

Each of those empires, though, all had opportunity to learn that in war, strength is no guarantee of victory: the Athenians floundered in Syracuse; the Romans were slaughtered in the Teutoburg

Forest; the United States had Vietnam. New Delhi has to systematically develop the capabilities needed to deter aggression—but all the time mindful of the stark asymmetries of power between the adversaries, and the disproportionate costs any crisis will inflict on the weaker one.

For both China and India, Galwan ought be a moment for one overarching realisation: Lessons nations aren't willing to learn from reflection are usually taught by that most unforgiving teacher, experience.

https://idrw.org/how-china-lost-the-1962-war-with-india-and-what-new-delhi-now-needs-to-learn-from-that-defeat/#more-230611

THE WEEK

Thu, 09 July 2020

Experts call for serious rethink of India's China policy

"Old policy of engagement with China has run out of steam"

By Rekha Dixit

It's only going to get much worse, before it even begins to get better. That is the India-China relationship in the near-term. The Chinese dragon is making bold swipes at neighbourhood territories, either in the belief that as the most powerful it can do this with impunity, or with a calibrated aim of keeping regional powers just that, regional. India will have to hit back, even if the punches—economical or international—may appear ineffectual against the giant. Because, that is the only option available, unless India is willing to quietly accept Chinese hegemony. And if India joins forces with other nations, the hitting back will become much more effectual.

At a talk organised by the Institute of Chinese Studies on Wednesday, speakers were emphatic that the old policy of engagement with China has run out of steam, and that the new reality calls for a new set of actions. Former ambassador to China, and now a distinguished professor at Symbiosis International University, Gautam Bambawale noted that there is a qualitative difference between the recent incidents on the Line of Actual Control (LAC) with any other incidents in the past, and that the differences between the two countries will take time to resolve. He advocated an aggressive approach towards China economically. Banning 59 Chinese apps is the first step; India should next look at banning cooperation with China for 5G trials.

"We should look at the entire gamut of engagements to reduce our relations with China," he said, pointing out that while this is going to be a painful exercise, it has to be undertaken, else we end up negating any of the sacrifices at Galwan.

Participants spoke in favour of economic decoupling, in various degrees, and noted that while individual countries in the region might not have the wherewithal to take on the Chinese might, together they could still form a substantial wall against China.

"We need to join forces with the US, Japan, Australia, South Korea, Indonesia and western Europe [to take on China economically]," said Bambawale.

Rajesh Rajagopalan, professor of international politics at Jawaharlal Nehru University agreed that India might not have the internal capacity to take on China individually, but together with like-minded nations, it could make things uncomfortable for China. He noted that India needed to join forces with the US, something India hasn't fully embraced.

"All other Indo-Pacific nations are far weaker, so any initiative against China needs US involvement. Even with the US, it won't be easy. There is a natural temptation to pass on the

burden to a more willing and able partner, but the US is no longer in the mood to permit free-riding," he noted.

The speakers said that India needed to take off its gloves when dealing with China, and sometimes to press on its tender spots—Hong Kong, Xinjiang, Tibet, Taiwan and Hong Kong. India needs to speak on these issues at international platforms, and should not consider Chinese sensitivities any more. Opposing Chinese positions and projects like the Belt and Road initiative and forming an intelligence cooperation are other options. Rajagoplan said that countries need to speak in one voice. If China imposes punitive sanctions against any one, others have to rally behind that nation.

All this will require a serious rethink of India's China policy. The cost will be high, given that China will retaliate. Tom Miller, researcher and analyst on India and China, pointed out that global economies were intrinsically enmeshed with one another, and decouplings are not that easy. So, a lot will depend on the political leadership.

"Will Mr Modi pitch national interests over economic ones is a political question," Miller said. He noted that how China responds to the de escalation exercise at Galwan would give Modi the chance to make nuance his economic decisions. Because, economic retaliation will also hit India bad.

Other speakers pointed out that when it came to China, any action would be expensive—whether military or economic.

https://www.theweek.in/news/india/2020/07/08/experts-call-for-serious-rethink-of-india-china-policy.html

THE TIMES OF INDIA

Thu, 09 July 2020

Suspension bridges open, retd Gorkha soldiers of Indian Army from Nepal get pension after 4 months

Pithoragarh: After close to four months, suspension bridges at three places on the India-Nepal border -- Dharchula, Jauljibi and Jhulaghat – were opened for ex-soldiers of the Indian Army from Nepal to enable them to come over to India and collect their pension from branches of the State Bank of India (SBI).

During the day, a 78-year-old pensioner from Baitadi region of Nepal died soon after withdrawing his pension at Jhulaghat. The pensioner, identified as Dhan Singh Rawal (78), had come to the SBI branch at Jhulaghat along with his son Ram Singh. "He told bank officials that he was not feeling well, so the bank personnel helped him withdraw an amount of Rs 80000 on priority. Soon after he came out of the bank, his condition deteriorated," said TS Rana, SHO of Jhulaghat. "His son told us that his father was an asthma patient and suffered an asthma attack after coming out of the bank."

As reported by TOI earlier, more than 1,600 Nepalese citizens who have served in the Indian Army, mostly in the Gorkha regiment, were unable to withdraw pension ever since India and Nepal went into lockdown in March and closed their borders. After the former soldiers made an appeal for the border to be opened, saying they were facing financial distress, the ministry of home affairs (MHA) on Tuesday issued guidelines for the border to be opened for three days from Wednesday to Friday. Sources said that on Wednesday, a cumulative amount of Rs 70 lakh was withdrawn by the pensioners.

Vijay Kumar Jogdande, DM, Pithoragarh, told TOI that in all 110 pensioners or their family members crossed the border on Wednesday. BS Sipal, a bank official, said that all SBI branches had made sufficient arrangements to cater to the pensioners. "An amount of almost Rs 50 lakh was

withdrawn by pensioners from the Jhulaghat branch while a cumulative amount of almost Rs 20 lakh was withdrawn from the Dharchula branch," he added.

