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# समाचार पत्रों से चयित अंश Newspapers Clippings

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

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## **Punjab: Ludhiana scientists invent contactless sanitiser, UV-C disinfection system**

*ICAR-CIPHET scientists have invented touch-free hand sanitiser machine and UV-C disinfection system to disinfect cell phones and wallets*

*By Pritesh Kamath*

Amid the COVID-19 pandemic which has taken the world hostage, India is also grappling with the virus with social distancing measures. However, in the times of the health crisis, Indians have taken the challenge and come up with innovative mechanisms and inventions to fight the deadly virus.

Regular hand sanitisation is one of the important measures to be undertaken to prevent the spread of the virus. Scientists of ICAR - Central Institute of Post Harvest Engineering & Technology (ICAR-CIPHET) from Ludhiana, Punjab has designed a touch-free hand sanitiser dispenser machine that can sanitise hands without touching any surface. It has an infrared sensor that detects the proximity of the body and dispenses the sanitising gel without requiring a touch command.

Rahul Kumar Anurag, the brain behind the invention, has also invented another utility machine- the UV-C disinfection system that can disinfect our mobile phones, purses, wallets and other personal items. The devices cost around Rs 1500 each.

Earlier in the month, Defence Research Development Organisation's (DRDO) laboratory in Hyderabad also come up with a Contactless Sanitisation Cabinet which was designed to sanitise mobile phones, tablets, laptops and currency notes. The machine was called as Defence Research Ultraviolet Sanitiser (DRUVS).

As the nation is nearing towards the end of lockdown 4.0 with merely a day left, the number of cases in India is on an alarming rise. As of May 30, India has reported 173,763 COVID-19 cases, of which 4,971 have succumbed to the virus while 82,369 have been recovered and discharged. The total count of active cases stands at 86,422, according to the Ministry of Health and Family Welfare. However, the nation is recording record new highs in the number of new cases reported every other day. The highest single day spike has been reported in the country at 7,964 new cases and 265 deaths in past 24 hours.

<https://www.republicworld.com/technology-news/gadgets/ludhiana-icar-sanitiser-covid-19-icar-ciph-et-uv-c-disinfection-system.html>



## Bengaluru firm to make Nasa's Covid-19 ventilator

Bengaluru: Bengaluru firm Alpha Design Technologies is among three Indian entities which have been picked by US space agency Nasa to manufacture a Covid-19 ventilator. The two other Indian firms are Bharat Forge and Medha Servo Drives Private Limited.

The ventilator is developed by Nasa's Jet Propulsion Laboratory (JPL). Globally, 21 companies, including from Brazil, Mexico, UAE and Malaysia, have been selected to manufacture it.

Alpha Design chairman and managing director Col (retd) HS Shankar told STOI that Nasa had already begun the process of transferring the technology to the chosen firms.

"We really appreciate the fact that they wanted the technology to reach different parts of the world and they decided to offer all the technology, including software, drawings and all documents, free of cost. So far it has been a very professional experience to see how quickly such an elaborate process has been completed in such a short time," Shankar said.

Alpha Design works closely with ISRO and Defence Research & Development Organisation (DRDO).

"The prototype, which was created by JPL engineers in just 37 days, received an emergency use authorisation from the Food and Drug Administration on April 30," JPL said in a statement.

The ventilator intervention technology accessible locally, or VITAL as JPL calls it, was designed to use only one-seventh of the parts of a traditional ventilator, relying instead on components already available in supply chains.

"It offers a simpler, more affordable option for treating critical patients while freeing up traditional ventilators for those with the most severe Covid-19 symptoms. Its flexible design means it also can be modified for use in field hospitals," JPL said.

The Office of Technology Transfer and Corporate Partnerships at Caltech, US, which owns the patents and software for VITAL is offering a free licence for the device.

Shankar said the companies would make five prototypes to be sent for FDA clearance. This will enable them to market the product in the US and Europe. "For the Indian market, we will have to make five more prototypes and send it to ICMR [Indian Council of Medical Research] for certification. Once this is done, we can start selling the product, which, in my opinion, is far more advanced than any other product in the market," Shankar said.

<https://timesofindia.indiatimes.com/city/bengaluru/three-indian-firms-to-make-nasas-covid-ventilator/articleshow/76114754.cms?from=mdr>



## **Will order for 83 Tejas soon, HAL to deliver 70 aircraft by 2026: IAF Chief Bhadauria**

*Air Chief Marshal Bhadauria said the plans were being drawn up to depute more officers to HAL to increase accountability*

*By Amrita Nayak Dutta*

New Delhi: The Indian Air Force (IAF) is likely to place an order for 83 Light Combat Aircraft (LAC) Tejas MK IA soon and expects deliveries to commence in three years, Air Chief Marshal R.K.S Bhadauria told ThePrint in an email interview.

Bhadauria further said the state-owned Hindustan Aeronautics Limited (HAL) is expected to complete the delivery of 70 Hindustan Turbo Trainer-40 (HTT-40) by 2026.

The IAF is also sure HAL will complete the full development of the Light Utility Helicopter (LUH) this year and is already progressing on the procurement of an initial batch of the choppers.

The Air Chief's statement comes amid a renewed push for the indigenous defence industry by the Narendra Modi government under its 'Atmanirbhar initiative' given the economic downturn in the wake of the Covid-19 pandemic.

Earlier this month, Finance Minister Nirmala Sitharaman announced a slew of measures such as a negative list for the import of defence equipment which could be built in India, a separate capital budget for indigenous weapons procurement, and corporatisation of the Ordnance Factory Board (OFB), among others.

### **On indigenous Tejas, trainers**

The Air Chief said that the order for 83 Light Combat Aircraft (LCA) MK IA is likely to be placed soon and the deliveries will commence in three years.

On Wednesday, Bhadauria flew a Tejas, which is part of the IAF's 45 Squadron, at the Sullur air force station.

He was in Sullur to operationalise the IAF's 18 Squadron, called the Flying Bullets.

"In the long run, the IAF will have 40+83 Tejas Mk I/IA and around six squadrons of Tejas Mk II. Eventually, we aim to boost our capabilities with the fifth generation plus AMCA (Advanced Medium Combat Aircraft)," he said.

"The IAF's current induction plan, coupled with capability enhancements underway through upgrades of many aircraft and weapons, will take care sufficiently of our current threat scenario in the short term," he added.

Currently, the IAF has 30 active fighter squadrons.

Bhadauria said depletion will be offset by deliveries of Rafale and the LCA MK IA, while a follow-up acquisition plan will start to recover the overall squadron strength.



[Air Chief Marshal RKS Bhadauria, chief of the Indian Air Force | File photo | ANI](#)

Asked about the projected timelines for India's indigenous trainer program and the plans to fill up the gaps in the pilots' trainer programme, Bhadauria said the IAF is assisting HAL with concurrent user assisted trials on HTT-40 to cut down on development timelines.

"We expect to start receiving the trainer in 2022 and complete deliveries of 70 aircraft in four years. The HTT-40 will augment the already inducted trainer aircraft in a three-stage training programme," he said.

He added that the exact cost details of the HTT-40 are being worked out by HAL.

The state-owned firm's programme to develop a basic HTT-40 trainer is nearly six years behind schedule.

The IAF is currently running low on trainers with plans to procure more aircraft hitting a dead end. The crisis reportedly had affected the training of pilots due to a lack of aircraft.

In an earlier interview to ANI, Bhadauria had said that the IAF shelved its plans to buy 38 Pilatus basic trainer aircraft from Switzerland and 20 additional Hawk planes from Britain.

Currently, Pilatus PC 7 turbo trainers are used for the first stage of training of Air Force pilots. For the intermediate training, Kiran Mk 2 are being used, which are being phased out, while the Hawk jet trainers are being used for advanced training.

As many as 75 of the aircraft were bought under an emergency purchase in 2012, however a plan to get an additional 38 aircraft was cancelled following allegations of corruption in the deal.

Another indigenous programme to develop an intermediate jet trainer was delayed by nearly 15 years over quality concerns.

Asked about the status of the current LUH programme, Bhadauria said it had proven productive but still needs to demonstrate some operational requirements at high altitude and fix some flying qualities issues.

"We are confident that HAL will complete the full development this year and the IAF is already progressing a case for procurement of an initial batch of Limited Series production of LUH," he said.

Apart from improvements to equipment and infrastructure, Bhadauria said that the IAF will continue inducting women into fighter streams in the future as a regular mode of entry.

"The numbers will depend on volunteers and those who clear the selection and training process," he said.

Presently, the IAF has a total of 111 women pilots, of which nine are on fighters and the rest are on transport and helicopter fleets.

#### **DRDO challenges lies developing in niche tech**

Air Chief Marshal Bhadauria said that the Defence Research and Development Organisation's technology and quality issues have improved significantly over the years in many areas such as ground radars, air-to-air missiles, missile defence systems, networking, etc., even as some challenges lie in niche technologies.

The LCA programme has also undergone major improvements, he said, adding, "Current challenges lie in niche technologies such as sensors, guided weapons and advanced technologies. To counter rapidly evolving threats, timely deliveries are essential to sustain the capability and technological edge."

He emphasised that "timely deliveries" are essential to sustain the capability and technological edge to counter "rapidly evolving threats."

Talking about making HAL more accountable for quality, timely delivery and lifetime support, he said there are plans underway to instil greater user participation at various levels by deputing more IAF officers to HAL.

"I am sure HAL will evolve its structures and processes to become competitive," he said.

## Jaguars to operate well beyond 2035

Bhadoria addressed the issue of how likely budget cuts on the planned induction of weapon systems could impact the IAF, saying there is always a constant endeavour to balance security needs with budget constraints.

“The IAF is already prioritising its capital and revenue expenditure plans for the year to adapt to the evolving budget realities. Our focus would be to economise and reprioritise without affecting our immediate combat capability requirements,” he said.

The Air Chief had earlier told ANI that the upgradation of 80 Jaguar fighter planes with engines from Honeywell Corporation America has been shelved.

However, he told ThePrint that the IAF have initiated other measures to sustain the engines and maintenance aspects of the fleet.

“Jaguar fleet is expected to operate well beyond 2035 with its upgraded avionics, sensors and EW (electronic warfare),” he said.

Bhadoria said while there are logistical and operational challenges of systems from different countries, especially of Russian and western origin, these are overcome by proper procedures, management and technology.

