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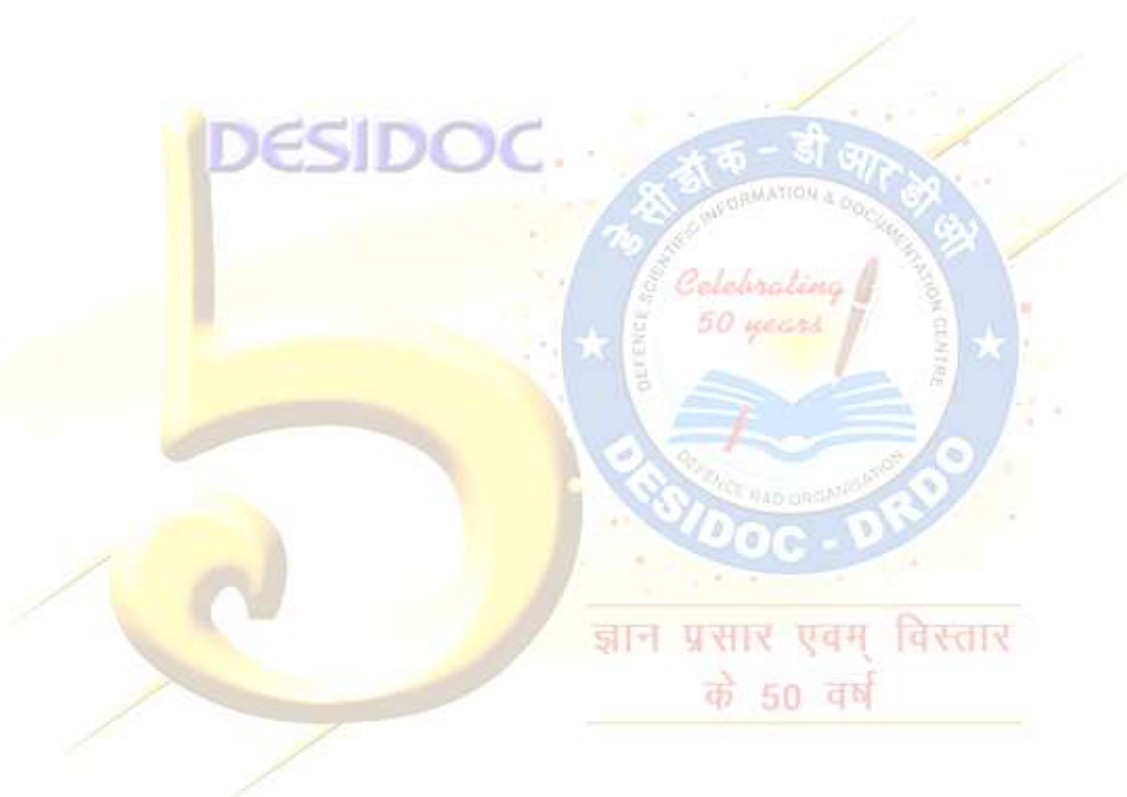


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Mon, 15 June 2020

DIAT develops biodegradable mask using herbal extract

Its samples were tested for air permeability/ breathability, nano-fibre mat porosity, biodegradability and mechanical properties as per the American Society for Testing and Materials standards and the results are highly impressive

The Defence Institute of Advanced Technology (DIAT) here on Sunday said it has developed a cotton mask using a herbal extract, and claimed that it acts as “virus-neutraliser and resists pathogens effectively. A herbal extract obtained from neem oil, turmeric, tulsi (holy basil), ajwain (carom seeds), black pepper, gum arabic, clove, sandalwood and saffron has been used in the non-woven nano-fibre of this three-layered biodegradable mask, named ‘pavitrapati, a patented invention, DIAT’s metallurgical and materials engineering department Prof Balasubramanian K said.

This provides “antibacterial and antiviral properties”, he claimed, adding that these additives are immunity-boosting agents for self-care, as per guidelines of the AYUSH Ministry. “The product is antibacterial, anti-fungal, antiviral, porous, super-hydrophobic (outer layer of mask), hydrophilic (inner layer) and biodegradable and it will be very useful in our fight against COVID-19, said Balasubramanian.

Its samples were tested for air permeability/ breathability, nano-fibre mat porosity, biodegradability and mechanical properties as per the American Society for Testing and Materials standards and the results are highly impressive, he claimed. “It was found to be capable for use as surgical masks, and can be discarded after a single use or after soil exposure,” he added.

The Pune-based DIAT is a deemed university supported by the Defence Research and Development Organisation (DRDO). “The samples were tested to understand the de-naturing capability of protein molecules, and the results demonstrated that the ayurvedic natural herbal extracts interacted and neutralised or killed the aminoacids (that are normally constituents of the shell of virus pathogens) instantly,” the official said.

Impressed by the results, three major mask manufacturing companies have approached DIAT and signed the transfer of technology (ToT) and non-disclosure agreements with the deemed university for mass production, he said. The product can be extended for infection prevention and control as the personal protective equipment (PPE) and for waste management purpose, he said. It can be used as a garment, gloves, gown, and for face protection and head cover, the official said.

Unlike other masks which are made of synthetic material and are non-degradable in nature, the ‘pavitrapati’ mask is cotton-based, bio-degradable and can be reused up to three washing cycles. “The biodegradable nanofibre mat/membrane finds application as a protective membrane for PPE. This technology has proved that the non-woven membrane between the woven fabrics supports to block droplets, splashes, sprays, bacteria, and viruses,” he said.

<https://indianexpress.com/article/lifestyle/health/diat-develops-biodegradable-mask-using-herbal-extract-6458787/>

Defence institute develops mask using herbal extract, claims it's a 'virus-neutraliser'

The Defence Institute of Advanced Technology says the herbal extract for this biodegradable mask is obtained from neem oil, turmeric, tulsi and other spices

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<https://theprint.in/india/defence-institute-develops-mask-using-herbal-extract-claims-its-a-virus-neutraliser/441574/>



Defence Institute of Advanced Technology, Pune | Facebook

DIAT develops biodegradable mask using herbal extract

Uses herbal extract obtained from neem oil, turmeric, tulsi, ajwain, black pepper, gum arabic, clove, sandalwood and saffron

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<https://www.tribuneindia.com/news/schools/diat-develops-biodegradable-mask-using-herbal-extract-99077>

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<https://www.republicworld.com/india-news/general-news/diat-develops-biodegradable-mask-using-herbal-extract.html>

Fighting Covid-19 Gandhian way: Khadi keeps PPEs cool

By Chaitanya Deshpande

Nagpur: Working in the town from where Mahatma Gandhi preached the philosophy of self-sufficiency inspired these doctors to create something much needed for the Covid warriors on the frontline.

Doctors from microbiology department of Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sevagram, have come up with a unique idea of a cooler, reusable and cost-efficient PPE kits for doctors working in Covid hospitals and technicians who collect swab samples and later conduct Covid-19 tests in laboratories.



These kits, made with a material on which the Defence Research and Development Organization (DRDO) is working, can be reused at least 20 times after washing. Each personal protective equipment (PPE) kit costs not more than Rs250, and above all, Sevagram's speciality — khadi — has been used in such an innovative manner that these kits keep users cool from inside.

"The idea clicked in our mind in the beginning of the pandemic when every hospital was facing crunch of the PPE kits. These kits are costly, and made only for one-time use. Wearing them for hours during extreme hot temperatures in Vidarbha was like a nightmare for doctors," said Dr Vijayshree Deotale, head of department of microbiology of the college.

It was Professor Rahul Narang who initiated the talks with DRDO for some solution on the issue.

"Dr Rajiv Narang at DRDO told us they are working on selection of such material for PPE. Through them, we got in touch with AjyTech, Surat, manufacturer of cloth for reusable PPE kits," said Professor Narang.

The Surat-based vendor claimed that the cloth, made of polyester-coated with polyurethane, could be reused at least 20 times after washing. But, for clinical use, all necessary tests were must.

"We bought a small piece of this cloth and conducted tests for impermeability, various decontamination procedures, integrity and durability. Finally, when it came to acceptability by end-users, they requested us to make it in such a way that air should pass through it," said Professor Narang. After brainstorming, it was decided to make it in the form of gown to allow air to pass from below.

An important improvisation came when they introduced khadi (homespun cotton) vest with four large pockets in the PPE. "Users must wear khadi vest. Moreover, each of the four pouches of vest contain phase change material (PCM) that we keep in refrigerator before use. Khadi absorbs sweat in warm humid climate while the PCM keeps user cool from inside," he added.

MGIMS dean Dr Nitin Gangane said we will introduce the kits first in non-Covid labs. "We have Covid-19 testing lab functioning since long. But, initially, these home-made kits will be introduced in other labs," he said.