Pensioners said they were thankful to the administration for allowing them to cross the border. "It was becoming increasingly difficult for us to manage our homes since we were not able to withdraw our pension money ever since lockdown began and the border was closed. We are thankful to the governments of India and Nepal for understanding our plight," said Heera Singh Bora, a pensioner.

https://timesofindia.indiatimes.com/city/dehradun/suspension-bridges-open-retd-gorkha-soldiers-of-indian-army-from-nepal-get-pension-after-4-months/articleshow/76859701.cms

TIMESNOWNEWS.COM

Thu, 09 July 2020

Indian Army orders personnel to delete 89 apps, including Facebook, TikTok, Truecaller & Instagram [Full List]

The Army personnel have also been asked to delete dating apps such as Tinder, Happn, TrulyMadly, Aisle, Coffee Meets Bagel and Couch Surfing

New Delhi: In line with the central government's move to ban mobile applications run by foreign countries, especially China, the Indian Army on Wednesday ordered its personnel to delete 89 apps from their smartphones, including Facebook and Instagram.

The list of applications also includes Chinese apps like TikTok, BigoLive and WeChat, along with others such as Truecaller, Zoom and Vigo Video in order to "plug leakage of information".

The Army personnel have also been asked to delete dating apps such as Tinder, Happn, TrulyMadly, Aisle, Coffee Meets Bagel, Couch Surfing, along with news apps such as Daily Hunt.

The 13-lakh strong Indian Army has been asked to delete these apps by July 15, exactly a month since the bloody clash between Indian and Chinese troops along the Line of Actual Control in Galwan Valley near Ladakh.

The Indian government had around 10 days back banned 59 Chinese mobile applications, including the popular video sharing platform TikTok, making a stern statement on India's stand against Chinese hostility.

The government said that the 59 apps that were banned "are prejudicial to sovereignty and integrity of India, defence of India, security of state and public order".

"This move will safeguard the interests of crores of Indian mobile and internet users. This decision is a targeted move to ensure safety and sovereignty of Indian cyberspace," it said.

The order had further said, "Over the last few years, India has emerged as a leading innovator when it comes to technological advancements and a primary market in the digital space. At the same time, there have been raging concerns on aspects relating to data security and safeguarding the privacy of 130 crore Indians. It has been noted recently that such concerns also pose a threat to sovereignty and security of our country. The Ministry of Information Technology has received many complaints from various sources including several reports about misuse of some mobile apps available on Android and iOS platforms for stealing and surreptitiously transmitting users' data in an unauthorized manner to servers which have locations outside India. The compilation of these data, its mining and profiling by elements hostile to national security and defence of India, which ultimately impinges upon the sovereignty and integrity of India, is a matter of very deep and immediate concern which requires emergency measures."

https://www.timesnownews.com/india/article/indian-army-orders-jawans-to-delete-89-apps-including-facebook-tiktok-truecaller-and-instagram-full-list/618551

Thu, 09 July 2020

India-US look forward to this year's 2+2 ministerial dialogue between two countries

Foreign Secretary Harsh Vardhan Shringla and the US Under Secretary of State for Political Affairs David Hale on Tuesday exchanged views on a number of regional and global issues of shared interests on Tuesday during the virtual foreign office consultations between the two countries.

"Both officials look forward to this year's U.S.-India 2+2 Ministerial Dialogue and pledged to remain in close contact on regional and international issues of mutual concern," US State Department said. A release from Indian Ministry of External Affairs said: "they agreed to remain in touch and move forward on the bilateral agenda through a range of mechanisms like the 2+2 Ministerial that India will host later this year".

The United States had reaffirmed its support to India for its permanent role in a reformed United Nations Security Council during the second annual India-US 2+2 Ministerial Dialogue in Washington last year.

The second annual meeting had undertaken a comprehensive review of cross-cutting foreign policy and defence and security issues in the bilateral relationship between two countries.

The high-level mechanism was hosted by the US State Department and attended by External Affairs Minister S Jaishankar, Defence Minister Rajnath Singh, along with their American counterparts Secretary of State Michael Pompeo and Defence Secretary Mark Esper on December 18 last year.

https://idrw.org/india-us-look-forward-to-this-years-22-ministerial-dialogue-between-two-countries/#more-230601

Thu, 09 July 2020

China launches 3 satellites on 2 rockets in 3 days

By Elizabeth Howell

China is picking up its satellite launch pace once again.

The country launched three satellites into space during two missions from different space centers over three days in the last week, according to reports from the country's space program and state media.

A Chinese Long March 2D rocket launches the second Shiyan-6 space environment satellite into orbit from the Jiuquan Satellite Launch Center on July 5, 2020. (Image credit: China Aerospace Science and Technology Corporation)

The first launch soared into space from the Taiyuan Satellite Launch Center in northern China's Shanxi province. Two satellites from the China Academy of Space Technology flew into orbit on a Long March 4B rocket at 11:10 a.m. local time Friday, July 3 (11:10 p.m. Thursday, July 2 EDT or 0310 July 3 GMT), according to the China Aerospace Science and Technology Corp. (CASC).

One satellite, identified as Gaofen by SpaceNews, was billed in Chinese media as a remote sensing satellite for civilian use. The satellite's resolution is less than a meter (three feet) and it will operate in an orbit to place the sun at a consistent angle on the surface, called a sun-synchronous orbit. This orbit makes it easier to compare pictures between satellite passes.

"It [the satellite] can provide high-precision remote-sensing image data for several industries including surveying and mapping, natural resources, emergency management, agriculture, ecological environment, residential construction and forestry," CASC said in a statement. The satellite will obtain images of China's land "and surrounding areas", added state media source CCTV.

The rocket also carried a satellite to popularize space science for teenagers, CCTV said, through doing science experiments such as transmitting images and voice data. The satellite is called Xibaipo, sharing a name with the region that once hosted the site of the Central Committee of the Community Party of China in the late 1940s.

Two days after these satellites flew into space, China successfully performed another launch from the Jiuquan Satellite Launch Center in northwest China, CCTV and CASC said.