“There is no effect on interoperability as the IAF has trained for several decades with these systems,” he said.

“However, we are focused on reducing the number of types of aircraft in the future to optimise the logistical and maintenance issues,” he added.

<https://theprint.in/defence/will-order-for-83-tejas-soon-hal-to-deliver-70-aircraft-by-2026-iaf-chief-bhadoria/432320/>



Mon, 01 June 2020

## IAF wants more private participation in MWF, HAL promises a higher production rate

Air Chief Marshal R.K.S. Bhadoria recently confirmed that Indian Air Force (IAF) has committed to procure 100 Medium weight fighter (MWF) which are to be locally produced and have been designed by Country's Nodal design agency Aeronautical Development Agency (ADA), but IAF has asked the company to have higher participation from the private sector companies, more than what has been planned by Hindustan Aeronautics Limited (HAL) which is in charge of Tejas Mk1A program.

Hindustan Aeronautics Limited (HAL) has decided to outsource the manufacturing of the entire fuselage of the upcoming Tejas Mk1A program to the private sector companies and these companies have already started manufacturing them for the current batch of FOC Configuration Tejas Mk1.

IAF wants ADA to work on how more work can be awarded to the private sector companies while it contemplates who could be lead integrator in the Medium weight fighter (MWF) program. idrw.org has been confirmed that, while HAL is currently procuring Machines and ground equipment for the manufacturing of the first pre-production



aircraft which will be used for flight and weapon testing aircraft, HAL is yet to be appointed as a lead integrator in the program.

IAF has been exploring ways to allow private sector companies to be second lead integrators in the program to build local private company's capabilities and also to be less dependent on the state-owned HAL for some time now and the same was earlier planned also for the Tejas Mk1A program but was dropped.

HAL, on the other hand, has said that it is willing to take production rate per annum from 16 to 20 for the Tejas Mk1A and Medium weight fighter (MWF) program if IAF desires and is open to outsourcing more to private sector companies. IAF plans were to have a second production line headed by a private sector company but with a limited production line of 5-6 aircraft per annum overlooked by the HAL so has to build local capabilities for future programs like AMCA. IAF and ADA along with HAL are likely to come with plans to further outsource for the Medium weight fighter (MWF) program in the coming years.

*(Note: Article cannot be reproduced without written permission of idrw.org in any form even for YouTube Videos to avoid Copyright strikes)*

<https://idrw.org/iaf-wants-more-private-participation-in-mwf-hal-promises-a-higher-production-rate/#more-228408>

## Defence News

## Defence Strategic: National/International

# The Tribune

Mon, 01 June 2020

## Air Commodore Ghuratia is city aeronautical society head

Chandigarh: Air Commodore Sanjiv Ghuratia, Air Officer Commanding, No.3 Base Repair Depot, has been elected as the new Chairman of the Aeronautical Society of India (AeSI), Chandigarh chapter.

He took over the post during an online ceremony from Dr Pravendra Kumar, Director, SPIC, DRDO, New Delhi, today.

A life member and fellow of the IETE, Ghuratia is a Flight Test Engineer who has served in the IAF for more than 32 years in various capacities, including United Nations Mission abroad. He is an alumni of Air Force Test Pilots School, Bangalore, BITS Pilani and the Defence Services Staff College, Wellington.

AeSI Chandigarh Chapter is actively involved in promoting aeronautical science in the tricity region.

After taking over, the new Chairman shared the roadmap of various activities planned by the AeSI for 2020-21. He said the AeSI would provide a strong platform to the aerospace industry and academia towards making the country self-reliant in the growing field of aerospace.

<https://www.tribuneindia.com/news/chandigarh/air-commodore-ghuratia-is-city-aeronautical-society-head-92701>



Air Commodore Sanjiv Ghuratia



## In 1st comment on Ladakh standoff, Rajnath Singh's pointed reference to Doklam

*Defence Minister Rajnath Singh comments are the first from a senior central minister on the standoff between India and China*

New Delhi: India and China are talking to each other at military and diplomatic levels to resolve the Ladakh standoff, Defence Minister Rajnath Singh said on Saturday. Singh's statement is the first from a senior central minister on the standoff with China at four points along the Line of Actual Control.

Rajnath Singh told news channel Aaj Tak that both countries had made it clear that they wanted to resolve the problem. In course of the interview, Rajnath Singh also underlined that there was no need for the United States to mediate since the two countries already had a mechanism to resolve problems and it had been set in motion.

US President Donald Trump this week told reporters that he was "ready, willing and able to mediate" between India and China to help resolve tension at the border.

The offer has been rejected by foreign ministries of the two countries.

The offer also figured in a conversation between Rajnath Singh and US secretary of state Mark Esper when they spoke last evening.

"I told him that India and China already had a mechanism that if there is any problem between the two countries, it is resolved by military and diplomatic dialogue. That mechanism is in place and the dialogue is on," Rajnath Singh told the news channel. He also pointed to statements from Beijing on similar lines.

"India's policy has been very clear that we should have good relations with all neighbours. This has been a long standing effort. But sometimes, circumstances arise with China that things like this happen," he said.

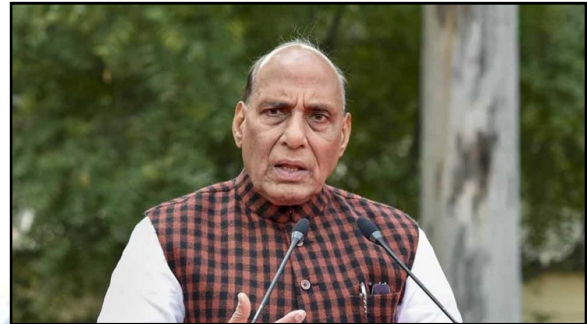
The defence minister also referred to the 2017 Doklam faceoff. "It appeared at that time that the situation was very tense. But we did not step back... Ultimately, we were able to resolve the situation," he said.

China had earlier this month moved a large number of its troops to four points in Ladakh sector's Galwan Valley and Pangong Tso area in an apparent effort to browbeat the Indian side to stop border construction projects including a 60-metre concrete bridge being built near Daulat Beg Oldie, the last military post south of the Karakoram Pass.

In response, India's military also moved in reinforcements to match the Chinese troops and made it clear that New Delhi would not allow any unilateral attempt by China to alter the status quo along the LAC.

"The country should be assured that we will not allow India's dignity to be hurt under any circumstances," Rajnath Singh said. To a question on China's ability to arm twist New Delhi, the minister said there was no question of this happening since the country had a strong leadership and the people knew this.

<https://www.hindustantimes.com/india-news/dialogue-with-china-is-on-says-defence-minister-rajnath-singh-on-ladakh-standoff/story-jIfRLjiGXvJMqVVOxuiCGK.html>



New Delhi: Defence Minister Rajnath Singh has asserted that India and China will be able to resolve the Ladakh standoff with China via dialogue (PTI)

## Who does the Indian Army's voluntary 'Tour of Duty' really benefit?

*The NCC, 28 Sainik Schools and 576 Navodaya Vidyalayas are unable to instill discipline in youth, the Army wants us to believe. Is the planned 'Tour of Duty' driven more by a political agenda?*

*By Uttam Sengupta*

Reports appeared earlier this month to suggest that the Indian Army was 'discussing' a proposal to induct volunteers on short, three-year stints. The idea, explained Defence spokesperson Colonel Aman Anand, is to allow Indian youth to experience military service without making it a career. The project is tentatively named Tour of Duty.

The volunteers, officers and jawans, would undergo training for nine months or a year before getting deployed in operational posts. This will, it is being said, help create a group of highly motivated, disciplined, patriotic and confident youth, ready to serve with distinction in any other sector they choose to join.

Another benefit, revealed in an internal note, will be to reduce the army's salary and pension burden as well as training costs. What has not been revealed is now in the realm of speculation.

The world's third largest army with 1.4 million personnel (China is said to have reduced its army by half and Japan Defence Report 2019 put PLA numbers at less than a million) is not exactly short of manpower. Millions of unemployed youth are eager to join its ranks for a stable job, regular pay and pension. But it is said to be short of officers to lead the jawans. Army veterans say it had become increasingly difficult to find youth with 'officer material'. But is the voluntary tour of duty the way forward to address the issue?

The reports led to a flurry of posts on social media by ex-servicemen. Here are some samples:

- Is Army planning to change its secular credentials? We all know how RSS managed coaching instituturs have deeply penetrated Civil Services specially IAS and IPS?
- Why is RSS planning private military schools?
- I am worried entry of 'Tour of Duty' soldiers will open the gate for radicalised and communal elements to infiltrate the army
- Will caste profile of Indian army regiments be changed?
- Will applicants from RSS and RSS affiliated schools be eligible?

The disquiet is not confined to only ex-servicemen. Even serving officers seem sceptical. Says a serving General, "The shortage of officers in the army is not because of paucity of aspirants. It is because of paucity of the right kind of aspirants. The British had an acronym for it, namely OLQ (Officer Like Qualities)". While the Army has so far resisted compromising on the qualitative requirements for officers, he added, the Tour of Duty could be the beginning of the end of the Indian Army as a professional force.

"A much better idea would be to make a three-year stint in the armed forces mandatory for those who crack the civil services examinations. At the end of three years, the suitable among them may exercise the option of staying back in the army or join the civil services," says a retired commander.

A retired Major General, when asked to comment on the proposal, quipped, "wars have no prizes for the runners up; the army must be manned and led by people who can make the supreme sacrifice whenever necessary. But this proposal sounds like a picnic and may turn out to be more tour than duty". What can this tour of less than two years, excluding training and leave, serve or achieve, he wondered aloud.

Army officers, who lead jawans, need to command their respect, trust and loyalty—a bonding that is almost impossible to achieve by volunteers on tour. Whoever has thought up this scheme is either starved of ideas or is up to some mischief.

The suspiciously scatterbrained idea may or may not have been inspired by RSS chief Mohan Bhagwat. We do not know for sure. But what is on record is a statement made by Bhagwat in 2018. He was reported to have said that while the Indian Army would take six months to prepare a trained army, the RSS could do it in three days, if necessary. That was how strong the RSS was, he seemed to suggest, though he hastened to add the caveat that RSS was a ‘Parivarik’ Sanstha.