Dr Gangane was not sure about market reaction on this efficient but cheaper option. "We can't predict about mass production and market apprehensions about this product as it is quite cheaper than PPE kits available in markets," he said.

Being Atmanirbhar

Reusable | MGIMS PPE kit is made of polyester-coated with polyurethane cloth and could be reused at least 20 times after washing

Khadi brings cool | Users of this PPE wear khadi vest with four large pockets; it absorb sweat

PCM makes it cooler | Refrigerated phase change material in each pocket in khadi vest keeps wearer cool all the time

Cost effective | Cost of one gown is Rs250 against Rs800 to Rs1,200 of disposable PPEs

<https://timesofindia.indiatimes.com/city/nagpur/fighting-covid-19-gandhian-way-khadi-keeps-ppes-cool/articleshow/76376779.cms?from=mdr>



Mon, 15 June 2020

डीआरडीओ ने पुलिस की चिंता दूर की, वर्दी को संक्रमण मुक्त करने वाली मशीन 'जर्मीक्लीन' बनाई

डीआरडीओ ने अपने वरिष्ठ वैज्ञानिकों की टीम और अपने भागीदार सेवियर बायोटेक लिमिटेड के साथ एक ड्राई हीट ट्रीटमेंट चेंबर का विकास किया है, जिसका नाम है 'जर्मीक्लीन' राजीव रंजन

नई दिल्ली: Coronavirus: रक्षा अनुसंधान और विकास संगठन (डीआरडीओ), कोविड -19 के संक्रमण को रोकने के उद्देश्य से सुरक्षा बलों की वर्दी को अच्छी तरह से साफ करने के लिए एक समाधान लेकर आया है. दिल्ली पुलिस ने डीआरडीओ को उनकी वर्दी, बेंत, गन्ना ढाल, हेलमेट और अन्य की सफाई के लिए अपनी आवश्यकता बताई थी. डीआरडीओ ने अपने वरिष्ठ वैज्ञानिकों की टीम और अपने भागीदार सेवियर बायोटेक लिमिटेड के साथ एक ड्राई हीट ट्रीटमेंट चेंबर का विकास किया है, जिसका नाम 'जर्मीक्लीन' है. इसे पार्लियामेंट स्ट्रीट पुलिस स्टेशन में तैनात किया गया है.

डिफेंस इंस्टीट्यूट ऑफ फिजियोलॉजी एंड एलाइड साइंसेज (डीआईपीएस), डीआरडीओ के लाइफ साइंसेज क्लस्टर की एक प्रमुख जीव विज्ञान प्रयोगशाला ने सभी रसद समर्थन और इस संकल्पना को अमल में लाने के लिए समर्पित वैज्ञानिकों की एक टीम प्रदान की. मात्र तीन दिनों में डीआरडीओ के लाइफ साइंसेज के डीजी डॉक्टर एके सिंह के मार्गदर्शन में भानु प्रताप सिंह और डॉक्टर निधि संदल ने मिलकर इसे तैयार कर दिया.

जर्मीक्लीन चेंबर को 10 मिनट में 25 जोड़ी वर्दी को सेनिटाइज करने के लिए डिज़ाइन किया गया है. इस कक्ष का कार्य क्षेत्र 1875X850X1600 मिमी है. इसका उपयोग करके बैटन, बेंत, केन शील्ड, हेलमेट या लकड़ी, स्टील से बने किसी भी प्रोडक्ट को कीटाणु मुक्त किया जा सकता है. सामान वही हो सकता है जो 70-80°C के तापमान का सामना कर सकता हो.

चेंबर में एक हीटिंग एलिमेंट और एक उच्च दक्षता वाला ब्लोअर होता है जो पूरे चेंबर में समान रूप से गर्म हवा को प्रसारित करने के लिए हार्डटैस की स्थिति में काम कर सकता है. कक्ष को एक विद्युत पैनल का उपयोग करके संचालित करने के लिए डिज़ाइन किया गया है जिसमें समय और तापमान समायोजन की क्षमता शामिल है. कक्ष थर्मोस्टेट के साथ सभी आवश्यक सुरक्षा सुविधाओं से सुसज्जित है जो हीटिंग को नियंत्रित करने के लिए पैनल के



Coronavirus: डीआरडीओ द्वारा विकसित की गई मशीन जर्मीक्लीन.

अंदर मौजूद हैं। चैंबर का आवरण इंसुलेटेड पैनलाइन से बना होता है जो ऑपरेटर के लिए उच्च तापमान प्रवर्तक से भौतिक अलगाव प्रदान करता है।

'जर्मी क्लीन' की लागत लगभग डेढ़ से दो लाख रुपये है। जर्मीक्लीन मिनी की कैबिनेट को विशेष रूप से कागजात / स्टेशनरी / छोटी वस्तुओं को साफ करने के लिए तैयार किया जा सकता है। इस इकाई को कागज प्राप्त करने वाले अनुभाग में रखा गया है और इस कक्ष में उपचार के बाद सभी कागजात वितरित किए जाते हैं। कोविड-2 तापमान के प्रति अत्यधिक संवेदनशील है। कोविड-2 पर विभिन्न तापमानों की स्थिरता का अध्ययन किया गया है और यह पाया गया है कि उच्च तापमान पर निष्क्रिय हो जाता है। 70 डिग्री सेल्सियस पर वायरस मात्र पांच मिनट में निष्क्रिय हो जाता है।

यह उत्पाद न केवल जवानों की वर्दियों को सैनिटाइज करेगा बल्कि आवासीय समिति और आरडब्ल्यूए द्वारा भी इसका उपयोग किया जाएगा। इसका उत्पादन डीआरडीओ द्वारा लॉकडाउन के दौरान दिन रात मेहनत करके किया गया है। वास्तव में इस ईजाद ने सैन्य संस्थानों में कार्यरत लोगों को एक नया अर्थ और महत्व प्रदान किया है।

<https://khabar.ndtv.com/news/india/coronavirus-drdo-removes-police-worries-makes-uniforms-infection-free-machine-germiklean-2246275>

The Indian EXPRESS

Mon, 15 June 2020

In Pics | The DRDO tech being used to sanitise uniforms of security forces



In pic: A policeman checks the temperature of another policemen who enters the Parliament Street Police station in New Delhi on Friday. (Express photo: Praveen Khanna)

Defence Research and Development Organisation (DRDO) has developed a sanitizing chamber called 'GermiKlean' to sanitise uniforms of security forces.



A policeman put his service uniform inside Germikill Machine designed by DRDO to sanitize the police uniforms at Parliament Street Police station in New Delhi on Friday. (Express photo: Praveen Khanna)



The machine can sanitize 30 uniforms at a time. (Express photo: Praveen Khanna)

4 / 5



A traffic policeman in a sanitizer tunnel at Parliament Street Police station in New Delhi on Friday. (Express photo: Praveen Khanna)

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(Express photo: Praveen Khanna)

<https://indianexpress.com/photos/india-news/in-pics-the-drdo-tech-being-used-to-sanitise-uniforms-of-security-forces-6458580/>

Future of `Tejas' with indigenous Kaveri Engine: A long way to go

“Kaveri is a low bypass twin-spool turbofan jet engine which was slated to provide an 80 KN power pack and adequate ‘thrust to weight’ ratio required by a modern fighter jet configuration,” explained an aeronautical engineer

By Huma Siddiqui

The indigenous Light Combat Aircraft (LCA) `Tejas', a 4.5 generation single-seat multirole fighter aircraft was conceptualized on the key factor of availability of indigenous `Kaveri' jet engine which was being designed and developed by Defence Research and Development Organisation (DRDO). “Kaveri is a low bypass twin-spool turbofan jet engine which was slated to provide an 80 KN power pack and adequate ‘thrust to weight’ ratio required by a modern fighter jet configuration,” explained an aeronautical engineer.

LCA Prototype — How it all started?

The government-sanctioned in 1983 the design, development and manufacture of the LCA over 8 to 10 years to evolve six flying prototypes and for both the LCA and Kaveri engine, DRDO had an Aeronautical Systems' cluster. Aerial Delivery R&D Establishment (ADRDE), Aeronautical Development Establishment (ADE), and Centre for Airborne System (CABS), Gas Turbine Research Establishment (GTRE) and Centre for Military Airworthiness & Certification (CEMILAC) were part of the DRDO cluster four decades ago.



The Kaveri engine for the indigenous jet was undertaken by Gas Turbine Research Establishment (GTRE), however, the thrust to the weight ratio of Kaveri is below required figure for Tejas aircraft.