This launch occurred at 7:44 a.m. Beijing time on Sunday, July 5 (7:44 p.m. EDT or 1144 GMT on Saturday, July 4). This satellite is the second of the Shiyan-6 series and will be used to study the environment of space and to do "related technology experiments", whose nature was not disclosed. According to SpaceNews, such descriptions are also used for the Chinese Yaogan series satellites, which Western observers peg as military reconnaissance vehicles.

China had a busy late 2019 and early 2020, with launches frequently occurring days or hours apart — sometimes at the same space center. While the pace slowed in the spring amid the novel coronavirus pandemic, China has carefully resumed its work while implementing physical distancing measures.

https://www.space.com/china-launches-3-satellites-3-days-july-2020.html

TECHNOLOGY NETWORKS

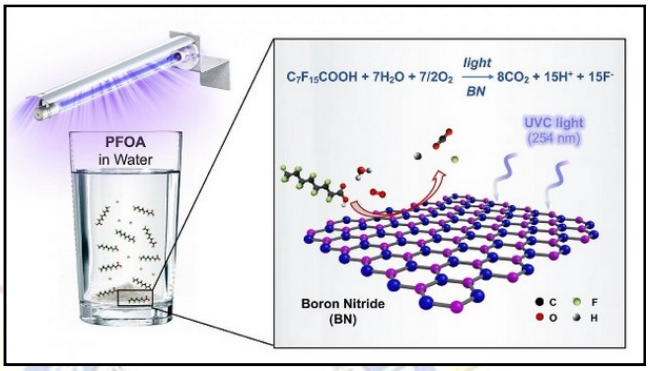
Thu, 09 July 2020

"Forever" Chemical-destroying properties of boron surprises scientists

Rice University chemical engineers found an efficient catalyst for destroying PFAS "forever" chemicals where they least expected.

"It was the control," said Rice Professor Michael Wong, referring to the part of a scientific experiment where researchers don't expect surprises. The control group is the yardstick of experimental science, the baseline by which variables are measured.

"We haven't yet tested this at a full scale, but in our benchtop tests in the lab, we could get rid of 99% of PFOA in four hours," Wong said of boron nitride, the light-activated catalyst he and his students stumbled upon and spent more than a year testing.



An illustration of the boron nitride photocatalysis that destroys the pollutant PFOA in water. Credit: M. Wong/Rice Universitv.

Their study, which is available online in the American Chemical Society journal Environmental Science and Technology Letters, found boron nitride destroyed PFOA (perfluorooctanoic acid) at a faster clip than any previously reported photocatalyst. PFOA is one of the most prevalent PFAS (perfluoroalkyl and polyfluoroalkyl substances), a family of more than 4,000 compounds developed in the 20th century to make coatings for waterproof clothing, food packaging, nonstick pans and countless other uses. PFAS have been dubbed forever chemicals for their tendency to linger in the environment, and scientists have found them in the blood of virtually all Americans, including newborns.

Catalysts are Wong's specialty. They are compounds that bring about chemical reactions without taking part or being consumed in those reactions. His lab has created catalysts for destroying a number of pollutants, including TCE and nitrates, and he said he tasked his team with finding new catalysts to address PFAS about 18 months ago.

"We tried a lot of things," Wong said. "We tried several materials that I thought were going to work. None of them did. This wasn't supposed to work, and it did."

The catalyst, boron nitride powder, or BN, is a commercially available synthetic mineral that's widely used in makeup, skin care products, thermal pastes that cool computer chips and other consumer and industrial products.

The discovery began with dozens of failed experiments on more likely PFAS catalysts. Wong said he asked two members of his lab, visiting graduate student Lijie Duan of China's Tsinghua University and Rice graduate student Bo Wang, to do final experiments on one set of candidate compounds before moving on to others.

"There was literature that suggested one of them might be a photocatalyst, meaning it would be activated by light of a particular wavelength," Wong said. "We don't use light very often in our group, but I said, 'Let's go ahead and doodle around with it.' The sun is free energy. Let's see what we can do with light."

As before, none of the experimental groups performed well, but Duan noticed something unusual with the boron nitride control. She and Wang repeated the experiments numerous times to rule out unexpected errors, problems with sample preparation and other explanations for the strange result. They kept seeing the same thing.

"Here's the observation," Wong said. "You take a flask of water that contains some PFOA, you throw in your BN powder, and you seal it up. That's it. You don't need to add any hydrogen or purge it with oxygen. It's just the air we breathe, the contaminated water and the BN powder. You expose that to ultraviolet light, specifically to UV-C light with a wavelength of 254 nanometers, come back in four hours, and 99% of the PFOA has been transformed into fluoride, carbon dioxide and hydrogen."

The problem was the light. The 254-nanometer wavelength, which is commonly used in germicidal lamps, is too small to activate the bandgap in boron nitride. While that was unquestionably true, the experiments suggested it could not be.

"If you take away the light, you don't get catalysis," Wong said. "If you leave out the BN powder and only use the light, you don't get a reaction."

So boron nitride was clearly absorbing the light and catalyzing a reaction that destroyed PFOA, despite that fact that it should have been optically impossible for boron nitride to absorb 254-nanometer UV-C light.

"It's not supposed to work," Wong said. "That's why no one ever thought to look for this, and that's why it took so long for us to publish the results. We needed some sort of explanation for this contradiction."

Wong said he, Duan, Wang and co-authors offered a plausible explanation in the study.

"We concluded that our material does absorb the 254-nanometer light, and it's because of atomic defects in our powder," he said. "The defects change the bandgap. They shrink it enough for the powder to absorb just enough light to create the reactive oxidizing species that chew up the PFOA."

Wong said more experimental evidence will be needed to confirm the explanation. But in light of the results with PFOA, he wondered if the boron nitride catalyst might also work on other PFAS compounds.

"So I asked my students to do one more thing," Wong said. "I had them replace PFOA in the tests with GenX."

GenX is also a forever chemical. When PFOA was banned, GenX was one of the most widely used chemicals to replace it. And a growing body of evidence suggests that GenX could be just as big an environmental problem as its predecessor.

"It's a similar story to PFOA," Wong said. "They're finding GenX everywhere now. But one difference between the two is that people have previously reported some success with catalysts for degrading PFOA. They haven't for GenX."