Following public outrage, Manmohan Vaidya of the RSS claimed Bhagwat had been misquoted. What the RSS chief had said, Vaidya claimed, was that if the situation arose and the Constitution permitted, RSS volunteers could be trained by the army in three days while the rest of the society would take six months to be prepared by the army. The comparison was not between the Indian Army and the RSS, Vaidya laboured to clarify, but between the RSS and the society at large.

Commentators have been quick to point out how the RSS encouraged coaching institutes to train youth for civil services. There never was any shortage of UPSC coaching institutes but RSS floated its own coaching institutes, invited serving civil servants to engage classes and interact with aspirants chosen by the Sangh. Tips were shared to crack the UPSC examination and some of the aspirants did get selected every year and joined the civil service. The exercise helped the RSS make inroads into the civil service, connect with the bureaucracy and infiltrate it from within.

The same tactics appears to have been followed by the RSS in setting up its own Sainik Schools. A Google search yields the image of a Rajju Bhaiyya Sainik School in Uttar Pradesh, apparently named after a former RSS chief. It is worth recalling that there are already as many as 28 Sainik Schools in the country which run under the supervision of the Ministry of Defence. Over the past several years, these schools have been starved of funds while the RSS planned to start its own “Army School” from April, 2020.

In any case, for the past half a century and more we have had a National Cadet Corps (NCC) programme in colleges. There is a NCC Directorate and JCOs, NCOs and officers as trainers are provided by the army. Drills, camps, fitness, shooting at firing ranges, adventure sports etc. have been part of the training. NCC contingents continue to take part in Republic Day parades in Delhi and in the states; and there is a quota for NCC cadets who want to join the army and fulfil eligibility conditions.

While Israel does have a compulsory military service for every able-bodied men and women, the voluntary ‘tour of duty’ falls between two stools. Not only will the number be small, the selection is likely to be subjective, selective and arbitrary.

And if the idea is to promote self-confidence, teamwork, initiative, innovation, stress management and a sense of responsibility, as the Army spokesman Colonel Aman Anand confirmed to the media, is it an admission that project NCC has failed? Why not redesign the NCC then? But the Government’s internal note lets the cat out of the bag. The tour is meant for “those young people who do not want to make defence services their permanent vocation, but still want to experience the thrill and adventure of military professionalism.”

It goes on to add, “Unemployment in our country is a reality, however there is resurgence of nationalism and patriotism...” A few thousand patriots on tour, the Govt believes, will solve unemployment and make our youth more patriotic.

<https://www.nationalheraldindia.com/india/indian-army-more-tour-and-less-duty>

## लद्दाख के हालात जानने पहुंचा भारतीय नौसेना का दल, सैन्य टकराव से निपटने की रणनीति की हो रही समीक्षा

**भारतीय थलसेना के जवान ही पैगांग झील में भारतीय इलाके की सुरक्षा का जिम्मा संभालते हैं।**

**वह झील में मोटरबोट के जरिए गश्त करते हुए चीनी की घुसपैठ को रोकते हैं**

श्रीनगर: India China Border Tension ; चीन के साथ बढ़ते सैन्य तनाव के बीच भारतीय नौसेना के अधिकारियों का एक चार सदस्यीय दल भी लद्दाख पहुंच चुका है। यह दल पैगांग त्सो झील में गश्त के लिए आवश्यक साजो सामान व झील में किसी भी सैन्य टकराव की स्थिति से निपटने की रणनीति की समीक्षा कर रहा है। बताया जा रहा है कि अत्याधुनिक मोटरबोट भी लद्दाख पहुंचाई गई हैं। पूर्वी लद्दाख में पांच मई को पैगांग त्सो झील के इलाके में ही भारतीय और चीनी सैनिकों के बीच मारपीट हुई थी। पैगांग झील का एक हिस्सा भारत के पास है और दो तिहाई हिस्सा चीन के पास। यहां वास्तविक नियंत्रण रेखा समुद्रतल से करीब 14 हजार फुट की ऊंचाई पर स्थित इस झील के भीतर से गुजरती है।

**झील में मोटरबोट से गश्त कर चीनी घुसपैठ को रोकते हैं भारतीय जवान**

भारतीय थलसेना के जवान ही पैगांग झील में भारतीय इलाके की सुरक्षा का जिम्मा संभालते हैं। वह झील में मोटरबोट के जरिए गश्त करते हुए चीनी की घुसपैठ को रोकते हैं। सूत्रों ने बताया कि हालात को देखते हुए भारत ने पैगांग झील में गश्त और अपने इलाके की सुरक्षा के लिए आवश्यक साजो सामान बढ़ाया है। अत्याधुनिक मोटरबोट भी लद्दाख में पहुंचाई गई हैं। उन्होंने बताया कि पैगांग झील में गश्त के लिए भारतीय सेना अमेरिका से खरीदी गई अत्याधुनिक मोटरबोट का इस्तेमाल करती है।



भारतीय थलसेना के जवान ही पैगांग झील में भारतीय इलाके की सुरक्षा का जिम्मा संभालते हैं। वह झील में मोटरबोट के जरिए गश्त करते हुए चीनी की घुसपैठ को रोकते हैं

**सेना की मोटरबोट व अन्य साजो सामान की समीक्षा कर रहा नौसेना का दल**

जीपीएस, नाइट विजन डिवाइस और मशीनगन से लैस इस मोटरबोट में एक समय में करीब 17 सैनिक सवार हो सकते हैं। सूत्रों ने बताया कि रक्षा मंत्रालय ने बीते सप्ताह नौसेना के चार सदस्यीय दल को लद्दाख भेजा है। यह दल इस समय सेना की मोटरबोट व अन्य साजो सामान की समीक्षा कर रहा है।

**फिगर-4 इलाके में सड़क बिछाने की सूचना**

एक अन्य सूचना के मुताबिक, चीनी सेना ने फिगर-4 इलाके में वास्तविक नियंत्रण रेखा के आगे भारतीय इलाके में भी कथित तौर पर सड़क बिछानी शुरू कर दी है। इस इलाके में चीनी सेना ने बंकर जैसा एक ढांचा भी तैयार किया है। सूत्रों ने बताया कि चीनी सेना ने इस इलाके में भारतीय सेना की गश्त को रोकने के लिए अपने बुलडोजर भी तैनात किया गया है।

उन्होंने बताया कि चीनी सेना के इस कदम के बाद भारतीय सेना के लिए फिगर-तीन से आगे गश्त के लिए जाना बंद हो जाएगा। उन्होंने बताया कि भारत के मुताबिक, वास्तविक नियंत्रण रेखा फिगर-आठ से शुरू होती है, जबकि चीन का दावा है कि यह रेखा फिगर-2 से शुरू होती है। अलबत्ता, अधिकारिक स्तर पर चीन द्वारा फिगर-4 इलाके में सड़क को बिछाने या बंकर तैयार किए जाने की पुष्टि नहीं हुई है।

<https://www.jagran.com/news/national-indian-navy-team-arrived-to-know-the-situation-in-ladakh-review-of-strategy-to-deal-with-military-confrontation-20331562.html>

## 335 cadets of 138th National Defence Academy course graduate in Pune

*The passing out ceremony was held indoors breaking away from the annual custom of having parents and distinguished guests from all three services in presence*

Pune: The 138th course of the National Defence Academy (NDA) successfully passed out on Saturday at a ceremony conducted in the premier institution's Habibullah Hall. The passing out ceremony was held indoors breaking away from the annual custom of having parents and distinguished guests from all three services in presence.

NDA commandant Lieutenant General Asit Mistry presided over the function.

A total of 335 cadets graduated from the premier academy. Of the 335, 226 were army cadets, 44 naval cadets, and were 65 air force cadets. After graduation, the NDA cadets are normally allowed leave before joining their respective service organisation. However, the cadets of 138 course will not be allowed leave for home and will head to their organisations directly.

While the army cadets will head to the Indian Military Academy, the naval cadets will head to the Indian Naval Academy, and the air force cadets will head to the Indian Air Force Academy. Travel arrangements will be made by the academy.

"It is a matter of pride for NDA that 20 cadets from friendly foreign countries (Bhutan, Tajikistan, Maldives, Vietnam, Tanzania, Mauritius, Afghanistan, Kyrgyzstan, Sri Lanka, Myanmar, Turkmenistan, Fiji, Uzbekistan, Sudan, Mongolia and Bangladesh) also form part of the passing out cadets," read a statement from NDA.

While Battalion Cadet Captain (BCC) Shivam Kumar won the President's Gold Medal, BCC Mukesh Kumar won the President's Silver Medal, and BCC Parth Gupta won the President's Bronze Medal for standing third in overall order of merit. Of all the squadrons in the academy, the Kilo squadron bagged the 'Chiefs of Staff Banner' for their performance.

<https://www.hindustantimes.com/pune-news/335-cadets-of-138th-national-defence-academy-course-graduate-in-pune/story-bw9JhJNRrKgAk2caRkmHjO.html>



(L-R) Battalion Cadet Captain Shivam Kumar won the President's Gold Medal for standing first in overall order of merit, while Battalion Cadet Captain Mukesh Kumar won President's Silver Medal and Battalion Cadet Captain Parth Gupta won President's Bronze Medal for standing third in order of merit (HT PHOTO)



## INS Circars sees change of guard

*Commodore Rahul Vilas Gokhale takes over helm of oldest naval establishment on East Coast*  
*By Sumit Bhattacharjee*

Visakhapatnam: Commodore Rahul Vilas Gokhale took over the command of INS Circars from Commodore K.A. Bopanna here on Saturday.

Later, the outgoing Commanding Officer was given a farewell by officers and sailors of INS Circars through the traditional pulling out ceremony.

Commodore Bopanna is retiring from active naval service on Sunday after an illustrious career of 35 years.

INS Circars is the oldest naval establishment on the East Coast and the base depot ship providing administrative and logistics support to the Headquarters, Eastern Naval Command and a large number of units based in and around Visakhapatnam.

Commodore Gokhale, who will be the twenty-third Commanding Officer of INS Circars, is an alumnus of National Defence Academy and was commissioned into the Indian Navy on January 1, 1992.

A navigation and direction specialist, he has commanded ships INS Khukri and INS Kolkata. His other tenures include Director Personnel Policy at Naval Headquarters, New Delhi and Naval Advisor, High Commission of India at Islamabad, Pakistan.

The officer has undergone courses at DSSC Wellington, Naval War College, Goa and the Australian Defence College, Canberra. Prior to this appointment, he was Fleet Operations Officer, Eastern Fleet.