The LCA project under DRDO and state-owned Hindustan Aeronautics Limited (HAL) included complete development and integration of a jet engine, Airframe and multi-mode Radar, Flight control system, Digital Electronic Engine Control and integration of Kaveri engine, along with carbon fibre technology for Primary Structural Components. “This was no mean task for any nation since the technology required was cutting edge and not available within the country. Most importantly, at that stage itself, already other aircraft manufacturing nations had a jet engine advantage of more than three decades of their developmental life-cycle,” explained a former Indian Air Force officer.

What was the Air Staff Requirements of IAF?

Indian Air Force (IAF), being the end-user for the LCA fighter jets, issued the Air Staff Requirement (ASR) in 1985 with a projected requirement for 220 Light Combat Aircrafts (including 20 trainer aircraft) to be inducted in the early 1990s. As per the ASR, LCA was to be built as a lightweight multi-mission fighter aircraft, having contemporary air combat and offensive air support capabilities with maintaining high manoeuvrability for close air combat (at low and medium altitudes). The purpose of the aircraft was to be able to provide extended Air Defence cover over the tactical battle area and forward bases.

In a recent interview to the Financial Express Online, the IAF Chief RK Bhadauria had said in response to a question that “order 83 MK IA is expected to be placed soon. And the deliveries of these aircraft will begin in three years.”

With the focus on indigenization and self-reliance the IAF will soon have 40+83 Tejas Mk I/IA and these will be around six squadrons of Tejas Mk II. And all these made in India fighters will be powered by the General Electric GE F414-INS6 of the US. This engine has been selected by Aeronautical Development Agency (ADA) to power the MKII version of the Tejas. The engine boasts a thrust to weight ratio of nine by one class and with a 98KN thrust class and similar class of engines are in use by many other aircrafts world over.

More about Kaveri

The Kaveri engine for the indigenous jet was undertaken by Gas Turbine Research Establishment (GTRE), however, the thrust to the weight ratio of Kaveri is below required figure for Tejas aircraft. Due to this, the DRDO was forced to steer the Kaveri engine away from the LCA programme, after an investment of almost four decades of developmental effort.

And now the Kaveri engine is being justified for use in Unmanned Aerial Vehicles (UAVs) leaving a gap in the indigenous jet engine development. The halt in research on the jet engine at this juncture is critical for the future of indigenization effort, where demand for thousands of such jet engine is confirmed to be there in next few decades within India itself. Further, this may be a huge missed opportunity to call off aircraft jet engine development at this stage.

LCA Catch-up with Technology

While LCA was facing various technological and other issues related to the sanctions imposed on India by the technologically advanced community, the military aircraft technology too was developing at a fast pace. “Apart from challenges pertaining to the jet engine and airframe, the avionics and sub-systems on board were under revised Air Staff Requirement by Air Headquarters so as to maintain an operational weapon edge of LCA. This package included air combat missiles, multi-mode Radar, Helmet Mounted Display etc. For example, Electronic Warfare capabilities were lacking in LCA Mark-I as were specified by IAF since the Self Protection Jammer was not fitted onboard due to space constraints etc. These changes necessitated design changes on the aircraft itself, requiring a revisit to the design board stage,” explained a former IAF officer who was associated with the programme.

As a standard process, a fighter jet undergoes a strict Initial Operational Clearance (IOC) and a Final Operational Clearance (FOC) as part of airworthiness trials. LCA Mark-I, which achieved Initial Operational Clearance by December 2013 but had significant observations meeting the ASR specifications. These would have resulted in reduced operational capabilities and limiting its operational employability in an IAF squadron. Increased weight, reduced internal fuel capacity and reduced speed etc. shortcomings were expected to be overcome by the development of LCA Mark-II taken up by ADA. Meanwhile, the LCA trainer aircraft production by HAL too was delayed for being unable to clear the IOC/FOC mark. Hence, IAF had to commence LCA pilot training on a Mission Simulator.

Induction of Tejas

The first LCA squadron could be formed by IAF only by 2016 and that too, without the indigenous Kaveri engines. The LCA could not replace the ageing MIG-21s as was expected in 1980's and IAF continued to face depleting strength of fighter squadrons over the decades, leading to stressed manpower and aircrafts required to maintain the Air dominance over the Indian Air Space. As an adhoc measure, consequent up-gradation of MiG-21 Bis aircraft was undertaken to cover the shortfall gap in fighter aircraft. According to the former IAF officer who wished to remain anonymous “Unfortunately, dovetailing the operational IAF with research project affected the modernization plans of the Service and this resulted in some awkward situations like a dogfight between a MIG-21 B with enemy's superior F-16 aircraft in a real hostile Air dominance combat drill in 2019, a situation well representing the IAFs inability to replace its ageing fleet of aircraft.”

Further, to give a boost to the nation's indigenization efforts, LCA Navy development was sanctioned to ADA in 2009 to initiate Design and Development activities. The aircraft is designed based on Ski-Jump Take-off but Arrested Recovery (STOBAR) concept and has successfully completed several trials. The Staff Requirements for Naval version of Tejas has been drawn out by the Indian Navy.

LCA-Kaveri Developmental Approach?

While Kaveri engine was in a developmental stage in the 1980s, Indian Space Research Organisation (ISRO) had just then launched its first experimental satellite launch vehicle SLV-3. The Space Agency has been evolving rapidly on its own and has successfully launched Chandrayaan and Mangalyan missions. Though a comparison of the rocket engine to jet engine technology is not the focus the ISRO success highlights the advantages of a 'User-developer' paradigm.

In case of Tejas with a Kavari engine, India is at a crucial juncture to achieve 'Atmanirbhar' status in the aerospace Industry with some path defining changes, while safeguarding country's security.

<https://www.financialexpress.com/defence/future-of-tejas-with-indigenous-kaveri-engine-a-long-way-to-go/1991344/>



Mon, 15 June 2020

It's time for Indian Army to find its "Tejas" of main battle tanks

By Satyajeet Kumar

Indian Army might be the only branch in Indian Armed Forces which continues to equip itself with imported weapons, from assault rifles to Main battle Tanks, Indian Army has made very little space for indigenous products while Air force and Navy are now starting to focus much more in support of indigenous weapon systems while our Army Generals are yet to move away from their bias import friendly mindsets.

IAF which once upon a time was called Import Air Force for a reason, now has three active fighter jet programs which will make up at least 60% of the fleet in the next 30 years which for the first time, air force will be moving away from the imported fighter jets. ALH, LUH, IMRH, and LCH Helicopters will ensure that the Helicopter fleet too is also largely indigenous in the next decade or so while the Indian Army is yet to become Atma-Nirbhar in Main Battle Tank space while locally developed Arjun tanks continue to wait for puny orders which come once in a while.

Arjun Mk1 fleet comprises of only 114 tanks and now after years of trials and testing, the upgraded Arjun Mk1A with more improvements and technology has been cleared for production again for a puny order size. The army is counting on lighter Arjun MkII to meet its Weight requirements but many in DRDO are not sure if the orders again will be over 114 as Army continues to procure Russian T-90 MBTs in large numbers while the local product gets namesake orders.

Army's biggest complaint against Arjun MBTs has been its weight and its Price. Arjun MBT is nearly 15 tonnes heavier than the T-90 tanks and costs nearly twice than locally assembled T-90s. Arjun is not overweight tank as Army describes it often, but it is of same weight class of any Heavy tanks in production around the world, it's just that Army is still not able to make the transition from Medium weight Tanks to Heavyweight Tanks even after demanding a Heavyweight tank from DRDO, 30 years ago.

With Puny order which Arjun tank gets, it only tends to be expensive since DRDO has no incentives to replace most of the imported systems like power packs, electronics and transmission system from the tank due to low order numbers from the client who has been told repeatedly that order of 500 units will see lower production costs but that is yet to happen. The army still operates nearly 1700 older T-72 Main Battle Tanks which after induction of T-90 have been pushed in to secondary role in Armoured thrust and firepower but Army will still need to replace them in long term.

If Modi wants armed forces to take up locally made weapons systems not it needs to stop buying locally assembled imported systems, it is very important that Next Generation Main Battle Tank for the Indian Army is of Indian design and manufactured and not some Russian tank locally assembled in India.