Wong and colleagues found that boron nitride powder also destroys GenX. The results weren't as good as with PFOA: With two hours exposure to 254-nanometer light, BN destroyed about 20% of the GenX in water samples. But Wong said the team has ideas about how to improve the catalyst for GenX.

He said the project has already attracted the attention of several industrial partners in the Rice-based Nanosystems Engineering Research Center for Nanotechnology-Enabled Water Treatment (NEWT). NEWT is an interdisciplinary engineering research center funded by the National Science Foundation to develop off-grid water treatment systems that both protect human lives and support sustainable economic development.

"The research has been fun, a true team effort," Wong said. "We've filed patents on this, and NEWT's interest in further testing and development of the technology is a big vote of confidence."

Reference

Efficient Photocatalytic PFOA Degradation over Boron Nitride. Lijie Duan, Bo Wang, Kimberly Heck, Sujin Guo, Chelsea A. Clark, Jacob Arredondo, Minghao Wang, Thomas P. Senftle, Paul Westerhoff, Xianghua Wen, Yonghui Song, and Michael S. Wong. Environ. Sci. Technol. Lett. 2020, June 14, 2020, https://doi.org/10.1021/acs.estlett.0c00434.

https://www.technologynetworks.com/analysis/news/forever-chemical-destroying-properties-of-boron-surprises-scientists-337122

PHYS.ORG

Thu, 09 July 2020

Tackling coral reefs' thorny problem

By Dani Ellenby

Researchers from the Okinawa Institute of Science and Technology Graduate University (OIST) have revealed the evolutionary history of the crown-of-thorns starfish—a predator of coral that can devastate coral reefs. Their findings shed light on how the populations of these starfish have changed over time and could potentially help reduce their ecological destruction.

The crown-of-thorns starfish is a predator of coral. Credit: Okinawa Institute of Science and Technology

A single crown-of-thorns starfish is formidable, with a large body covered in spiky, venomous thorns. But their true danger lies in their potent reproductive ability, with female crown-of thorns starfish releasing millions of eggs in a single spawning. This can quickly lead to plagues, with uncontrollably large numbers of starfish rapidly destroying vast areas of coral reef.

"Almost 40 years ago, Okinawa experienced a massive outbreak of crown-of-thorns starfish, where over 1.5 million starfish had to be removed by divers by hand," said Professor Noriyuki Satoh, senior author of the student and leader of the Marine Genomics Unit at OIST.

Although outbreaks have recently become less frequent around Okinawa and other subtropical islands in the Ryukyu Archipelago, they have become an increasingly large threat to the Great Barrier Reef in Australia, along with coral bleaching and tropical cyclones. These starfish outbreaks are becoming more common and more severe, as increasingly polluted and warmer waters aid the survival of the larvae.

In 2017, the OIST Marine Genomics Unit teamed up with Australian scientists to decode the genome of the crown-of-thorns starfish, with their results published in *Nature*. Now, in their latest study published in *G3: Genes|Genomes|Genetics*, the Marine Genomics Unit wanted to explore whether any information was recorded in the starfish genomes that could shed light on how and why these outbreaks occur.

The researchers collected crown-of-thorns starfish from coral reefs around three different islands in the Ryukyu Archipelago—Okinawa, Miyako and Iriomote. The scientists then sequenced the entire DNA found in the mitochondria, comprised of over 16,000 nucleotide bases, and used differences in the sequences between the individual starfish to construct an evolutionary tree.

The unit also performed the same analyses on two other starfish species—the blue starfish and the northern Pacific sea star. By comparing the crown-of-thorns starfish to these other two species, the scientists hoped to see whether their findings revealed anything unique to the crown-of-thorns starfish.

"The blue starfish is also a coral reef predator that lives in the same habitat as the crown-of-thorns starfish, but it doesn't produce these uncontrollable outbreaks," said Prof. Satoh. "Meanwhile, the northern Pacific sea star is the most common starfish in Japan and lives in colder waters around the Japanese mainland."

The scientists found that the evolutionary tree for the northern Pacific sea star showed that the species had split into two major lineages. Starfish collected from three different locations in the seas around the north-eastern regions of Japan were composed of individuals from one lineage, whilst a single population in the Seto Inland Sea in south-west Japan was formed of individuals from a second, more recent lineage.

"We believe that in a rare migration event, starfish larvae dispersed to the Seto Inland Sea. As these two areas are so separated, no migration occurred afterwards between the two populations, which resulted in the species splitting into two lineages," said Prof. Satoh. "Meanwhile, shorter

range ocean currents kept individuals from the first lineage mixed between the nearby locations in the north-east of Japan."

For the blue starfish, the results were more surprising. The constructed evolutionary tree showed that the species had first split into two lineages, with the second lineage then diverging again into two smaller subgroups. But intriguingly, individuals from the two major lineages were found in both Okinawa and Ishigaki—the two areas in the Ryukyus where the blue starfish was collected. This means that two distinct starfish populations are living in the same geographic regions but are not breeding and mixing their genes. Prof. Satoh believes that this is strong evidence for there being two cryptic species of blue starfish—in other words, the starfish look the same despite being separate, non-breeding species.

The results also suggest that blue starfish migration occurs in both directions between Okinawa and Ishigaki. This was unexpected as the scientists had previously assumed that the powerful northeastern current flowing from Ishigaki towards Okinawa prevented starfish larvae from being carried in the opposite direction.

"For migration to readily occur in both directions, this suggests that the ocean currents in the Ryukyu Archipelago may be more complex that previously imagined," said Prof. Satoh.

The results from the evolutionary tree of the crown-of-thorns starfish also supported the idea of complex ocean currents in the region, with each crown-of-thorns starfish lineage also found in more than one geographic location. This has important implications for predicting where new outbreaks of crown-of-thorns starfish may occur in the Ryukyus, with the researchers now advocating for better understanding of the ocean currents in the area.

Overall, the evolutionary tree for the crown-of-thorns starfish looked significantly different from the other two starfish, underlying key differences in the species' historical population dynamics. Despite being a much younger species than the other two species, diverging less than one million years ago, the tree showed that the starfish quickly fragmented into five small lineages. These findings suggest that the species underwent frequent genetic bottlenecks, where the population was reduced to just a small number of individuals, which then jumpstarted a new lineage.