<https://www.thehindu.com/news/national/andhra-pradesh/ins-circars-sees-change-of-guard/article31712741.ece>



Mon, 01 June 2020

## Defense analysts urge IAF to go for cheaper tanker conversion kit

By Satyajeet Kumar

Air Chief Marshal R.K.S. Bhaduria recently announced that an “earlier process” to select a new aerial refueling aircraft for the Indian Air Force will be retendered and new requests for information would be issued to potential bidders, thus continuing third such contest since 2006-2007. Indian Air Force inducted its first aerial refueling aircraft in 2003 since then it has maintained a fleet of only six IL-78 jets which are modified as aerial refuellers but have failed to acquire more aircraft to extend the range of its fighters such as the MiG-29, Su30MKI and Mirage 2000 in flight.

Twice A330 MRTT which is a derivative of the popular twin-engine A330 passenger jet was selected by IAF but the government had canceled the tender over cost concerns. While cheaper IL-78 jets are also on the offer, but IAF wants to move away from Russian aircraft due to a whole lot of issues and go for a passenger jet derivative mid-air refueller with a newer design, having lower operating costs to save money.



In Third RFI to be floated soon, It is expected that the third bidder will emerge and Boeing KC-46 Pegasus might be on offer to IAF for the first time. Military aerial refueling is based on Boeing 767 passenger jet which has been picked up by USAF and its NATO allies. Boeing KC-46 Pegasus will be cheaper than A330 MRTT since it is smaller aircraft and commercial cost for each jet varies as per capacity.

Many Defense analysts have urged IAF to pick up A330 from many distress airline companies which are willing to sell them and use Tanker Conversion Kit sold by many Aerospace companies to convert them into aerial refueling aircraft for the Indian Air Force, this not only will be cost-effective and cheaper but also save a lot of paperwork and time in tendering process.

Recently, Leasing has been introduced in the draft Defence Procurement Procedure (DPP)-2020 and the Indian Air Force (IAF) is considering, for the first time, leasing aerial refueling tankers due

to budget pressure. Israel Aerospace Industries' Bedek Aviation Group is also planning to offer IAF Boeing B737 Passenger to Mid-Air refueller Converted aircraft as the fourth contender.

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<https://idrw.org/defense-analysts-urge-iaf-to-go-for-cheaper-tanker-conversion-kit/>



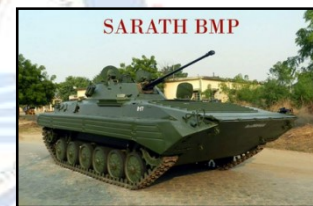
Sun, 31 May 2020

## MoD approves procurement of 156 BMP vehicles from OFB

By Raunak Kunde

The Indian MoD has approved the procurement of the Infantry Combat Vehicle (BMP-2/Sarath) manufactured by the state-owned Ordnance Factory Medak (OFMK) which is Indian license-produced variant of the BMP-2 developed by the Soviet Union.

BMP-2 Sarath is a second generation, amphibious infantry fighting vehicle introduced in the 1980s in the Soviet Union and license-produced in India from 1987 by OFMK. BMP-2 is still active with more than 30 operator countries and since 1987, OFMK has manufactured over 1250 BMP-2 for the Indian Army in various variants.



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<https://idrw.org/mod-approves-procurement-of-156-bmp-vehicles-from-ofb/#more-228325>

## Business Standard

Mon, 01 June 2020

## Echoes of Kargil: China intrusion can lead to India losing DBO link

*China continues to consolidate its defences in Galwan River and Pangong Lake areas up to 3 km inside the territory that Indian Army has claimed for decades*

By Ajai Shukla

In what the army is recognizing as a repeat of Pakistan's 1999 Kargil intrusions, but this time by China in eastern Ladakh, troops of the People's Liberation Army (PLA) continue consolidating their defences in the Galwan River and Pangong Lake areas, up to three kilometres (km) inside territory that the Indian Army has patrolled and claimed for decades.

Just as the Kargil intrusions allowed Pakistani troops to dominate the Srinagar-Zojila-Kargil-Leh highway and threatened to cut off Ladakh from the north; the Chinese intrusion into the Galwan River valley allows PLA troops to overlook the strategic Darbuk-Shyok-Daulat Beg Oldi

(DSDBO) highway and cut off the army's lone year-round connection with its isolated "Sub-Sector North" (SSN), at the base of the Karakoram Pass.

PLA soldiers that have established themselves at the mouth of the Galwan River valley at its confluence with the Shyok River are just one-and-a-half kilometres from the DSDBO road. They overlook the road, which winds along the Shyok River valley, and can bring down artillery and missile fire to prevent its use.

The PLA apparently intends to dominate this road permanently. Even as top Chinese officials declare the issue can be resolved through dialogue, PLA intruders are building bunkers while PLA engineers are connecting their forward troops with China's formidable road infrastructure on the Line of Actual Control (LAC).

Government sources conservatively estimate that the PLA has captured more than 60 square kilometres of Indian-patrolled territory in the last month – equally divided between the northern bank of the Pangong Lake and the Galwan River sectors.

Chinese troops now block access to several Indian "Patrolling Points" (PPs) along the LAC, which Indian army patrols have regularly visited for decades to assert their claim over the area. Amongst them are PP-14, 16, 18 and 19.

At this time of the year, when the risk of Chinese intrusions is highest, it has been customary for the army's Udhampur-based Northern Command to move reserve formations into the area, ostensibly for "training exercises". But this year, reserve troops were retained in their peacetime locations because of the Covid-19 pandemic.

Consequently, there has been a dire shortage of reserve troops to react to the PLA's multiple intrusions. By the time the northern army was able to move reserves into the area, the PLA had already consolidated its hold over its newly acquired positions.

Army headquarters in New Delhi is coming round to the view that top generals in Ladakh have been caught napping. There is growing talk about replacing the corps commander in Leh, and even the northern army commander in Udhampur.

After the Kargil intrusions of 1999, which an enquiry blamed on "intelligence failure", not a single general lost his job or was replaced. The army pinned the entire blame on a single brigadier in Kargil.

A retired defence intelligence chief, speaking anonymously retired, blames the current situation on an intelligence, as well as an operational failure. "The Chinese have always been ultra-sensitive to India expanding its presence in northern Ladakh. That is because this adjoins the Aksai Chin, through which China has constructed its strategic Western Highway that connects Tibet with Xinjiang. When we built the 255-kilometre DBDSO Road through this area, why did the army not deploy troops on the eastern side of the Shyok, especially in the Galwan Valley, to protect the eastern approaches from the Chinese side?" he says.

The officer cites the Chinese intrusion in 2013 into Depsang, in the Daulat Beg Oldi sector, soon after India activated a landing ground there and beefed up troop numbers.

Within the army, there is growing concern that New Delhi will allow the Chinese to retain the territory they have occupied in the last month. In public statements last week, Defence Minister Rajnath Singh has already conceded that the alignment of the LAC, and therefore the ownership of territory, is unclear in this area.

[https://www.business-standard.com/article/current-affairs/in-repeat-of-kargil-people-s-liberation-army-has-cut-off-road-to-dbo-120053101105\\_1.html](https://www.business-standard.com/article/current-affairs/in-repeat-of-kargil-people-s-liberation-army-has-cut-off-road-to-dbo-120053101105_1.html)



## Battlefield management system: A critical technology for Indo-China border

*For decades there has been no exchange of fire in hostilities between the troops of the Indian Army and the People's Liberation Army (PLA) due to the restraint exercised by both*

*By Huma Siddiqui*

India shares more than 3,400 Km long border with China and at many locations there is a lack of clarity on the demarcation. This has been one of the reasons for the recent skirmishes and face-offs along the Line of Actual Control (LAC) on the Eastern Ladakh side. There has been massive troops build-up on both sides of the LAC in areas like Galwan valley in Ladakh and Naku La sector.

For decades there has been no exchange of fire in hostilities between the troops of the Indian Army and the People's Liberation Army (PLA) due to the restraint exercised by both. This time, however, the fistfights, and the shoves, failed to reflect the hi-tech Army both the sides have.

It is time that the Indian Army enhances its Net-Centric Operational (NCO) capabilities which shall inter-connect the frontline combat soldiers using modern Digital network. The much required indigenous Battlefield Management System (BMS) was shelved by the Ministry of Defence (MoD) in 2017, despite approved requirements existing for the system. BMS which was to integrate frontline troops of infantry battalions and armoured corps to efficiently and effectively handle various echelons of combat information so as to deploy armament effectively is presently not digitally robust. In a BMS system, each soldier has a digital identity and interconnected tactical communication network.



It is time that the Indian Army enhances its Net-Centric Operational (NCO) capabilities which shall inter-connect the frontline combat soldiers using modern Digital network. (IE photo)

### Indigenous Battlefield Management System

In 2017, the project was put on a back burner in an effort to use the funds for other essential items which were needed then.

The Army had evolved the requirement of BMS from a long term perspective, especially to support Command & Control infrastructure for a large number of troops, as been seen on Indo-China Border in the last few weeks. Earlier, when indigenous BMS project was active, it had reached the mature level where two Development Agencies were chosen after multiple rounds of sustained discussions. In one consortium, Tata Power (Strategic Engineering Division) was in partnership with L&T, while other was a consortium between Bharat Electronics and Rolta, India.

Even though the BMS at the Troop level NCO activity could not be progressed, effort to complete the integration of higher echelons through Tactical Communications System, Command level Decision Support System and Battlefield Surveillance System were progressively implemented to ensure NCO for higher echelons.

According to NCO experts, “the critical source of information at troop level emanating from hundreds of combat units on the frontline is also essential for an effective NCO. As every soldier on ground is a key Information Node for BMS system, making the two-way flow of processed information between frontline and higher Command echelons effective.”

### Indigenous Netcentric Operations Systems

Along with the Army, the other two services — Indian Navy and Indian Air Force (IAF) have painstakingly and independently developed their own indigenous NCO systems. The Naval

Combat Management Systems (CMS) for the Navy and Integrated Air Command and Control System (IACCS) for the IAF.

As reported earlier by Financial Express Online efforts to develop an indigenous CMS programme by Indian Navy commenced in early 2000. Now, CMS systems are a standard fit onboard all frontline warships, giving the essential Net-Centric capability for operating the naval assets at sea. Similarly, IAF's IACCS use high-end technology like Software Defined Radios (SDR) and SAM missile systems too are being integrated. To further improve the Air Space Management efficiency, integration of IACCS with Surveillance Network of Civil Aviation is also being undertaken for an efficient NCO.