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<https://idrw.org/its-time-for-indian-army-to-find-its-tejas-of-main-battle-tanks/>

दैनिक भास्कर

Mon, 15 June 2020

प्रस्ताव / केंद्रीय मंत्री तोमर ने मुख्यमंत्री को लिखा पत्र, डीआरडीओ को 140 एकड़ जमीन देने के प्रस्ताव को जल्द मंजूरी देने की मांग

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) की शिफ्टिंग का मामला एक बार फिर चर्चा में आ गया है

ग्वालियर: शहर के सिटी सेंटर स्थित रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) की शिफ्टिंग का मामला एक बार फिर चर्चा में आ गया है। केंद्रीय मंत्री नरेंद्र सिंह तोमर ने इस संस्थान को सिटी सेंटर से हटाने के लिए अन्य स्थान पर 140 एकड़ जमीन देने के लिए मुख्यमंत्री शिवराज सिंह चौहान से न केवल फोन पर बात की बल्कि इस बारे में उन्हें पत्र भी लिखा।

श्री तोमर के अनुसार मुख्यमंत्री ने उन्हें इस बारे में शीघ्र कार्रवाई का भरोसा दिलाया है। शहर के बीचोंबीच स्थित इस संस्थान के 200 मीटर के दायरे में लगभग 5000 भवन हैं, जिन्हें सुरक्षा कारणों से हटाने के लिए डीआरडीओ ने जिला प्रशासन को पत्र लिखा था। लगभग दो साल से डीआरडीओ और जिला प्रशासन के बीच इस मामले में सिर्फ पत्राचार ही चल रहा है, कोई फैसला नहीं हो सका। इससे पहले श्री तोमर ने तत्कालीन रक्षा मंत्री निर्मला सीतारमण से भी इस बारे में चर्चा की थी। रक्षा मंत्री ने निशुल्क जमीन मिलने पर डीआरडीओ की शिफ्टिंग पर सहमति जताई थी।

श्री तोमर ने मुख्यमंत्री को भेजे पत्र में कहा है कि ग्वालियर नगर में डीआरडीओ की क्रिटिकल स्थिति होने के कारण आसपास 200 मीटर की परिधि में जो सरकारी तथा गैरसरकारी संरचनाएं हैं, उन पर टूटने का खतरा होने से वहां के रहवासियों के लिए परेशानी का कारण बना हुआ है। फिलवक्त आगामी कार्यवाही पर सर्वोच्च न्यायालय का स्थगन होने के कारण निर्माण कार्यों के तोड़ने पर अभी रोक है। श्री तोमर ने पत्र में खेद जताया है कि तत्कालीन केंद्रीय रक्षा मंत्री निर्मला सीतारमण के हस्तक्षेप के बाद भी अब तक यह मामला केवल पत्राचार में ही उलझा हुआ है।

<https://www.bhaskar.com/local/mp/gwalior/news/approve-proposal-to-give-140-acres-to-drdo-soon-127410127.html>



Sun, 14 June 2020

Defence lacks money for self-sufficiency

The one irrefutable input in augmenting atmanirbharta, or self-sufficiency, to fulfil India's assorted materiel requirements, as recently promulgated by Finance Minister Nirmala Sitharaman is, simply, money. And lots of it, to galvanise India's sluggish defence industrial base by attaining military technology, expanding competitive manufacturing and augmenting military exports.

However, in the din over atmanirbharta, the Ministry of Defence (MoD) is, ostrich-like, disregarding the reality that apart from the massive funding needed to buttress this domestic initiative, similar amounts, if not more, will be needed annually to eventually procure the ensuing equipment.

Regrettably, neither Sitharaman nor any other official has provided guidance or direction from where this massive financial injection can be sourced to progress the atmanirbharta objective and to commercially perpetuate it in the calamitous monetary distress triggered by the coronavirus pandemic.



The stock response of MoD officials to these disquieting and seemingly inexplicable queries is that the solution has been outsourced to the 15th Finance Commission, by asking it to address concerns regarding the allocation of a separate and non-lapsable fund to manage India's various defence and internal security commitments. Incredulously, they would have us believe that such subcontracting is the panacea for this seemingly insoluble financial calamity.

It is now evident that the perennially widening gap between the funds demanded by the services and other MoD departments and the annual outlays allocated to them will widen as a consequence of the pandemic-driven financial crisis. For the services, this fiscal chasm has steadily widened over a decade: from around Rs 23,000 crore in 2010-11 to Rs 1,03,000 crore in 2020-21. In these intervening years, the disparity between capital and revenue outlays for modernisation and salaries and operating expenses respectively, too has sizeably widened.

In the fiscal year 2020-21, for instance, the MoD allocated merely Rs 1,13,000 crore towards capital expenditure for all three services, against Rs 1,75,000 trillion which they had demanded for all-round modernisation and upgrades. Conversely, the annual budget apportioned almost twice that amount of Rs 2,18,000 crore to the military's revenue expenditure. For the Indian Army, on the other hand, the revenue-to-capital outlay ratio was particularly low — 83:17 per cent — whereas the desired ideal, according to succeeding parliamentary defence committees that have criticised this unremitting decline, is pegged at a 60:40 per cent quotient.

Furthermore, the severity of this resource crunch even before the pandemic struck can be gauged from delayed payments by the MoD for committed liabilities or previously acquired materiel, especially from the local state-owned entities. Last December, the parliamentary defence committee severely castigated the government for defaulting on these payments, which in a wider

context is not only embarrassing but also casts doubts on India's solvency in the global arms bazaar. And though the MoD has been putting up a brave front, its macho stance in insouciantly dealing with the financial predicament is beginning to resemble misdirected bravado.

Another frequently advanced argument, and one propounded by Sitharaman, albeit without elaboration, is furthering defence exports to earn revenue to fund modernisation. As an indicator, MoD officials point to the increase in India's materiel exports from Rs 4,682 crore in 2017-18 to Rs 10,745 crore the following year. But this deduction, like much of the rest, remains flawed.

Firstly, it is unclear whether this doubling of defence exports includes equipment manufactured by private industry, which was not the case earlier. Secondly, the boost in Indian materiel exports is quite simply the outcome of indigenous manufacturers, including private sector companies, becoming better integrated in recent years with the production lines of overseas original equipment manufacturers (OEMs).

Thirdly, and more importantly, the quality of Indian equipment is highly questionable. This was epitomised by the embarrassing termination in 2015 of the contract for seven Dhruv Advanced Light Helicopters (ALHs) by the Ecuador Air Force (EAF), for \$145.2 million, after four of them crashed, which dealt a body blow to the quality of Indian defence equipment.

Manufactured by Hindustan Aeronautics Limited (HAL), the ALH had bested competition from Israel's Elbit, Eurocopter, and Russia's Kazan Helicopters in bagging the EAF contract in 2008-09. At the time, the EAF had stated that two of the four ALH crashes were due to 'mechanical failure', but HAL, which completed Dhruv deliveries to Ecuador by 2012, absolved itself of all responsibility. It maintained that the 24-month warranty period for HAL to provide after-sales service support for the seven ALHs had long expired and hence it was the EAF's responsibility to support them.

Conveniently, HAL turned a Nelson's eye to Dhruv's multiple technical problems at home that included crashes and fleet groundings, all of which detracted from the platform's overall credibility, not only as a platform or domestic employment but also as a reliable export model. It is also an open secret that India's military too reposes little or no confidence in indigenously developed equipment, all of which goes to undermine governmental efforts to market it overseas.

And, lastly, around half of India's defence exports of Rs 5,000 crore in 2018-19, comprising spares and sub-assemblies, were to the US, Israel and European Union conglomerates. But now, it's evident that all these markets will contract significantly due to the pandemic, and without doubt, Indian defence imports will become a low priority for them if, indeed, one at all.

It is also impossible to imagine major materiel importers like Australia, Algeria, Iraq, Saudi Arabia, Turkey and the UAE opting for Indian equipment over more proven systems from long-established sources. Consequently, the decision to hike the limit on foreign direct investment in defence from 49 per cent to 74 per cent too is unlikely to see foreign OEMs lining up to invest in India.

Woefully, this brings the narrative back to where it started: that the achievability of Sitharaman's aim of atmanirbharta is paradoxically contingent upon money that India neither has, nor is seeking to preserve for spheres other than defence, or both.

In short, where is the money?

<https://idrw.org/defence-lacks-money-for-self-sufficiency/#more-229185>

'Won't keep anyone in dark': Rajnath Singh on India-China standoff in Ladakh

Addressing a virtual rally, the union defence minister talked about a range of issues including Ladakh and PoK, but devoted most of his time in spelling out virtues of abrogation of Article 370 and Article 35A of the Constitution of India

By Naseer Ganai

Defence Minister Rajnath Singh on Sunday said the Indian government would not keep anyone in the dark about the India-China tussle in Ladakh and at the appropriate time, the government would reveal everything about it.

“At present, there is an issue between India and China. Some people are asking questions about it and they are asking what is happening at India-China border in Ladakh. From time to time, information is given about it but I want to say that in a democratic setup, we also understand the opposition's importance,” Rajnath Singh said.

“Presently, there are talks going on at the military level between the two countries. China has also desired that the issue be resolved through talks. Our endeavour is also that a solution of this tussle between India and China be found through talks at the military level and at the diplomatic level. I want to tell all leaders and the opposition that our government will not keep anyone in the dark. We will neither keep India's parliament in the dark nor anyone else. We will reveal about it at the appropriate time.”