"This implies that the starfish outbreaks are just one part of a larger 'boom and bust' population cycle, where if they are left to their natural devices, the starfish eat so much coral that they run out of food and die," said Prof. Satoh.

For their next steps, the Marine Genomics Unit is collaborating with Australian scientists to analyze crown-of-thorns starfish from the Great Barrier Reef. Instead of just using DNA in the mitochondria, the scientists aim to sequence the entire genome of each starfish, including DNA in the nucleus.

"Ultimately, we hope our findings can help us understand the population trends of the starfish better and the role of ocean currents in seeding new outbreaks," concluded Prof. Satoh. "This could potentially help us predict and therefore mitigate future outbreaks."

More information: Jun Inoue et al. An Investigation into the Genetic History of Japanese Populations of Three Starfish, Acanthaster planci, Linckia laevigata, and Asterias amurensis, Based on Complete Mitochondrial DNA Sequences, *G3: Genes, Genomes, Genetics* (2020). DOI: 10.1534/g3.120.401155

Journal information: *Nature*

https://phys.org/news/2020-07-tackling-coral-reefs-thorny-problem.html

WGBH NEWS

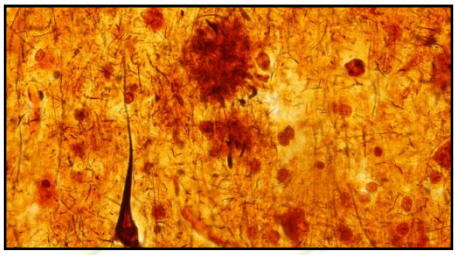
Thu, 09 July 2020

New clues to ALS and Alzheimer's from physics

By Jon Hamilton

The same process that causes dew drops to form on a blade of grass appears to play an important role in Alzheimer's and other brain diseases.

The process, known as phase transition, is what allows water vapor to condense into liquid water, or even freeze into solid ice. That same sort of process allows brain cells to constantly reorganize their inner machinery.



This light micrograph from the brain of someone who died with Alzheimer's disease shows the plaques and neurofibrillary tangles that are typical of the disease. A glitch that prevents healthy cell structures from transitioning from one phase to the next might contribute to the tangles, researchers say. Jose Luis Calvo/ Science Source

But in degenerative diseases that include amyotrophic lateral sclerosis, frontotemporal dementia, and Alzheimer's, the phase transitions inside neurons seem to go awry, says Dr. J. Paul Taylor, a neurogeneticist at St. Jude Children's Research Hospital in Memphis, and an investigator with the Howard Hughes Medical Institute.

This malfunctioning prompts the interior of the cell to become too viscous, Taylor says. "It's as if you took a jar of honey [and] left it in the refrigerator overnight."

In this sticky environment, structures that previously could nimbly disassemble and move around become "irreversibly glommed together," says Clifford Brangwynne, a professor of chemical and biological engineering at Princeton University and an investigator with the Howard Hughes Medical Institute. "And when they're irreversibly stuck like that, they can no longer leave to perform functions elsewhere in the cell."

That glitch seems to allow toxins to begin to build up in and around these dysfunctional cells, Taylor says — including the toxins associated with Alzheimer's and other neurodegenerative diseases.

The science behind this view of brain diseases has emerged only in the past decade.

In 2009, Brangwynne was part of a team that published a study showing that phase transitions are important inside cells – or at least inside the reproductive cells of worms.

"Originally, there was not a lot of traction for that idea," Brangwynne says. "Then — around about 2015 — people started to suddenly pay a lot of attention."

By that time, Taylor, too, had stumbled upon phase transition via a very different path.

As a practicing neurologist and geneticist at the University of Pennsylvania, he'd seen himself as a sort of medical detective.

"Typically the most oddball diseases that didn't fit into another category would wind up in my clinic, which I loved," he says.

One disease in particular caught Taylor's attention.

"We had been tracking a number of families that had an unusual degenerative illness," he says. "It was kind of a blend of a dementia and ALS."

Patients developed the mental problems of dementia as well as the muscle weakness of ALS, or Lou Gehrig's disease.

Taylor figured there must be a genetic explanation. But at the time — the late 2000s — he had no easy way to study his patients' DNA.

"So I collected those [DNA samples] and hung on to them for years," he says. "And then the world changed around me."

Seemingly overnight, it became feasible to sequence a person's entire genome. Taylor saw an opportunity.

"I dug those DNAs back out of the freezer," he says. "And we were fortunate enough to find the genetic basis for the disease in these families that I had known for, at that point, a decade."

What Taylor found was gene mutations that caused abnormal phase transitions in cells. And he found evidence of similar mutations in other neurodegenerative diseases.

This research earned Taylor the 2020 Potamkin Prize, a big deal in Alzheimer's research. And it got a lot of biotech companies thinking about ways to fix problems with phase transitions inside cells.

"I think it's probably safe to say that you'll see some of these types of therapies within the next couple of years," Taylor says.

Brangwynne says neurodegenerative diseases are an appealing target because the physics behind the problem is now clear, and because cells already contain mechanisms to regulate phase transition.

Inside a healthy nerve cell, he says, many molecules act a bit like people socializing.

"Something like at a party, where we've got little clusters of people hanging out and having nice conversations," he says. "They're free to come and go as they please."

That can change, though -- at a party or inside a brain cell.

"What happens in neurodegenerative disease is that the 'people' are irreversibly stuck together — they can't leave," Brangwynne says. "This is the Hotel California of biomolecular interactions."

But Brangwynne says that doesn't have to be the case.

In the lab, at least, experimental drugs and genetic tweaks have been used to unstick these molecules.

That could lead to new treatments for neurodegenerative diseases, Brangwynne says. And the ability to correct aberrant phase transitions may also be useful for other illnesses, including certain cancers, he says.

"It's very clear that this principle is at play in many, many diseases," Brangwynne says.