One of the goals of the office of the Chief of Defence Staff is to integrate the resources of the three services.

“This can only be achieved through the interoperability of Network Centric systems of the tri-services, and needs to emerge as long term perspective plan. Adhoc re-appropriation of naval air assets in deserts etc. and similar measures need to be part of a holistic NCO vision. However, more essential is to have the information flow to the frontline Army resources through an indigenous BMS system,” explained a senior army officer.

Adding, “Such systems have to be indigenous since no country will share their warfare tactics and, India as per its perceived enemy profile and geo-political situation needs to digitise their Concept of Operations.”

Only an indigenous NCO is viable to achieve interoperability amongst the three services since control of the software code, including that of the Software-Defined Radios, can sustain this effort in a long term.

<https://www.financialexpress.com/defence/battlefield-management-system-a-critical-technology-for-indo-china-border/1976041/>

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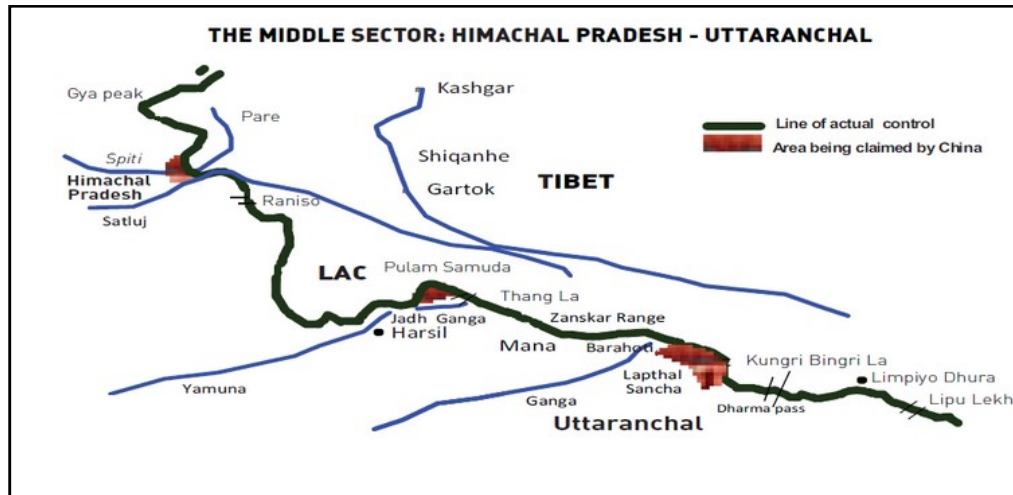
Sun, 31 May 2020

## **Galwan: Border is not China's biggest agenda**

*India ramping up its border infrastructure has caused uneasiness on the other side of the LAC*

*By B.R. Deepak*

“From the very beginning of the war, the firepower of the Indian army was extremely fierce. After two hours of fierce fighting, though the Chinese army occupied Galwan Valley, but the price it paid was too heavy. 874 Chinese soldiers fell on the icy snow of this river valley. It was not until the beginning of the 1980s that the bodies of more than 800 soldiers were brought back from the frozen snow.” Thus wrote Sun Xiao, a People's Liberation Army (PLA) officer in the Snow of the Himalayas: Sino-Indian War Records (Chinese edition 1991). Sun says that in 1982, when he visited Xinjiang, he was witness to the remains of these soldiers being transported from Ngari (Ali) in Tibet to Urumqi in Xinjiang. The Indian official version of the 1962 conflict, the History of the Conflict with China, 1962 (unpublished report), edited by S.N. Prasad (1992) says that “the Chinese attack on the [Galwan] post started with heavy artillery and mortar bombardment on 20th October at 0530 hours...After an hour of shelling the Chinese attacked the forward sections with nearly a battalion strength. The men who had moved to open trenches fought a bitter last ditch battle...it was only towards the evening that the Chinese finally succeeded in overrunning the post. In all, the Chinese launched three attacks. The casualties suffered by the defenders, 36 killed out of a total 68 all ranks, shows how bitter the fighting was”! The Chinese official version of the conflict, entitled History of China's Counter Attack in Self-defense Along the Sino-Indian Borders (Chinese edition 1994), gives the total Chinese casualties in the entire western sector as 97 all ranks!



The same Galwan valley is in the news again as we hear of intrusions by the PLA beyond their claim line of 1960. If so, this is a new development and bad news for both India and China. Alastair Lamb, who has done considerable research on the India-China border, remarked in 1964 that “the extent of Chinese claims seems to increase slightly from time to time” in the Western Sector. Rightly so, as there are three Chinese claim lines in the Western Sector. One is the claim line of 1956, which intersects the Aksai Chin almost into two; the second is the line separating the Indian and Chinese forces on 7 November 1959, and the third, the line reached by the Chinese after the 1962 conflict. China did go back 20 kilometers behind the Line of Actual Control in the Eastern Sector, i.e. Arunachal Pradesh, but not in the Western Sector, where they reinforced their 1960 claim line. The Chinese message was clear, accept our claims in the Western Sector, we will accept the McMahon Line. It was this stand that China hinted at in various semantics albeit she had gone back from the 1956 claim line and had demanded more territories beyond the 1956 line, in 1960. Neville Maxwell, while criticizing India for its “forward policy”, remained tight-lipped about China establishing forward posts beyond their 1956 claim line. Thus, he accepted different claim lines put forth by China in the Western Sector as their legitimate right. Therefore, to say that the entire Aksai Chin was under Chinese jurisdiction is not correct, nevertheless, the status quo has been drastically changed by China. If the reality of China’s different claim lines, together with the Shyam Saran report of 2013 and Professor P.A. Stobdan’s study is to be believed, Ladakh has been shrinking in size.

This has been demonstrated by ever increasing transgressions, mostly in the Western Sector by the PLA—the Galwan valley; the Srijap range where India’s claim line extends to Finger 8 but doesn’t control the areas beyond Finger 4; and Naku La in Sikkim. India must be watchful for similar flashpoints in the Middle Sector, in areas such as Nilang-Jadang, Bara Hoti, Sangchamalla and Lapthal, Shipki La and Spiti as these are also claimed by China. Interestingly, having reinforced its 1960 claim line in the Western Sector, China is playing victim and accusing India of “provoking the incident” in Galwan valley “intentionally” and “trying to change the status quo unilaterally”; the version since 18 May has appeared in various print and social media outlets in China. Social media has been carrying reports of the 1962 flash points in this area and singing praises of the PLA’s valour. Wang Dehua, a veteran of India-China relations in an article in sohu.com on 19 May 2020 has even warned Prime Minister Narendra Modi that “Boundless is the sea of misery, yet a man who will repent can reach the shore nearby.” Why is China behaving like this?

First of all, border is not the biggest agenda for China at this point in time. China believes that it has not reached the stage where a resolution is a must, therefore, for it, peace and stability in the neighbourhood is the top priority, along with transforming China into a “moderately developed power” by 2049 when it will realise the second centenary, i.e., a century of the establishment of the People’s Republic of China, and perhaps the unification of China too. Therefore, “maintenance of peace and tranquility” and “managing” rather than solving the problem will be its top priority.

Secondly, it is also not a big agenda for China, as it has easy access to the Line of Actual Control (LAC) owing to the state of the art infrastructure it has created. China knows that the CBMs that both sides have created will not be enough to resolve the problem, hence no stone should be left unturned as far as infrastructure development in Tibet and Xinjiang is concerned. For example, the “Thirteenth Five-Year Plan” (2016-2020) allocates 200 billion RMB (\$20.5 billion) for infrastructure development in Tibet. Today 99% of the villages are connected to highways, as the network in the region has increased from 65,000 kilometers to 90,000 kilometers. These roads are further connected with major railway lines inside Tibet and Xinjiang.

Thirdly, since India is also ramping up its border infrastructure “rapidly”, this has caused uneasiness to the other side of the LAC. Although the 255-kilometres-long Darbuk-Shayok-Daulat Beg Oldie (DS-DBO) road took us 19 years to complete (not to talk about the scandals associated with these projects), nonetheless, it will make accessible many areas of the LAC for patrolling and will keep an eye on Chinese movements in Aksai Chin. There are 60 more such projects that are part of the 3,300-kilometre road network along the border, the work of which was supposed to be completed in 2019 but according to the Border Roads Organisation (BRO) officials, only 75% of the work has been completed. Surveys for border rail projects such as Bilaspur-Manali-Leh, Misamari-Tenga-Tawang, North Lakhimpur-Bame-Silapathar, and Pasighat-Teju-Parsuram Kund-Rupai are on and are supposed to be completed by 2025. It is perhaps this new “development” which has been a cause for concern for China. Therefore, it has been making forays into new areas simply for “holding the line” as they perceive it. India too perhaps will “hold the line” if more areas are accessible once the infrastructure is laid. This, however, will give rise to Galwan and Doklam like confrontations, which could lead to a larger conflict. I think this is also out of this thinking that China is contemplating the demilitarization of the LAC. India too perhaps could think of such a proposal if she feels comfortable with the notion of equal and mutual security, for the cost of maintaining “peace and tranquility” is becoming higher for both India and China.

Fourthly, many scholars and analysts in both countries have related the Galwan and Naku La standoffs with Covid-19 situation in India, and China taking advantage of that, which I believe is not quite logical. More than that I believe it is India cozying up to the US as far as our security interests are concerned; it has something to do with India’s close coordination with the Quad and Indo-Pacific strategy. India’s support for Covid-19 probe can also be seen in this light. Some Chinese scholars believe that India has been fishing in troubled waters as Sino-US relations have nosedived. Professor Wang Dehua even warns India that “recently, due to the rapid deterioration of Sino-US relations, New Delhi has forgotten its history and has started to bloat a bit”, which I believe is uncalled for.

Finally, rather than flaring up jingoism, both India and China must go back to the “consensus” reached in Wuhan and later in Mahabalipuram, reactivate all available confidence building mechanisms and restore the status quo ante. They must quickly dis-engage, for both cannot possibly push back their economies further, at a time when both are reeling under negative growth trajectories in the backdrop of Covid-19. This is the 70th anniversary of the establishment of diplomatic relations between India and China; both have planned 70 events to celebrate the year, unfortunately, we have started the anniversary with a very negative note.