“I want to tell you with all confidence that we won't compromise with our national pride in any way. We want to assure you on this,” he said. “At the national security level, India has emerged strong. We are not a weak India. India is a huge power. But we are not scaring anyone with this power. We are enhancing our power for the security of the nation,” he added.

The Union defence minister was addressing the Jammu Jan Samvad virtual rally where he talked about a range of issues including Ladakh and PoK, but devoted most of his time in spelling out virtues of the abrogation of Article 370 and Article 35A of the Constitution of India. He said that by abrogating Article 370, the Bharatiya Janata Party fulfilled its decade-old promise and is committed to the development and growth of Jammu and Kashmir.

The defence minister said since the Indian government started announcing weather reports of Muzaffarabad and Gilgit-Baltistan, the heat is being felt in Islamabad. He said Pakistan might be thinking about some grave provocations. “But you are watching our paramilitary forces, Jammu and Kashmir Police and intelligence bureau giving befitting reply to their provocations in Kashmir,” he added.

He said the government would develop Jammu and Kashmir so much that people of PoK will be jealous and they would demand to be with India instead of Pakistan. He said the day this happens, a goal set by the Parliament will also be accomplished.

He said the promise of the BJP to abrogate Article 370 was incorporated in its manifesto way back during the days of Jan Sangha, and it was fulfilled right after the BJP formed the government with a thumping majority last year. He said under Prime Minister Narendra Modi, the BJP does what it says and thus has not allowed Indian politics to suffer from the crises of credibility. “When we got the chance, we removed Article 370. We got the majority in the parliament and we removed it,” he said. He said Article 370 and 35A were removed within 100 days of forming the government at the Centre. “I want to ask the Congress party if Article 370 was so important for you, then why this temporary provision was not made permanent by you, if you had such affection for this provision.”

He said Rafale fighter jets would reach India in July and it would bolster the Indian Air Force. “We don’t want to scare anyone. We want to strengthen our defence system for our security and protection,” he added.

<https://www.outlookindia.com/website/story/india-news-wont-keep-anyone-in-dark-rajnath-singh-on-india-china-standoff-in-ladakh/354745>

hindustantimes

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China, Pak possess more nuclear weapons than India: Defence think-tank SIPRI

The nine nuclear-armed countries—the US, Russia, the United Kingdom, France, China, India, Pakistan, Israel and North Korea—together account for an estimated 13,400 nuclear weapons as of January 2020

By Rahul Singh

New Delhi: China and Pakistan possess more nuclear weapons than India, according to a new yearbook released by a leading conflict and armaments think-tank on Monday.

The Stockholm International Peace Research Institute (SIPRI)’s Yearbook 2020 pegs the number of nuclear warheads in the Chinese arsenal at 320, while the nuclear forces of Pakistan and India are estimated to have 160 and 150 weapons, respectively.

The figures have been updated till January 2020.

India and its neighbours were ranked in the same order by SIPRI last year too when China possessed 290 nuclear warheads, Pakistan 150-160 and India had 130-140 warheads at the start of 2019.

The findings come at a time when India and China are caught in a border confrontation along the contested line of actual control in eastern Ladakh. Also, there is a noticeable military buildup on both sides of the border—stretching from Ladakh to Uttarakhand, Sikkim and Arunachal Pradesh.

China is carrying out “significant modernisation” of its nuclear arsenal and developing a “so-called nuclear triad for the first time” made up of new land and sea-based missiles and nuclear-capable fighter jets, the SIPRI said in a statement announcing the launch of the yearbook.

“India and Pakistan are slowly increasing the size and diversity of their nuclear forces,” it said.

The yearbook, which “assesses the current state of armaments, disarmament and international security”, found while there has been an overall decrease in the number of nuclear warheads in 2019, all nuclear weapon-possessing countries continue to modernise their nuclear arsenals.

With 6,375 and 5,800 warheads, Russia and the United States together possess more than 90% of global nuclear weapons.

The nine nuclear-armed countries—the US, Russia, the United Kingdom, France, China, India, Pakistan, Israel and North Korea—together account for an estimated 13,400 nuclear weapons as of January 2020.

“This marked a decrease from the 13,865 nuclear weapons that SIPRI estimated these states possessed at the beginning of 2019. Around 3,720 of the nuclear weapons are currently deployed with operational forces and nearly 1,800 of these are kept in a state of high operational alert,” SIPRI’s statement said.

It also highlighted low levels of transparency in reporting on nuclear weapon capabilities.

“China now publicly displays its nuclear forces more frequently than in the past but releases little information about force numbers or future development plans,” the statement said.

“The governments of India and Pakistan make statements about some of their missile tests but provide no information about the status or size of their arsenals,” it added.

India was the third-biggest military spender in the world last year after the US and China, according to a SIPRI report released in April. It was the first time that two Asian countries featured among the top three military spenders.

New Delhi’s defence spending grew by 6.8% to reach \$71.1 billion in 2019, said the report on Trends in World in World Military Expenditure.

<https://www.hindustantimes.com/india-news/china-pakistan-possess-more-nuclear-weapons-than-india-defence-think-tank/story-phAp0fW2uJS4hovk4F77jL.html>



Mon, 15 June 2020

India, China begin discussions to de-escalate and reduce troop strength in Ladakh

Currently, the Chinese People’s Liberation Army (PLA) has about 10,000 troops in the rear areas behind Galwan and Pangong. They are supported by about 100 tanks, armoured personnel carriers, two regiments of artillery, fighter jets and AWACS. The buildup extends from the northern part, that is the Daulat Beg Oldi or DBO area, right down to Chushul in the south.

In fact, there are strong troop concentrations in the Moldo area where the 14 Corps commander, Lieutenant General Harinder Singh, met his Chinese counterparts on June 6. The Indian army has a commensurate buildup as well. This is of some concern as a concentration of 10,000 troops supported by tanks and artillery should be.



Top government sources said that talks regarding de-escalation in the rear areas have begun. This will be about “deinduction” or, gradually moving back extra troops. There is a hope that the thinning in the rear areas can happen.

A series of meetings are expected in this week, two military to military meetings on the ground in Ladakh and a big diplomatic meeting at the Indian joint-secretary and Chinese director-general level. This could happen early in the week.

Diplomatic discussions in Beijing and New Delhi have been going on. In Beijing, the Indian ambassador, Vikram Misri, is involved in the discussions. In New Delhi, discussions have been going on at various levels.

Top government sources said that things are moving forward in an incremental manner; there is a sense of optimism. There is also a realisation that escalation does not benefit either side. But there will be no big-ticket move.

The entire process of negotiations at the ground/military level and between diplomats will take weeks, maybe more. The discussion at the ground level can be at colonel, brigadier or major general level, depending on the need. But India wants the situation to return to what it was in early May this year.

<https://idr.org/india-china-begin-discussions-to-de-escalate-and-reduce-troop-strength-in-ladakh/#more-229196>

Indian Army Chief says ties will remain strong, hours before Nepal votes on controversial map

Army chief General Naravane had earlier said Nepal was ratcheting up Lipulekh border issue at the behest of 'someone else', insinuating Chinese interference

By Nayanima Vasu

New Delhi: In a U-turn of sorts, Army chief M.M. Naravane Saturday said the relationship between India and Nepal has “always been strong” and “will remain strong in the future”, hours before the Nepal parliament is scheduled to pass a constitutional amendment bill to adopt their new controversial political map in their national emblem.

Last month, General Naravane had stated that Nepal was ratcheting up the Lipulekh border issue at the “behest of someone else and that is very much possible”, insinuating Chinese interference. The Indian Army has been locked in a military stand-off with China near the Line of Actual Control around Pangong lake since 5 May.

“We have a very strong relationship with Nepal. We have geographical, cultural, historical, religious linkages. We have very strong people to people connect. Our relation with them has always been strong and will remain strong in the future,” Naravane said at the Indian Military Academy (IMA) Saturday. Naravane was there to attend a passing out parade.

Army chief's timing

The remarks come on a day when the House of Representatives, or Nepal's lower house of parliament, votes for a bill to amend their Constitution to include the disputed regions of Limpiyadhura, Lipulekh and Kalapani in its official map.

The bill seeks to amend Schedule 3 of the Nepalese Constitution to reflect the new map, which shows the disputed territories within its borders.

“The Army Chief had really made an unnecessary comment. I think there is some thinking in New Delhi to settle the matters at the level of the both armies at least while political haggling continues,” said S.D. Muni, member of Manohar Parrikar Institute for Defence Studies and Analyses' executive council and professor emeritus at Jawaharlal Nehru University.

“Initially, there were talks that the Chief of Defence Staff Bipin Rawat will speak to Nepal's defence minister. Nevertheless, the matter now seems settled between the armies. Let the politics take its own course.”

Traditionally, due to close relations between both countries, Nepal follows a norm wherein the Indian Army chief is conferred the title of ‘honorary general’ of the Nepal Army.