The startup Dewpoint Therapeutics hopes to develop phase-transition treatments for both cancer and neurodegenerative diseases. Late last year, Dewpoint, which is based in Boston and Dresden, Germany, signed a $100 million deal with the pharmaceutical giant Bayer.

https://www.wgbh.org/news/science-and-technology/2020/07/08/new-clues-to-als-and-alzheimers-from-physics

The Indian EXPRESS

Thu, 09 July 2020

Covaxin trials: Vaccine checks under way, hospitals await nod

Coronavirus (Covid-19) vaccine Covaxin: The Clinical Trials Registry of India on Monday showed that the date of first enrollment for the vaccine is now set at July 13, while the phase I and II trials are estimated to take one year and three months

By Prabha Raghavan, Tabassum Barnagarwala

New Delhi: While 12 hospitals chosen to conduct clinical trials of Bharat Biotech's Covaxin prepare to enrol participants this month, samples of the vaccine are still undergoing quality and safety tests at a government facility, The Indian Express has learnt.

The tests, which began last Friday, are expected to be completed by the end of next week and cannot be rushed as they are expected to ensure the vaccines are safe to use in humans, said senior officials.

Testing for coronavirus in Mandala, Anushakti Nagar in Mumbai, on Friday.

Meanwhile, at least three of the hospitals – AIIMS in Delhi, SRM Hospital and Research Centre in Kancheepuram and King George Hospital in Vishakhapatnam — are learnt to still be awaiting ethics committee approvals to begin enrolling participants for the study. Other hospitals are awaiting site initiation visits and clearances to ensure their facilities are ready to conduct these trials.

Depending on the hospital, enrollment of participants is expected to begin between this week and the next, but the testing can only start once they receive stock of the vaccine. This will happen once Bharat Biotech receives a clearance from the Central Drugs Laboratory in Kasauli to use its vaccines in the trials.

"We have several volunteers. But paperwork on the government's end is pending. The sponsor (Bharat Biotech) has not yet sent vaccines," said Dr Savita Verma from PGIMS, Rohtak, one of the 12 sites.

PGIMS has started the process of short-listing volunteers for trial. Once the site initiation letter (to initiate trial) is received, they will begin collecting blood and urine samples of each prospective participant and send it to a central laboratory to assess whether the candidate is eligible for trial.

The delivery of the vaccine will depend on biosafety and bio sterility tests conducted at CDL Kasauli, said a senior government official. For this specific vaccine, the tests to check whether it is safe to inject in participants will take 14 days as per Indian and international protocols.

"Such tests cannot be sped up. They (the tests) are checking for the safety of the vaccine," said the official. "This is necessary to make sure that no harm is caused to the patients during the trials."

Following a clearance certificate, it may take a few days to ship the vaccines from Bharat Biotech's facility to all trial sites. Investigators and officials expect the first phase of the study to begin in two week as a result.

One of the hospitals seeking ethics committee approvals told The Indian Express that the process for these approvals was taking time as the committee was being thorough to ensure no harm to the participants. "This is a stringent process, but it has to be this way. This is a trial on humans," said the investigator.

The Clinical Trials Registry of India on Monday showed that the date of first enrollment for the vaccine is now set at July 13, while the phase I and II trials are estimated to take one year and three months. According to the protocol on the registry, the first phase alone will at least take a month, after which interim data will have to be submitted to the Drug Controller General of India before proceeding to the next stage.

Some investigators have said they are not under pressure to rush the trials for the sake of a faster launch date. Last week, the Indian Council of Medical Research (ICMR) had faced flak from the scientific community for seeking completion of "all" trials by August 15, adding that it was envisaged to launch the vaccine for public health use no later than that date. However, ICMR had later clarified that it was only seeking to fast-track clearances and cut red-tapism.

"I believe by the middle of the third week of this month, we will be able to start. Everything is going as per our expectations," said Dr Sanjay Rai of AIIMS in Delhi. "You cannot do phase I and II together. Phase I is the safety trial. First, you have to establish the safety of the vaccine among the human population. We will move as per our protocol, based on the ethics committee's approval."

"On Tuesday our advertisement will come in regional newspapers to look for volunteers. But even if we speed up the process, it is not possible to produce results on safety by August 15," said Dr Chandramani Singh, from AIIMS Patna.

Dr Amit Bhate from Jeevan Rekha hospital in Belgaum, that has been part of other trials for Bharat Biotech, said they would recruit around 50 participants in phase I. "Our job is to enroll, test and give data. But we cannot hurry into it. We cannot work under pressure. Humans are involved in this trial. The results can get delayed if patients don't show up on assigned date or data collection is slow," Bhate said.

In Redkar Hospital and Research centre, Goa, Dr Dhananjay Lad also said that enrolment can only begin after a few days. "Each participant has to be tested for Covid-19. We will be able to start enrollment by next week, not before."

"Initially, we will be putting up 375 patients for phase I (across all sites)… The (results of the) initial 50 across the country will be subjected to a DSMB review–Data Safety and Monitoring Board. They will review and tell us whether it is okay to go ahead. If there are no issues, then we will continue the recruitment," said Dr E Venkata Rao, who is the principal investigator from Bhubhaneshwar's Institute of Medical Sciences & SUM Hospital.

In Prakhar hospital, an official said they have started reaching out to social workers to look for eligible candidates. "But unless vaccines come, we cannot proceed," the official said.

Dr Satyajit Mohapatra from SRM Hospital and Research Centre in Kancheepuram said they are yet to get approval from the ethics committee to start the trial. "It's a process and it will take time. Once approvals come, we will start the process of shortlisting and screening candidates."

Dr Prabhakar Reddy from Nizam's Institute of Medical Sciences said they are fast-tracking the whole process to help the government achieve early results. "Either today or tomorrow ethics committee approval should come. We are trying our best to speed up everything."