*(B.R. Deepak is Professor, Center of Chinese and Southeast Asian Studies.)*

<https://www.sundayguardianlive.com/opinion/galwan-border-not-chinas-biggest-agenda>

## Dragon growls, wisdom smirks

*A study of modern warfare indicates that human conflict (on land) is often determined by the ability of naval forces to deliver ordnance/ troops/ airpower/ logistics ashore eg World War 2, the Korean conflict, Falklands conflict, Gulf wars etc*

*By Sayan Chatterjee*

New Delhi: China's People Liberation Army (PLA) had a decades-old organisational structure in which the PLA Ground Forces have traditionally enjoyed prominence vis-à-vis the other services viz Navy, Air Force, Rocket Force and Strategic Support Force.

Beijing recently undertook a restructuring of PLA into Theatre Commands, with the concomitant rapid development of naval and air capabilities. This has resulted in shrinking of the Ground Forces to around 975,000 troops, substantially lesser than that of India.

The decade of dominance of PLA Ground Forces in China was previously hindering the development of PLA joint operational capabilities, especially in the maritime, air, and space/cyber domains. To move beyond a manpower-intensive mindset, major doctrinal and organisational changes were essential, and these have since been executed.



Visual Courtesy (Author Provided)

A significant element of modernisation is towards the development of China's maritime power, considered indispensable by the Communist Party of China for achieving the global power status. This is evidenced by the recent construction of China's second aircraft carrier *Shandong* and the 12,000 tonne Type 55 *Renhai* class Destroyers.

There are lessons in this for India. The First has been learnt, with the creation of Chief of Defence Staff (CDS) and redesigning of existing military commands into Theatre Commands as also establishing new Joint Commands.

The second and perhaps more important lesson is that the Indian military establishment has to reassess our long-term threat perceptions and re-structure accordingly. There is also a pressing need to recalibrate how India perceives China and not be blindsided by a continued continental focus.

There is general consensus that China views the Western Pacific and the Indian Ocean as its future zones of 'competition' and specifically, the Indian Ocean Region (IOR) as a vital component of its Maritime Silk Route.

China is a net importer of energy supplies, most of which is routed from the Persian Gulf; hence there are vital Chinese national interests at stake in the IOR. China, however, does not have favourable maritime geography – hemmed in on all fronts by competing neighbours India's geography, however, provides the Indian Navy unique opportunity to leverage its maritime bounty – Sea Lines of Communication (SLOCs), extending from the Persian Gulf towards China criss-cross the Indian Ocean, just south of the Indian subcontinent.

A study of modern warfare indicates that human conflict (on land) is often determined by the ability of naval forces to deliver ordnance/ troops/ airpower/ logistics ashore eg World War 2, the Korean conflict, Falklands conflict, Gulf wars etc. While there are some legacy border issues pending from the colonial era, one could argue that the world has now entered a phase of 'cartographic stalemate', wherein legitimately re-drawing national boundaries is deemed untenable.

Some of the largest countries in the world (by land area) are still squabbling over small tracts of territory, however, geopolitical realities and anti-irredentist sentiment of the global comity presently limits the scope of land conflict.

The maritime dimension, however, harbours the immense potential for confrontation. Most *land-lubbers* would be unaware that nearly 50% of the earth's surface is covered by oceanic waters which are not under the jurisdiction of any country (termed as *high seas*).

There are no restrictions on warships to operate in these waters and for nations to exploit the natural resources found within these seas or on the sea-bed. There is therefore significant scope for the maritime medium to be exploited by inimical or competitive forces.

The Indian Navy's assets, based from fortuitously located ports, have the capability to significantly influence maritime operations in the extended IOR, extending as far as *Malacca Strait* to the East, the *Persian Gulf* to the North-West, *Bab-el-Mandeb* to the West, *Cape of Good Hope* to the South-West and the *Southern Ocean* to the South, an area of over 32 million km<sup>2</sup>.

While the Indian Navy is the pre-eminent maritime force and preferred security partner for IOR countries, it is in India's interest that the newly-minted Department of Military Affairs under the CDS monitors ongoing developments in the Chinese force structure. This would enable recalibration of the overall structure of the Indian Armed Forces and its assets in tune with the evolving strategic environment.

This is not to argue that the Indian Navy presently lacks the adequate capacity to effectively counter the PLA Navy in the IOR. On the contrary, it could be argued that a fleet's total number of ships, either by net tonnage or the total number of ships, is only a partial metric of its capability.

Comparisons of numbers of ships/ platforms of navies do not account for their core missions, area of operations and national responsibilities, which significantly affect combat potential. That being said, denting a future collusive maritime threat from China and Pakistan in the IOA calls for significant budgetary realignment in favour of the maritime domain.

Is it possible to entirely replicate the Chinese example? After all, the PLA Ground Forces now constitute less than 50 per cent of the entire force; a measure of just how far the Chinese have transformed and let go of their continental orientation.

Naysayers amongst the Indian strategic community would also be quick to point out that the threat from India's traditional rival, Pakistan is all too real, and the hotly contested land border necessitates a continental focus to be maintained, as hitherto. Here again, India should monitor its rivals and re-assess the need for a manpower-Intensive continental military.

Positive results of re-structuring are only likely to emerge with time: providing India with a leaner, but more potent, joint warfighting capability. Given the growth trajectory of the PLA Navy and likely tightening of budgetary allocations in near future years due to COVID-19, prescient re-structuring and budgetary allocations for the Indian military is the need of the hour. With inputs from sources – Indian Navy

*(The writer is a Delhi-based independent contributor to print and online publications)*

<https://www.thestatesman.com/india/dragon-growls-wisdom-smirks-1502894804.html>

## **INS Jalashwa to bring back 700 Indians home from Colombo today**

*Indian Navy ship INS Jalashwa will sail from Colombo Port on Monday with 700 Indian nationals to India under the second phase of Operation 'Samudra Setu' as part of the Vande Bharat mission to bring back Indian citizens stranded overseas*

*By Joymala Bagchi*

Colombo: Indian Navy ship INS Jalashwa will sail from Colombo Port on Monday with 700 Indian nationals to India under the second phase of Operation 'Samudra Setu' as part of the Vande Bharat mission to bring back Indian citizens stranded overseas.

The vessel reached Colombo Port this morning and will depart with passengers to Tuticorin in Tamil Nadu. It will subsequently repatriate another 700 personnel from Male in the Maldives to Tuticorin in Tamil Nadu, according to the Indian Navy. The amphibious transport dock will commence the evacuation process in Colombo through jetty service that would facilitate the evacuees on ship.

Catering to the present requirements of maintaining social distancing and health protocols the ship is divided specifically into three zones-- red, orange and green. Commander Gaurav Durgapal, Executive Officer on INS Jalashwa told ANI: "The guidelines for safety against COVID-19 and the protocols for the same are being promulgated by the naval headquarters and the commands respectively."

"The entire ship for the purpose of evacuation has been divided into three zones. The red zone is the area where we plan to accommodate all the evacuees. The orange zone is a place with a team dedicated to taking care of the people being evacuated and the Green zone is where officers and sailors are staying," Durgapal said. COVID-19 related precautions such as social distancing norms have been ensured for those on board. Evacuees are subjected to the requisite medical screening and those asymptomatic have been allowed to embark.

Those being repatriated are provided with a new mask at the time of embarkation followed by a new mask each day till they reach their designated port Tuticorin. Hand sanitizers are available at the help desk and medical desk for the evacuees. In a measure to contain the spread of the virus, if any, the sailors and officers who interact with the evacuees have donned personal protective equipment (PPE) kits. Strict protocols are also being followed while removing the PPE kit.

"Our primary goal is to provide the evacuees' accommodations that are disinfected fully. A process of deep cleaning is also being maintained while strictly following the guidelines given by naval headquarters," said commander Durgapal. The Operation Samudra Setu under Vande Bharat Mission has so far facilitated over 1000 evacuees from Male during the earlier phases of the operation --- on May 8 and May 16.

Taking to Twitter, High Commission of India in Sri Lanka tweeted: "A happy & bright morning @ColomboPort. #INSJalashwa is the 'Fearless Pioneer' ready to take 700 stranded Indians back to their homeland from #SriLanka. This is INS Jalashwa's 3rd voyage under #SamudraSetu Previously she carried to India nearly 1400 Indians stranded in Maldives." "Evacuation is being carried out against the complicated scenario of COVID-19. The primary challenge is to ensure that evacuees maintain adequate distance among themselves. We have a team specifically to ensure social distancing among the evacuees. In the first two evacuations, the evacuees gave encouraging feedbacks that boost our moral responsibility" commander Durgapal said.



India's amphibious INS Jalashwa will bring 700 Indian nationals stranded in Sri Lanka back home on Monday under the second phase of Operation 'Samudra Setu'. . Image Credit: ANI

Under phase II of naval repatriation exercise, INS Jalashwa would voyage on evacuation missions to Male (Maldives) and Bandar Abbas (Iran). (ANI)

<https://www.devdiscourse.com/article/international/1073750-ins-jalashwa-to-bring-back-700-indians-home-from-colombo-today>



Mon, 01 June 2020

## Indian medical team reaches Comoros to provide assistance in fight against Covid-19

As part of Mission Sagar, Indian Naval Ship Kesari entered Port of Moroni in Comoros today. In these difficult times India is providing assistance to Friendly Foreign Countries in dealing with the COVID-19 Pandemic and towards the same INS Kesari is carrying a consignment of COVID related essential medicines for the people of Comoros.

In addition, a 14-member specialist medical team comprising Indian Navy doctors and paramedics is also embarked onboard this ship to work alongside their counterparts in Comoros, and together render assistance for Covid-19 and dengue fever.

The medical team comprises specialists including Medical and Community specialists, and a Pathologist.

An official ceremony for handing over the medicines from the Government of India to Government of Comoros was held today.

The ceremony was attended by Loub Yacout Zaidou, Minister of Health, Solidarity, Social Protection and Gender Promotion of Comoros.

The Indian side was represented by Commander Mukesh Tayal, Commanding Officer Indian Naval Ship Kesari, and Consul of India in Comoros Saguir Sam.

The operation is being progressed in close coordination with the Ministry of External Affairs, and other agencies of the Government of India.