ThePrint had reported that owing to Naravane's earlier remarks, Nepal could this time break away from that long-standing tradition.

Nepal's Defence Minister Ishwor Pokhrel had called the remarks by the Indian Army Chief an “insulting statement” and said it had “hurt the sentiments of the Nepali Gurkha army personnel who lay down their lives to protect India ... It must now become difficult for them to stand tall in front of the Gurkha forces”.

Nepal's new map

Once the bill is passed in the lower house, the National Assembly, which is Nepal's upper house of parliament, will take it up. That process will take another week or so, after which, the map will become permanent in their Constitution.

“The damage has been done, there is no doubt about it. The situation has aggravated since he (General Naravane) made those comments. Nepal's strategic partnership with China is growing across the board and many of the internal political problems in Nepal is being managed by them

that is for sure, but for the Indian Army chief to speak like that did not go down well with Nepali people,” said Vijay Kanta Karna, former diplomat and now professor of political science at Nepal’s Tribhuvan University.

Nepal officially released its new political map on 20 May.

<https://theprint.in/defence/indian-army-chief-naravane-says-ties-will-remain-strong-hours-before-nepal-votes-on-controversial-map/440897/>

The Tribune

Sun, 14 June 2020

India, China troops ‘disengaging’ in phased manner: Army Chief

word of Honour for Kapurthala Sainik School alumnus

Dehradun: The military talks between India and China over the eastern Ladakh row have been “very fruitful”, and both armies are “disengaging” in a phased manner beginning from Galwan valley, Army Chief Gen MM Naravane said on Saturday, in the first official confirmation of mutual pulling back of troops from the region.

Claiming that the situation along India-China border was under control, he exuded confidence that the ongoing dialogue would settle all perceived differences over the de facto boundary between the two nations.

Gen Naravane was talking to reporters on the sidelines of the passing-out parade of the Indian Military Academy.

“Both sides are disengaging in a phased manner. We have started from the north, from the area of the Galwan river where a lot of disengagement has taken place. It has been a very fruitful dialogue. It will go on and the situation will improve,” he said.

The Indian Army has been fiercely objecting to transgressions by Chinese troops, and demanding their immediate withdrawal for the restoration of peace and tranquillity in the area. Both sides held a series of talks over the past few days.

“I would like to assure everyone that the situation along our borders with China is under control. A lot of disengagement has taken place and we are hopeful that all perceived differences will be put to rest through continued dialogue,” Naravane said.

<https://www.tribuneindia.com/news/nation/india-china-troops-disengaging-in-phased-manner-army-chief-98829>



The Navy reveals a hidden gem — a model of a Soviet-built cold war missile never seen before in public. – Defence News of India

From the bridge of the destroyer INS Rajput, the crew saw a breathtaking sight. A giant white plume rose from the mirror-calm Bay of Bengal and a grey missile the size of a small airplane broke the surface and spread its wings, powerful rocket boosters firing it into a parabolic trajectory over the horizon. “It was awe-inspiring,” said an officer on board the destroyer that day. “We had never seen anything like it.”

It was sometime in mid-1988. The crew had witnessed the first launch of a submarine-fired cruise missile in Indian waters— a P-70 ‘Amethyst’ cruise missile fired from a nuclear powered attack submarine INS Chakra, a submarine taken on a three-year lease from the Soviet Union. The target that day, a derelict Petya class corvette, broke in two as the missile’s warhead of half a ton of high-explosive smashed into it.

The test was the closest most naval personnel would ever get to the enigmatic missile- part of a top secret national project to field nuclear powered attack submarines.

On May 28 this year, over three decades after that test, a freshly painted Amethyst was seen in public for the first time. It was part of an outdoor line up of several missiles, past and present at the shore based naval unit INS Kalinga.

The missile park ‘Agneeprastha’ aims to capture the evolution of naval missiles handled by the unit. Naval officials say the park will be open to the public on limited occasions. The missile on display is most likely what the Russians call a ‘Maket’ or model-an identical sized version of the weapon sans the engine and warhead— used for training crews.

Named for the blue precious stone, the missile has always been a head-turner. It electrified the world November 27, 1967 when the Soviet Union commissioned a first-of-its kind nuclear submarine, the K-43 on a shipyard on the Volga River, east of Moscow. The ‘Charlie’ class K-43 was the world’s first submarine which could fire missiles from underwater. Its large blunt bow section carried eight Amethysts, angled upwards at 32.5 degrees.

The K-43 overcame a major handicap in all cruise missile-firing nuclear submarines (SSGNs) that had to surface, open their bulky missile launchers and fire, an action which rendered them extremely vulnerable to enemy counter-attack. It was exclusively meant to target US aircraft carriers and other high value naval targets.

“At 24 knots the Charlie it lacked the speed to pursue fast-moving carrier battle groups, but placed at choke points, it could spring a surprise,” recalls Vice Admiral R N Ganesh, the Chakra’s first Commanding Officer.

The Amethyst was an evolution of the P-15, a missile the navy had used to devastating effect in the 1971 Indo-Pakistan war. In less than half hour on December 4, three raiding Indian missile boats sank a Pakistani Naval destroyer, a minesweeper and a merchant ship, the largest use of ship-to-ship missiles in the history of naval warfare.

The 3.5 ton missile was a metre longer than the P-15 and had a range of 60 kilometres. Naval expert Norman Polmar, however points out the number of shortcomings. In his encyclopaedic 2004 book— “Cold War Submarines” — he mentions the Amethyst’s relatively short range, a limited ability to overcome defensive countermeasures and requirement for a complex submarine control system.’ Still, it was a formidable capability accretion for a Navy which essentially found itself defenceless when the US Seventh Fleet’s forayed into the Indian Ocean in 1971. The Soviets supplied the Navy with 16 Amethysts as part of the three year lease.

The Chakra was meant to train crews to man a series of indigenously built nuclear powered attack submarines that India had planned to build. Training of Indian crews to man the boat and the missile began in Russia in the early 1980s.

“It was like a fairy tale, a secret Russian fairy tale told to us one lesson at a time. Every day we got to know of the Amethyst’s capabilities,” says one of the Chakra’s missile officers, who did not want to be named.

The Soviet obsession with hunting US aircraft carriers continued as they fielded bigger and faster SSGNs and missiles with increased ranges– the Charlie-2, the ‘Papa’ and finally the monstrous ‘underwater battlecruiser’ the 19,500 ton ‘Oscar’ class armed with 24 supersonic carrier-killing cruise missiles.

India’s Advance Technology Vessel Project to field Chakra-type SSN/ SSGNs meanwhile, underwent a major course correction in the 1990s. The project was converted into what we now know as the Arihant class submarines – nuclear submarines firing nuclear-tipped ballistic missiles– political instruments of deterrence and hence not used for sea denial operations like hunting warships.

With the commissioning of the INS Sindhusashtra in 2000, the navy acquired its first missile firing conventional submarine two decades ago and since most of its 14 conventional submarines have been retrofitted to fire an array of Russian, French and US cruise missiles. All these platforms however are hobbled by the lack of a nuclear propulsion that would give it tremendous speed and literally unlimited endurance.

The Indian Navy meanwhile took on a second submarine, also called the INS Chakra from Russia on a ten-year lease in 2011. Russia has begun refurbishing another nuclear submarine to be delivered for another ten-year lease by around 2026.

A Rs 1 lakh crore project to build six indigenous SSNS is still in the design stage and won’t be realised until the 2030s at least. The missile on the beach is hence, a reminder of both the past and hopefully, not too distant a future.

<https://www.defencenews.in/article/The-Navy-reveals-a-hidden-gem-%e2%80%94-a-model-of-a-Soviet-built-Cold-War-missile-never-seen-before-in-public-%e2%80%93-Defence-News-of-India-841102>

THE TIMES OF INDIA

Mon, 15 June 2020

In crisis, military capability of the two sides drives policy choices

By Lt Gen DS Hooda

The India-China standoff has entered its second month, and it appears that we are in for a period of protracted and tough negotiations before we see some real progress. While it is hoped that the crisis can be resolved peacefully, there have also been some discussions on the war fighting strategies and capabilities of the two militaries in the event of a conventional war.

These discussions range from a two-front threat in Ladakh, leading to a loss of areas in northern Ladakh and the Siachen Glacier to raising doubts on the ability of the People’s Liberation Army (PLA) to conduct successful operations owing to a lack of combat experience. This piece attempts a realistic assessment of the development of India’s military strategy and future prospects.

India’s strategy against China has been based on a realistic appraisal of China’s capability to conduct offensive operations along the forbidding terrain of the northern borders. After the 1962 war, India remained defensive against China, and the Line of Actual Control (LAC) was thinly held to guard against any surprise attack. It was only after the Wangdung incident of 1986 that the Indian Army carried out a significant increase in the Indian deployment along the border with China.