"Whoever does whatever in the race, we should make sure that we always have things of quality in compliance with guidelines and regulations. That is going to be because patient safety is of paramount importance. There is a need for speed, no doubt. But our quality and scrutiny for science should be (upheld) in what we do," said Dr Chirag Trivedi, president, Indian Society of Clinical Research.

https://indianexpress.com/article/india/covaxin-trials-vaccine-checks-under-way-hospitals-await-nod-6495182/

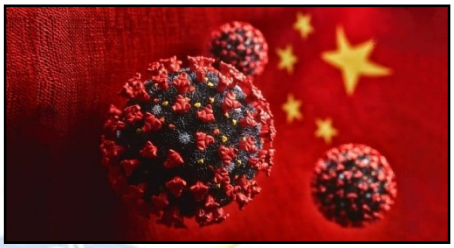
EXPRESS PHARMA

Thu, 09 July 2020

‘At war time speed’, China leads COVID-19 vaccine race

Sinovac Biotech’s experimental vaccine set to become the country’s second and the world’s third to enter final stage testing later this month

China is forging ahead in the race to develop a vaccine to help control the COVID-19 pandemic, with Sinovac Biotech’s experimental vaccine set to become the country’s second and the world’s third to enter final stage testing later this month.



While a laggard in the global vaccine industry, China, where the new coronavirus is thought to have originated, has brought state, military and private sectors together in a quest to combat a disease that has killed over 500,000 people worldwide.

Many other countries, including the United States, are coordinating closely with the private sector to try to win the vaccine development race, and China faces many challenges.

Its success in driving down COVID-19 infections makes it harder to conduct large-scale vaccine trials, and so far only a few other countries have agreed to work with it. After past vaccine scandals, Beijing will also have to convince the world it has met all safety and quality requirements.

But China’s use of command economy-type tools is so far yielding results.

A state-controlled entity, for example, completed two vaccine plants at what it called the “war time speed” of a couple of months, while state-owned enterprises and the military have allowed experimental shots to be used on staff.

The People’s Liberation Army’s (PLA) medical research unit, which has been a driving force in China’s efforts to fight infectious diseases, is also working with private firms including CanSino to develop COVID-19 vaccines.

Challenging the West’s traditional dominance of the industry, China is behind eight of the 19 vaccine candidates in human trials, with Sinovac’s experimental shot and one jointly developed by the military and CanSino among the front runners.

It is also focused mainly on inactivated vaccine technology – a technology that is well known and has been used to make vaccines against diseases such as influenza and measles – something which could raise the chances of success.

By contrast, several Western rivals such as U.S.-based Moderna and Germany’s CureVac and BioNTech are using a new technology called messenger RNA that has never before yielded a product approved by regulators.

‘Tried and true’

“It’s a tried and true strategy,” said Paul Offit, director of the Vaccine Education Center at Children’s Hospital of Philadelphia, about inactivated vaccine technology.

“If I had to pick a vaccine that I think would be the most likely to be safe and effective, it would be that one,” he said. Offit is also co-inventor of the rotavirus vaccine, RotaTeq, manufactured by Merck & Co Inc (MRK.N).

Four of the Chinese candidates in human trials are inactivated vaccines, including Sinovac’s and two vaccines from China National Biotec Group (CNBG), a unit of state-owned China National Pharmaceutical Group (Sinopharm).

There are currently only two experimental COVID-19 vaccines in final Phase III trials – one from Sinopharm and another from AstraZeneca and the University of Oxford. Sinovac's is set to become the third later this month.

To speed up the process, China allowed Sinopharm and Sinovac to combine Phase I and Phase II trials for their vaccine candidates.

For CanSino's experimental vaccine, the PLA research institute played a key role, with the two working on a method using an adenovirus – a similar approach to AstraZeneca's.

The PLA has its own approval process for "military specifically-needed drugs", and approved the military use of the candidate developed by its research unit and CanSino last month.

PLA lead scientist Chen Wei, who has been the face of its vaccine development effort, was among the first to take the experimental COVID-19 shot developed by her team, as well as its potential SARS treatment years before, according to state media.

Challenges

China has challenges, though, as the epidemic has petered out in the country, hampering efforts to conduct large trials.

It has since shifted its focus overseas, but only a handful of countries have shown willingness to collaborate – UAE, Canada, Brazil, Indonesia and Mexico. Neither major European countries nor the United States have shown interest in China's COVID-19 vaccines as they focus on their own projects.

China must also address concerns over its vaccine quality and safety issues following several here scandals here over substandard vaccines in recent years.

"The Chinese national regulatory authority has been improving its oversight," said Jerome Kim, head of the International Vaccine Institute, a non-profit agency established as an initiative of the U.N. Development Programme.

China introduced a law last year to regulate the vaccine industry, with heavier penalties for selling and making fake or low-quality vaccines than other drug products.

https://www.expresspharma.in/latest-updates/at-war-time-speed-china-leads-covid-19-vaccine-race/

TECH EXPLORIST

Thu, 09 July 2020

Researchers develop battery-operated portable ventilator

By Jyoti Singh

The novel coronavirus pandemic has raised the demand for ventilators across the country. To meet the escalating demand, researchers from Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) has developed an Emergency Breathing Assist System (EBAS), called AirBridge.

The device is portable, battery-operated, and user-friendly. Air Bridge can be used for ventilator support in COVID-19 related or non-COVID related emergencies in hospital wards and during transportation of patients in ambulances. It can also be used in small hospitals without a central oxygen supply system using oxygen cylinders in emergencies.

"The device is not a replacement for a mechanical ventilator but works as a bridge for a few hours to a few days before conventional mechanical ventilation can be provided,'' said SCTIMST director Dr. Asha Kishore.

The know-how and design of EBAS were transferred to Wipro 3D in April 2020 for further joint development. The product is ready for commercial production under the brand name 'Air Bridge.' SCTIMST and Wipro 3D Bangalore have jointly launched it on Tuesday through video conference.

A team of engineers Sarath S Nair, Vinod Kumar V, and Nagesh DS from the department of medical device engineering and professors Thomas Koshy and Manikantan from the department of anesthesia developed the specifications and technology.

https://www.techexplorist.com/battery-operated-portable-ventilator/33626/

THE FREE PRESS JOURNAL SINCE 1928

Thu, 09 July 2020

Latest coronavirus vaccine update: Serum Institute of India expects Covid-19 vaccine by year-end

Vaccine maker Serum Institute of India (SII) is hoping to develop a COVID-19 vaccine by the year-end as it is focusing on a "good and safe" product and is not in a "rush", the company's CEO Adar Poonawalla said on Tuesday.