<http://www.ddinews.gov.in/national/14-member-indian-medical-team-reaches-comoros-provide-assistance-fight-against-covid-19>





## Lockheed Martin may soon start producing F-21 fighter in India

By Ryan Miller

US defense giant Lockheed Martin may soon start producing F-21 in India. Lockheed-built Indian F-21 combines the F-16 “Fighting Falcon” multirole fighter configuration with an advanced Northrop built APG-83 AESA, advanced computer display, high-definition cockpit systems, conformal fuel tanks, missile warning sensor, helmet-mounted cueing system, new Electronic Warfare systems, along with a triple-rail AIM-120 launcher “allowing the F-21 to carry 40% more air-to-air weapons than previous F-16 designs.

Lockheed Martin has agreed to manufacture F-21 fighters in India with the Indian defense firm Tata Advanced Systems Limited. The new AN/APG-83 AESA radar nearly doubles the range of existing radar systems (AN/APG-80 AESA radar), enabling much more substantial detection and targeting capability. The capabilities of this advanced Northrop Grumman AN/APG-83 Scalable Agile Beam Radar (SABR), a multifunction active electronically scanned array (AESA) radar, are derived from Northrop Grumman’s family of highly successful 5th generation fighter AESA radars, the F-22’s APG-77 and F-35’s APG-81. Range: 370 km (230 miles).



F-21 has the longest service life of any competitor — 12,000 flight hours. The F-21 also uses a U.S. Navy-built advanced Infrared Search and Track targeting technology – AN/ASQ-228 Advanced Targeting Forward-Looking Infrared (ATFLIR) manufactured by Raytheon.

Aviation experts note that F-21 is an advanced version of the F-16V Block 70/72 multirole fighter that includes technologies developed for the F-22 “Raptor” and F-35 “Lightning II” program.

Lockheed Martin describes the F-21 as being “specifically configured for the Indian Air Force,” and that it provides unmatched “Made in India” opportunities that could strengthen the nation’s path to an advanced airpower future. Lockheed Martin had also offered to shift the production of the F-16 line from the United States to India.

<https://ceoworld.biz/2020/05/31/lockheed-martin-may-soon-start-producing-f-21-fighter-in-india/>

## SpaceX FalconX commercial crew successful launch: A role model for ISRO's future

*The success of manned mission into Earth's orbit is seen as the beginning of affordable Space programme to Moon and further putting the Mars mission within human travel grasp*

*By Huma Siddiqui*

Today's first ever successful commercial crew launch for carrying astronauts to the International Space Station (ISS) shall be the trendsetter for this century. The success of manned mission into Earth's orbit is seen as the beginning of affordable Space programme to Moon and further putting the Mars mission within human travel grasp. SpaceX is the first private company to bring the concept of re-usability and sustainability mantra into a reality. Now it is possible to return rocket stages back to Earth using a propulsive power and to be re-flown in the next missions. The company is already developing a bigger spacecraft called Starship, which shall be a fully reusable rocket to carry cargo and crew for missions to Moon and Mars. These endeavours are to achieve self-sustaining missions to Moon and Mars.

### NASA's Commercial Crew Programme

Entrepreneur Elon Musk founded the SpaceX Company in 2002, with an ambition to reduce the space transportation costs, so as to ultimately achieve colonisation of Mars. SpaceX provides commercial and government launch services on its Falcon rockets. "The launch today was achieved through a Falcon Heavy rocket which is one of the most powerful rockets, which had undertaken three previous launches and has a design capability to insert a payload on Mars surface. These rockets use a common family of Merlin engines, developed for use onboard Falcon series of rockets," says Milind Kulshreshtha, C4I expert.



SpaceX is the first private company to bring the concept of re-usability and sustainability mantra into a reality. (Reuters photo)

Since early 2000s, NASA had planned to commercialise the transport of cargo and crew to the International Space Station (ISS). With the 2003 Columbia shuttle loss during the re-entry phase, a need for spaceship was felt by NASA, especially to meet the planned Moon missions. To make this an affordable programme, private firms were involved, starting with a mission to transfer of crew and cargo to the ISS and in 2014, SpaceX and Boeing won the NASA contract for crew transport services. Today's launch was SpaceX's first manned mission from Florida's Kennedy Space Centre and a demonstrator flight to lay open the space commercialisation effort, which makes the space travel affordable and within reach of many. Boeing too has its mission cut out to carry four NASA-sponsored crew members and cargo onboard Starliner spaceship. The Starliner also has a unique feature of being reusable up to ten times, with a six-month turnaround.

### Key to Commercialization Success

A study in the USA indicated that in the past two decades, 91% of known launch vehicle failures were attributable to three main causes including engine, avionics and stage separation failures. Commercial agencies leveraged these findings to create some powerful rockets from a drawing board stage, which were affordable and safe to fly critical missions by ensuring key

features like engine, avionics and reliable stage separations built into the design stage itself. "Although, space travel is always a high-risk activity and each system is overdesigned for safety, thus reusability of highly reliable rockets shall be the key for meeting the budget of forthcoming space travels, including Moon landings by 2024 (with the first woman on Moon surface), and further missions to Mars," the C41 expert states. As experienced by SpaceX from the very initial stages that success is expensive to come by in space activities and requires perseverance, motivation and ambition like Elon Musk has.

### **ISRO's Space Commercialisation Effort**

Antrix Corporation Limited (ACL) and New Space India Ltd have been set up under Department of Space to help in the promotion and commercial exploitation of space products, Transfer-of-Technology, Small Satellite Launch Vehicle tech transfer and manufacture of PSLV through the Industry etc.

Last month, the Indian Space agency came out with Announcement of Opportunity (AO) document which opens the Human Space for Private Industry participation. Here an attempt to allow the national industry to contribute through the development of indigenous cutting edge technologies for human survival in low earth orbits and beyond for space exploration. However, according to Kulshreshtha "unlike the technological focus and investment seen by NASA in the USA, Indian firms have some serious gaps when it comes to collaborative manufacturing. For ISRO, it shall be interesting to watch and see if any entity is ready to spearhead the commercialisation effort in Space like SpaceX and Boeing."

"Space products are hi-tech and for reliability undergo large testing and proving cycle and ISRO shall like to maintain these high standards and keeping the product within the resource budget. Hopefully, in this national fervour of indigenisation, ISRO is not risking having a collaboration partner as a liability when it comes to timely delivery," he opines.

Therefore, the concept of 'atmanirbhar' in Space research for forthcoming manned missions like Gaganyaan and lunar missions Chandrayaan-3 may fall short of the expectations due to time constraints and likely lack of big player's participation.

<https://www.financialexpress.com/lifestyle/science/spacex-falconxcommercial-crew-successful-launch-a-role-model-for-isros-future/1976558/>



DefenceNews

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Sun, 31 May 2020

## **SpaceX launch key step to reach Moon, Mars: NASA**

As Elon Musk-run SpaceX sent two NASA astronauts to the International Space Station (ISS) onboard the reusable Falcon 9 rocket, the US space agency on Sunday said the mission is an important step to expand human exploration to deeper space missions.

The SpaceX Crew Dragon spacecraft carrying NASA astronauts Robert Behnken and Douglas Hurley was on its way to the orbiting laboratory in the space.

"Today a new era in human spaceflight begins as we once again launched American astronauts on American rockets from American soil on their way to the International Space Station, our national lab orbiting Earth," said NASA Administrator Jim Bridenstine.

"The launch of this commercial space system designed for humans is a phenomenal demonstration of American excellence and is an important step on our path to expand human exploration to the Moon and Mars," he said in a statement post-launch.

Known as NASA's SpaceX Demo-2, the mission is an end-to-end test flight to validate the SpaceX crew transportation system, including launch, in-orbit, docking and landing operations.

This is SpaceX's second spaceflight test of its Crew Dragon and its first test with astronauts aboard, which will pave the way for its certification for regular crew flights to the station as part of NASA's Commercial Crew Programme.

"This is a dream come true for me and everyone at SpaceX," said Musk, chief engineer at SpaceX.

"It is the culmination of an incredible amount of work by the SpaceX team, by NASA and by a number of other partners in the process of making this happen. You can look at this as the results of a hundred thousand people roughly when you add up all the suppliers and everyone working incredibly hard to make this day happen," Musk elaborated.

The programme demonstrates NASA's commitment to investing in commercial companies through public-private partnerships and builds on the success of American companies, including SpaceX, already delivering cargo to the space station.

"It's difficult to put into words how proud I am of the people who got us here today," said Kathy Lueders, NASA's Commercial Crew Programme manager.

The SpaceX Crew Dragon spacecraft is scheduled to dock to the space station at 8 p.m. (India time) on Sunday.

After successfully docking, the crew will be welcomed aboard the International Space Station, where they will become members of the Expedition 63 crew, which currently includes NASA astronaut Chris Cassidy.

The crew will perform tests on Crew Dragon in addition to conducting research and other tasks with the space station crew.

The Demo-2 mission is the final major test before NASA's Commercial Crew Program certifies Crew Dragon for operational, long-duration missions to the space station.

<https://www.defencenews.in/article/SpaceX-launch-key-step-to-reach-Moon,-Mars-NASA-840854>

science alert

Sun, 31 May 2020

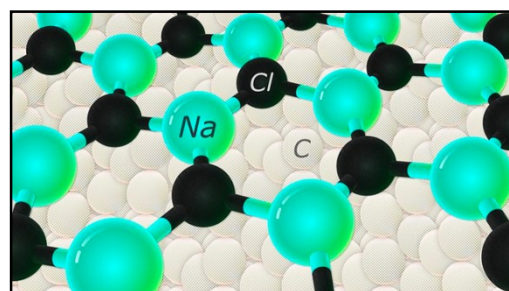
## For the first time ever, Scientists have created hexagonal salt

While it probably won't make it to your dining table, a new scientific achievement might be able to help in everything from radar equipment to electric cars: scientists have been able to form salt, aka sodium chloride (NaCl), in a hexagonal shape.

This is work done at the smallest of scales, with researchers able to get a thin film of hexagonal salt to form on top of a layer of diamond, due to the chemical interaction of both film and diamond substrate – something the team actually predicted would happen in advance through simulations.

It's the latest in a series of discoveries where scientists have been able to synthesise 2D materials with unusual crystal structures, and it's partly this self-imposed restriction to two dimensions that is enabling new and exotic structures to be formed.

"Initially we decided to perform only a computational study of the formation of new 2D structures on different substrates, driven by the hypothesis that if a substrate interacts strongly with the NaCl thin film, one can expect major changes in the structure of the thin film," says material scientist Kseniya Tikhomirova from the Skolkovo Institute of Science and Technology (Skoltech) in Russia.