One consequence of the Wangdung incident was that it triggered a period of diplomatic rapprochement with the visit of the Indian Prime Minister Rajiv Gandhi to Beijing in 1988 and the subsequent signing of various border agreements. However, this period of calm also had an unintended effect. While the Indian soldiers remained deployed along the LAC, infrastructure development was neglected.

In contrast, China carried out massive infrastructure improvements in Tibet, including the operationalisation of the Qinghai-Tibet railway in 2006. It was only in the mid-2000s that India took serious note of the growing mismatch between the two militaries, and a decision was taken to build 73 strategic roads along the LAC. In 2010, two new divisions were raised to strengthen the deployment in Arunachal Pradesh, followed by the raising of the Mountain Strike Corps.

Although shortfalls remain, there has been a change in strategic thinking. Two noted experts, Anit Mukherjee and Yogesh Joshi, have pointed out that the new Indian Army strategy has shifted from “deterrence by denial” to “deterrence by punishment”.

The India Air Force (IAF) has traditionally held an edge over PLA Air Force (PLAAF) as its airfields are located in the plains enabling air operations with full payloads.

PLAAF, operating from high altitude airfields with rudimentary facilities, is forced to operate with reduced payloads. In the last decade, the IAF has shifted its attention to the northern borders. Su-30 aircraft were deployed at the Tezpur airbase in 2009, and Hasimara, in West Bengal, is being readied for Rafale aircraft. There has also been a significant increase in strategic airlift capability with the induction of the C-130, the C-17, and the Chinook helicopters.

The Indian Navy (IN) currently enjoys a huge geographical advantage, and, in conflict, will seek to block the entry of PLA Navy through the narrow straits leading from the South China Sea into the Indian Ocean, and engage in commerce warfare by interdicting Chinese trade. The IN has a good maritime domain awareness capability through its P-8I Poseidons that is now supplemented by Su-30 aircraft armed with the BrahMos missiles in the newly set up squadron based at Thanjavur in Tamil Nadu.

If a conventional conflict were to take place today, it would be a realistic assessment that India would hold its own and may even enjoy an edge in the air and maritime domain. However, as we look at the future, two sobering realities confront us. First, the balance of conventional forces is speedily shifting in China’s favour, and second, China’s military capability development is highly focused while India is yet to articulate a national defence strategy.

Backed up by an impressive indigenous industry, China continues to add to its growing inventory of modern aircraft and ships. The PLA Navy has already surpassed the US Navy in the number of battle force ships. It is estimated that a majority of fighter aircraft in the PLAAF will be fourth-generation within the next several years.

Apart from conventional weapons, the PLA created the Strategic Support Force (SSF) in 2016 to centralise cyber, space, electronic, and psychological warfare. The SSF would lead China’s information warfare operations that are considered essential for strategic dominance.

The Indian military is also engaged in a restructuring exercise, but this is driven primarily by the constraints of an inadequate defence budget. As the Air Force struggles with dwindling squadrons and the Navy downsizes its future plans, the Army seems obsessively focused on finding ways to reduce military pensions. Military restructuring decisions are often announced in the media before they have even been internally debated by the service headquarters.

The shape and size of military forces are driven by a realistic evaluation of the threats that nations face and the resolve to meet them. Unfortunately, the government has not undertaken a serious assessment of how future wars will be fought and the force structures required to win. The absence of such an assessment enables the ad hoc allocation of defence budgets without a long-term focus.

The PLA could disengage from the standoff at Ladakh, but that does not signal an end to the India-China strategic rivalry. And it is an unpleasant truth that in a crisis, it is ultimately the military capability of the two sides that drives policy choices. As John. J Mearsheimer, the

architect of the 'offensive realism' theory, writes, "In international politics, a state's power is ultimately a function of its military forces and how they compare with the military forces of rival states." (The writer is former Army Commander, Northern Command

(Disclaimer: Views expressed above are the author's own.)

<https://timesofindia.indiatimes.com/blogs/generals-jottings/in-crisis-military-capability-of-the-two-sides-drives-policy-choices/>



Mon, 15 June 2020

LCH order in the final leg, Delivery of 15 LSP Attack Helicopters in early 2021: HAL Chairman

By Raunak Kunde

HAL Chairman R Madhavan has told livefistdefence.com that final contract for 15 limited series production (LSP) HAL designed Light Combat Helicopter (LCH) multi-role combat helicopter is in the final leg and as soon as the contract is linked, all 15 LCH Helicopters will be delivered by 2021-22 timeframe as HAL already has developed 9 frames of LCH before the contract was inked with its internal fund and assembly and integration work will be completed in next six months and the first batch will be ready to induction by early or mid-2021 onwards.

In 2017, Late Defence Minister Arun Jaitley had inaugurated the new Bengaluru helicopter complex for the production of the indigenous design Light Combat Helicopter (LCH). In 2016, the defence ministry had cleared a Rs 2,911-crore procurement of 15 LCHs as a "limited series production" (LSP) order but the final contract was never executed.



HAL claims that it can manufacture 30 LCH in a year once the contract for 150 LCH is to be inked by the Indian Army and Indian Air Force after the execution of 15 LSP contracts. Indian Army has committed to order 114 LCHs, and the Indian Air Force another 65, which includes 15 LSP LCH which will be ordered soon.

According to information provided to idrw.org, Each LCH costs half the price of AH-64E Apache attack helicopters the Indian Air Force (IAF) has bought from Boeing, US. Like AH-64E, LCH in the production variant will come in Two or three variants both for the air force and Army. Some later variants will come with new indigenous fire control radar which will have several modes and long-range detection capability against the land, air, and sea targets, and come will come without them.

Future and probably last batch of LCH variants will also get a much-needed jolt in capability as LCH crew will be able to control over different armed reconnaissance systems which will be equipped with a two-way data link system so that sensors, flight path, and targets of the armed reconnaissance systems can be monitored by LCH crew flying in the same area away from hostile fire.

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<https://idrw.org/lch-order-in-the-final-leg-delivery-of-15-lsp-attack-helicopters-in-early-2021-hal-chairman/#more-229167>

"Special" passing out parade held at Naval air station

Chennai: A "special" passing out parade (POP) adhering to all social distancing norms in these COVID-19 times was held at the Naval Air Station Rajali at Arakkonam, near here, on Saturday. The POP was held to mark the graduation of the 94th Helicopter Conversion Course (HCC) and eight Navy pilots were awarded with the prestigious "Wings of Gold" by Commodore Shreerang Joglekar, Commanding Officer INS Rajali, a Defence release here said. "A special Passing-out Parade (POP) adhering to all safety and social distancing norms was held at the Naval Air Station Rajali, Arakkonam," it said. The pilots underwent rigorous flying and ground training for 20 weeks at Indian Naval Air Squadron 561, the Helicopter Training School (HTS). The release said due to the coronavirus-induced lockdown, training activities for the pilots at HTS also had to be "severely restricted keeping in mind the safety aspects against COVID-19." Subsequently new procedures for conduct of safe flying operations, adhering to all the safety precautions, were promulgated. These included "daily sanitisation of aircraft and squadron premises whilst maintaining a safe and conducive training environment adhering to social distancing norms," it said.

Training recommenced on April 20 and methodical planning and execution resulted in time bound completion. The performance of the squadron to provide well trained and professionally sound helicopter pilots to the Indian Navy "on time" remains unmatched, the release said. During training, the pilots are introduced to several nuances of helicopter flying and undergo a "challenging" syllabus including navigation, night flying and operations over sea, it said. The newly qualified pilots will be appointed to various front-line operational units of the Indian Navy and take up missions like Search and Rescue (SAR), Reconnaissance and anti-piracy patrols, the release added.

<https://www.outlookindia.com/newscroll/special-passing-out-parade-held-at-naval-air-station/1865243>

THE TIMES OF INDIA

Sun, 14 June 2020

26 cadets commissioned into Indian Army

Pune: About 26 cadets were commissioned into the Indian Army after training for four years on Saturday at the Cadet Training Wing (CTW) on the campus of College of Military Engineering (CME).

Presently, the wing conducts training for Technical Entry Scheme (TES) popularly known as TES. The TES entry cadets undergo one year of basic military training at Officers Training Academy (OTA), Gaya, before arriving at CTW for engineering studies for civil and mechanical engineering.

The cadets receive their commission after completing one year of military and three years of engineering training.

"After commissioning, the cadets will continue their balance one year of engineering degree at CME as commissioned officers," stated a statement issued by the Southern Command.