He was speaking during the launch of 'Compact XL, a compact diagnostics machine by MyLab Discovery Solutions, that will automate lab processes from sample handling to preparing RT-PCR tubes. Replying to a question about the development of the COVID-19 vaccine, Poonawalla said that by the end of 2020, the SII is hoping to have a vaccine.

"End of the year, we are hoping to have a vaccine. So we will discuss once of the phase three trials for the product come about. Recently, there was news about another vaccine candidate which was being rushed. We do not want to rush anything. We want to emphasis on safety and efficacy... and once we are confident of good and safe vaccine, we will announce but that is still six months away from now," said Adar.

He further said that till the vaccine comes, testing is the key and that is why SII has invested in MyLabs. "If you test, isolate and segregate, we can manage the situation till the good cure or vaccine comes around," said Adar.

SII has invested over Rs 100 crore in MyLabs, a Pune-based molecular diagnostics firm. Poonawalla lamented that India is not testing enough and added that Indian test manufacturers including MyLabs are picking up the production capacity.

"There is a fear that what will happen if the number of positive patients increases. I would like to say that there is no harm if the number increases as it will help us detect people," he added.

Poonawalla also sought permission to allow export of the test kits. "We have enough capacity in manufacturing testing kits. MyLab can produce 2 million kits per week and there is no that much demand in India so allow us to export and we have enough buffer stock for India readily available if there is more outbreak," he said adding they are waiting for the government's blessings.

https://www.freepressjournal.in/india/latest-coronavirus-vaccine-update-serum-institute-of-india-expects-covid-19-vaccine-by-year-end

hindustantimes

Thu, 09 July 2020

Horseshoe crab blood could help make Covid-19 vaccine, but harm the ecosystem

The animals' milky-blue blood is the only known natural source of limulus amebocyte lysate (LAL), a substance that detects a contaminant called endotoxin

Edited By Saumya Sharma

New Delhi: During the warmer months, especially on a full moon night, several thousand horseshoe crabs emerge from the sea onto beaches across the U.S. mid-Atlantic to spawn. For pharmaceutical companies, they work as an important resource for making medicines safe. Teams of lab workers capture the horseshoe crabs and take them to labs to harvest their cerulean blood, before returning them to the sea.

Horseshoe crabs' milky-blue blood is the only known natural source of limulus amebocyte lysate (LAL). (Unsplash)

The animals' milky-blue blood is the only known natural source of limulus amebocyte lysate (LAL), a substance that detects a contaminant called endotoxin, a type of bacterial toxin. Even an iota of endotoxin in vaccines, injectable drugs and more can prove to be fatal.

According to horseshoecrab.org, "Research on horseshoe crabs showed that their blood is very sensitive to endotoxin, which is a component of Gram-negative bacteria like E. coli. In the 1960s, Frederik Bang and Jack Levin developed a test from Limulus polyphemus blood that detected the presence of endotoxin. This test, based on the fact that the blood of the horseshoe crab gels or clots when it comes in contact with endotoxin, was called the Limulus amebocyte lysate (LAL) test and was commercialized in the United States in the 1970s. In Asia, there is a similar test called TAL which takes its name from an Asian species of crab, Tachypleus tridentatus."

Horseshoe crabs return to the sea once they hatch and only return to the shore once they reach sexual maturity, which might be a gap of a decade. The eggs laid by female horseshoe crabs, around a 100,000 eggs, also help the ecosystem as sea birds depend on them too.

"Scientists take about a third of a horseshoe crab's blood for use in the tests, after which the creature is released back into the ocean. Companies that make LAL tests say the animals are not harmed during the procedure," according to World Economic Forum.

"According to some estimates, though, 15% may die as a result of the process. And there's concern the horseshoe crab is facing pressure on many fronts – it's also fished to be used as bait and suffering due to habitat loss and rising sea levels. It has a key role in the ecosystem, too, with its eggs providing food for bird species including the threatened red knot," adds WEF on its official website.

Horseshoe crabs are not actually crabs, but arthropods that are more closely related to scorpions. They have existed for more than 440 million years across eons. Due to their ancient lineage, they are often referred to as "living fossils".

One of the key reasons of the species' longevity is their blue blood, so coloured because of its rich copper content.

Catching these crabs and harvesting their blood is time-consuming, with the resulting lysate costing $60,000 per gallon (approximately $16,000 per litre) according to Bloomberg, giving it the name of 'blue gold'.

Overharvesting and their use as fishing bait is causing the crab numbers to deplete at a fast pace which is alarming marine conservationists globally.

Covid-19 vaccine

As the race to find a vaccine to the deadly coronavirus ramps up, the marine creatures have hit headlines once again. “With about 400 coronavirus drugs and vaccines in development and safety tests using horseshoe crab blood currently the industry standard, this unusual-looking critter is set to play an important role in the pandemic,” says a report by World Economic Forum.

A synthetic alternative to LAL

Companies can use a synthetic alternative to the blood of horseshoe crabs in safety tests for medical products, a European agency has ruled, in a boost for wildlife advocates and groups such as Lonza that make it. To test for bacterial contamination in medical products, the world now relies on a single source of lysate - the blood of two species of the horseshoe crab family that are endangered, states a report by Reuters dated July 2.

Wildlife conservationists are pushing drugmakers to switch to a synthetic alternative for the tests, including those needed before a Covid-19 vaccine can be used on humans.

The issue in question for the agency was whether recombinant factor C (rFC) can be used in the bacterial contamination tests, rather than the classic limulus amoebocyte lysate (LAL)-based methods that rely on blood from the crabs.

“When used under appropriate conditions, rFC-based methods provide the same guarantee of a product’s compliance with the test for bacterial endotoxins – and therefore, of its safety for use in patients – as LAL-based methods,” Susanne Keitel, director of the European Directorate for the Quality of Medicines and Healthcare (EDQM), said in a statement.

https://www.hindustantimes.com/health/horseshoe-crab-blood-could-help-make-covid-19-vaccine-but-harm-the-ecosystem/story-25aws48EvOtVjPSFcnO1SN.html