Artist's impression of the thin film. (Skolkovo Institute of Science and Technology)

"Indeed, we obtained very interesting results and predicted the formation of a hexagonal NaCl film on the diamond substrate, and decided to perform experiments. Thanks to our colleagues who performed the experiments, we synthesised this hexagonal NaCl, which proves our theory."

To begin with, Tikhomirova and her colleagues used a custom algorithm called USPEX to predict low-energy crystal structures based on the chemical elements used to make them. That in turn led to a hypothesis about the formation of NaCl structures on top of the diamond layer.

In order to prove the hypothesis correct, a series of high-pressure experiments were carried out to create a layer of hexagonal NaCl averaging just 6 nanometres thick – a layer that was verified with X-ray and electron diffraction measurements.

As soon as the film got any thicker than that, it reverted back to the standard cubic structure of salt – the one you would see if you seasoned your food with it and looked under an ultra-powerful microscope.

"This shows that this simple and common compound, seemingly well-studied, hides many interesting phenomena, especially in nanoscale," says material scientist Alexander Kvashnin.

Where this might prove most useful is in diamond field-effect transistors or FETs, which can be deployed in a variety of high-powered electronics, including electric vehicles and telecommunications devices.

These FETs currently rely on hexagonal boron nitride, but hexagonal NaCl is likely to improve the stability of FETs even further (and make them more suitable for a broader range of purposes).

There's plenty more research ahead, too, not only in developing the hexagonal NaCl structures and the FETs based on them, but also predicting how exotic structures could be formed from other kinds of compounds.

Graphene remains the standard bearer for a 2D material that can exhibit surprising and useful properties, but it's likely that there are many other such discoveries still to come. As methods of modelling and analysis develop, hexagonal salt is likely to be just the start.

"Our results show that the field of 2D materials is still very young, and scientists have discovered only a small portion of possible materials with intriguing properties," says Kvashnin.

The research has been published in the *Journal of Physical Chemistry Letters*.

<https://www.sciencealert.com/scientists-have-reported-the-first-case-of-hexagonal-salt>

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# The Tribune

Mon, 01 June 2020

## Ashwagandha takes lead in IIT-Delhi study to be COVID-19 warrior

Remdesivir, Hydroxychloroquine, Lopinavir, Ritonavir, APN01 or Favilavir are being tested in clinical trials across the globe. No therapy has been found to be effective against COVID-19 as of now. However, natural compounds from Ashwagandha (*Withania somnifera*) and Propolis could be potential drug candidates against COVID-19. It is revealed in a collaborative study of DAILAB at Indian Institute of Technology (IIT) Delhi and National Institute of Advanced Industrial Science and Technology (AIST), Japan.

DAILAB is an international laboratory formed out of the collaboration between the Department of Biotechnology (DBT) and the National Institute of Advanced Industrial Science and Technology (AIST), Japan. The acronym DAILAB stands for DBT-AIST International Laboratory for Advanced Biomedicine. DAILAB has been working on natural compounds from Ashwagandha and Propolis for the past several years. It has explored the possibility of some of their bio-actives to interact with severe acute respiratory syndrome-CoronaVirus-2 (SARS-CoV-2). This study has just been accepted for publication in the Journal of Biomolecular Structure and Dynamics.

The researchers targeted the main SARS-CoV-2 enzyme for splitting proteins, known as the Main protease (Mpro). Mpro plays a key role in mediating viral replication. This is an attractive drug target for this virus, and as humans don't naturally have this enzyme, compounds that target Mpro are likely to have low toxicity. They discovered that a natural compound Withanone (Wi-N) derived from Ashwagandha and Caffeic Acid Phenethyl Ester (CAPE), an active ingredient of New Zealand Propolis, has the potential to interact with and block the activity of Mpro.

Researchers have also studied the capability of these bio-actives to modulate the protein on the surface of human cells, to which SARS-CoV-2 binds and allows its entry into our cell - the transmembrane protease serine 2 (TMPRSS2), and selected Withanone. The study is currently under review and is expected to be published in the near future.

The traditional medicine system 'Ayurveda' has been practised for thousands of years in India. Unlike modern medicine, the mechanism of action of natural drugs has not been resolved so far.

These findings may not only connect to save time and cost required for screening anti-COVID-19 drugs, but also offer some preventive and therapeutic value for the management of fatal COVID-19 pandemic, and hence warrant prioritized validation in the laboratory and clinical tests. The drug development may take a while and in the current scenario, these natural resources (Ashwagandha and Propolis) may offer some preventive or even therapeutic value, say researchers.

Although both the natural compounds are easily available and affordable, one has to be cautious about the content of bioactive ingredients. CAPE, though a major component of Propolis, its amount and stability are critical factors that could be managed by generating its complex with cyclodextrins. This has been described earlier by the DAILAB team. Withanone, on the other hand, varies with geography/parts/size of the Ashwagandha plant. So, in order to acquire or appreciate particular effects, we must use the right and quality-controlled extracts.

Prof D Sundar, Coordinator of DAILAB at the IIT, Delhi, and Head of the Department of Biochemical Engineering and Biotechnology at the IIT, Delhi, said, "The traditional medicine system 'Ayurveda' has been practised for thousands of years in India. Unlike modern medicine, the mechanism of action of natural drugs has not been resolved so far. The IIT, Delhi, and AIST

researchers have been working together for more than a decade and trying to contribute to strengthen this avenue by merging the traditional knowledge with the modern technologies.”

“While well-trusted reputation of Ashwagandha as an immunity enhancer forms a basis of the recent initiative of the Government of India in forming an Interdisciplinary Task Force (joint initiative of Ministry of AYUSH, Ministry of Health and Family Welfare, Council of Scientific and Industrial Research (CSIR) with Indian Council of Medical Research [ICMR]) and launch its clinical research studies related to SARS-CoV-2 and the COVID-19 disease, the current research report of this team provides hints on its direct anti-viral activities”, added Prof Sundar. **India Science Wire**

#### **Health benefits of Ashwagandha**

- It is an ancient medicinal herb
- It can reduce blood sugar levels
- It can reduce cortisol levels
- It may help reduce stress and anxiety
- It may reduce symptoms of depression
- It may increase muscle mass and strength

<https://www.tribuneindia.com/news/schools/ashwagandha-takes-lead-in-iit-delhi-study-to-be-covid-19-warrior-92436>

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## **"Whole world looking to our vaccine": Indian Scientist part of oxford research team on COVID-19**

*Chandrabali Datta works in the Clinical Biomanufacturing Facility at the university's Jenner Institute where Phase II and III of human trials of the vaccine named ChAdOx1 nCoV-19 are being conducted as a possible tool to fight the deadly virus.*

London: An Indian-origin scientist, who is part of a team of Oxford University professionals on a project to find a vaccine to protect against the coronavirus, says she feels honoured to be a part of a humanitarian cause, with the world's hopes attached to the outcome.

Chandrabali Datta, who was born in Kolkata, works in the Clinical Biomanufacturing Facility at the university's Jenner Institute where Phase II and III of human trials of the vaccine named ChAdOx1 nCoV-19 are being conducted as a possible tool to fight the deadly virus.

The 34-year-old's role as a Quality Assurance Manager means it is her task to ensure all levels of compliance are met before the vaccine could progress to the trial stage.

"We are all hoping that it works in the next stage; the whole world is looking to this vaccine," said Ms Datta.

"It's like a humanitarian cause to be a part of this project. We are a non-profit organisation, putting in extra hours everyday just to make this vaccine successful, so that human lives can be saved. It is a massive team effort and everyone has worked around the clock towards its success. I feel honoured to be a part of this project," she said.

While her own "close knit" team of 25 experts on the production side of the vaccine is extremely gender balanced, Ms Datta is keen to encourage young girls in India to challenge a perceived male dominance in the field of bioscience.

"If you are motivated and up for a challenge, then this is your field. Nowadays, biotech and pharma are getting an equal male-female ratio so there are lots of opportunities," she said.

"The scientific field is not highly paid, so you have to get rid of your materialistic desires if you want to be successful in this field. But if your motivation is really high and you are up for the struggle, then this is a very rewarding area of work. There is lots of recognition for your hard work because at the end of the day you are improving human lives," she says, as a message for young girls considering a career in bioscience.

Ms Datta, who studied engineering and biotechnology in Kolkata, was drawn to biology and mathematics in childhood. She went on to study computer science and even worked as an Associate Software Engineer with Accenture in India but was pulled back to biotech because of its "evolving and inventive" potential.

"My childhood friend was studying in Nottingham, who inspired me, and the UK is known for equal rights, women rights. So, I chose to do my Masters in biotech from the University of Leeds," she recalls.

"It has been a real struggle - leaving India and coming here. My mother wasn't too happy about her only child moving countries to study. But my father has always been ambitious for me and said I should chase my dreams and not compromise," she said.

During this time, Ms Datta balanced shifts at the supermarket and pizza restaurants with her laboratory experiments in order to cover living costs. After her degree, came more hardships in the form of a job hunt, which proved extremely challenging and involved drafting hundreds of applications a day.

Her persistence paid off when she got a job at pharmaceutical giant GlaxoSmithKline as an R&D scientist developing inhalers. Her hard work and diligence saw her move up the ranks quickly until her current job at Oxford University about a year ago, where she finds herself a part of one of the world's most-talked-about vaccine projects.

"I have to make sure that all our departments are compliant, everyone is trained in whatever they are doing and following all standard operating procedures (SOPs). Particularly in this project, my contribution was to check that everything is compliant, SOPs are followed, no mistakes were made," she explains.

But working through the lockdown as a key worker on the frontlines of the pandemic meant her parents back in Kolkata being constantly worried for her safety.

While she manages to stay in touch with family and friends back in India through regular WhatsApp calls, Ms Datta is hoping she can be with her parents for her annual Christmas trip by the end of the year.

"We have never seen a pandemic like this in our lives. We used to read in history but never imagined that in the 21st century we will actually see such a pandemic which will mean we have to be locked in our houses for months. The main focus is to bring human life back to normal and to save lives," she said.

<https://www.ndtv.com/indians-abroad/coronavirus-indian-scientist-chandrabali-datta-part-of-oxford-research-team-on-covid-19-whole-world-looking-to-our-vaccine-2238237>