This time no parents were invited to the parade. Lieutenant General PP Malhotra, Commandant, CME, was the reviewing officer of the parade. The General Officer Commanding-in-Chief Army Training Command gold medal was awarded to cadet Rahul Chaube and, the silver and bronze medal to cadets Vivek Kumar and Satender Pal, respectively.

<https://timesofindia.indiatimes.com/city/pune/26-cadets-commissioned-into-indian-army/articleshow/76364681.cms>

Parochialism, SeaBlindness in COVID budget cuts' era: Long term impact for comprehensive national power

Terming the naval, and specifically the Aircraft Carrier, involvement in the 1971 war as 'peripheral' is not only against all known facts of but also displays an incorrect understanding of our military history and strategy

By Capt DK Sharma

Acquiring a third aircraft carrier is a major decision. It is no surprise then that it will be taken after a much-needed deliberation of the Services as well as the Chief of Defence Staff (CDS).

A strong Army well supported by an equally dynamic Air Force, hence are a must. The important questions that two questions that, however, need to be asked are:

- Is the Naval warfare being undertaken only for the sake of naval warfare?
- For a country like India which is dependent on the sea for over 97% of its trade including fuel and critical war-fighting supplies, without the Navy being strong, can the Army and Air Force every be strong?



The Navy has seen classic naval action only in 1971. (File image)

Let us not forget, the Indian Navy “has seen action only twice, 1965 and 1971, on the sidelines of the land operations and the aircraft carrier had a minimum role”. If fact, let us face it, the Navy has seen classic naval action only in 1971. This one was a sure shot victory which also surprised its planners. The Navy, and especially INS Vikrant, played an extremely important role in this victory. Let us not forget that in 1965, thanks to political directions, the involvement of the Navy was kept to the minimum. In fact, the Indian Navy was not allowed to operate beyond the North of Okha.

Maritime domain is crucial, a fact that planners knew rather well in 1971. Lt Gen Jacob, in his memoirs of the 1971 war, talks about his briefing – at Fort William – on the draft Operation Instruction by Gen Manekshaw and the then Director of Military Operations (DMO), Maj Gen KK Singh, identified the ports of Khulna and Chittagong as “prime objective”. He writes, “At the meeting, held in the operations room, Manekshaw, KK Singh, Arora, and I were present. Sam Manekshaw let his DMO do all the talking. KK Singh spelt out the objectives, maintaining that if we captured Khulna and Chittagong, what he termed the entry ports, the war would come to an end”. Admittedly, the taking of the ports was initially planned to be an army operation and Gen Jacob was “flabbergasted”. He recommended that “we should utilise our naval superiority and have an effective naval blockade in place.”

The analysis of the war in the official history (“The Story of the Pakistan Navy”) of the Pakistan Navy acknowledges that “The success of Pakistan’s counter-plans hinged largely on reinforcements and resupply of the eastern theatre of war by the sea which could only be accomplished by a strong Navy capable of breaking India’s naval blockade”. If the Indian Navy had not effectively stymied this plan, Pakistan was quite hopeful of a ‘stalemate’ (which they could have claimed as a victory for the domestic audience, much like had been done just a few years earlier in 1965).

An argument is being made, today, that an aircraft carrier may not be useful in “future war scenarios (which) will be short and swift”. Interestingly, Pakistan Navy history laments that it was this very argument of the (ir) relevance of a navy in a ‘sharp short war’ that led to their downfall in 1971! Plans for a two-flotilla Navy (one each based in the two wings) in had been put up to the Pakistan Government as early as 1949. The plans “unfortunately had become the victim of seemingly endless bureaucratic indifference and of vague concepts such as “the defence of East Pakistan lies in the West” and “a short, sharp war” which stood in the way of the Pakistan Navy’s expansion and re-organisation from the early fifties. The Navy continued to be accorded a lower priority, and the fleet was allowed to degenerate into a shrinking force quite incapable of taking on the task of providing protection to the sea lines of communication between the two wings”.

As far as the Indian Naval viewpoint is concerned, its history (‘Transition to Triumph’) records that “It was correctly foreseen that by themselves the ships of the Eastern Fleet were too few and too slow to enforce contraband control and that help would be needed from Vikrant’s aircraft. But the extraordinary extent to which Vikrant’s aircraft actually succeeded in assisting ships in contraband control and apprehending merchant ships, over and above their airstrikes against East Pakistan, came to be fully realised only after the war. A new role had crystallised for an aircraft carrier in limited war”.

Terming the naval, and specifically the Aircraft Carrier, involvement in the 1971 war as ‘peripheral’ is therefore not only against all known facts of but also displays an incorrect understanding of our military history and strategy. Close to a lakh Pakistani soldiers would possibly not have surrendered unless they had lost their ‘will to fight’. The Indian Navy – the silent service – ensured this by enforcing a blockade where no reinforcements were forthcoming, no supplies could be provided and no escape route was possible. Without the Carrier, the proponents of ‘alternate scenario’ of history can possibly at best come up with a stalemate followed by international intervention.

Another dangerous shibboleth that needs to be discarded is regarding the ability of the Air Force – any Air Force, not just the Indian – being able to provide effective air cover at sea. It is all very well to state that this would be undertaken to score inter-service brownie points in peacetime debates. Once again, military history shows otherwise. In 1971 war itself, the carrier-borne aircraft of INS Vikrant repeatedly attacked the Chittagong and Cox’s Bazar airfields on request of AOC-in-C Eastern Command (the Indian Air Force Commander in the East).

Before concluding – and moving away from military history – a few quick counterpoints to a recent article in the media which talked about a third aircraft carrier may be in order.

Firstly, it is a very narrow interpretation to state that China went in for an aircraft carrier only after building its army. This may have been Hobson’s choice for China. Was the option of a carrier ever really available to them? They had to go for a second-hand Russian carrier to learn the nuances before they could think of embarking on an ambitious carrier building program. Aircraft carrier operations take years to master even if a ship is available or can be built. Further, China’s 2015 defence white paper, ‘China’s Military Strategy’, explicitly states that “The traditional mentality that land outweighs sea must be abandoned”. Even as China is reducing its land forces and focusing on the sea, it is being propounded that India does the exact opposite.

Secondly, forgoing an aircraft carrier due to budgetary constraints is counterproductive. Aircraft carriers are certainly expensive, but even if we ignore the military power it bestows, purely from an economic viewpoint an indigenously constructed carrier can effectively galvanise the economy given a large number of industries and MSMEs involved in the supply chain. The money whilst going out of the defence kitty –goes back into reviving the national economy. Numerous examples can be cited of countries GDP being impacted solely by the shipbuilding industry – which is considered a strategic ‘mother industry’.

Thirdly, saying that aircraft carriers are required only for global powers is debatable. India had initiated procurement of INS Vikrant within a few years of Independence. The ‘Plans Paper’ giving the blueprint for the Indian Navy written in 1948 itself saw the need for three aircraft carriers. However, even if we admit that it is, indeed, true that India would require a carrier only when it

becomes a major power; it must be pointed out that ships – especially carriers – cannot be built overnight. India had announced the plan to replace its ageing British-built carriers in 1989, work on the indigenous design began in 1999, and the keel of the first indigenous aircraft carrier was laid only in February 2009. Planning for the future requires foresight. Can we today say what our global posture or military requirements would be in 2035? Would just stopping cross border infiltrations continue to be our “priority”? If not, then we need to think big and think strategically while formulating our current plans.

Parochialism and Sea Blindness in an era of COVID budget cuts can have a long term impact on the Comprehensive National Power.

(The author is Indian Navy Veteran. He was the Spokesperson of Indian Navy at Ministry of Defence. Views expressed are personal.)

<https://www.financialexpress.com/defence/parochialism-seablindness-in-covid-budget-cuts-era-long-term-impact-for-comprehensive-national-power/1990461/>



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India looks to deploy naval liaisons at Madagascar, Abu Dhabi for information exchange

This will be in the overall realm of improving linkages and become repository for all maritime data

By Dinakar Peri

New Delhi: After joining the Indian Ocean Commission (IOC) as Observer in March, India is looking to post Navy Liaison Officers at the Regional Maritime Information Fusion Centre (RMIFC) in Madagascar and also at the European maritime surveillance initiative in the Strait of Hormuz for improved Maritime Domain Awareness (MDA).

“We are working closely with France who is a pre-eminent member of IOC to post a Naval LO at the RMIFC in Madagascar. We are also working on posting a Naval LO at the European Maritime Awareness in the Strait of Hormuz (EMASOH) in Abu Dhabi,” a defence source told *The Hindu*. “This will be in the overall realm of improving linkages of the Navy’s Information Fusion Centre for Indian Ocean Region (IFC-IOR) in Gurugram with other IFCs and become the repository for all maritime data in the IOR,” the source said. The LOs are expected to be posted in the next few months.

The RMFIC functions under the aegis of the IOC of which India became an Observer in March 2020 along with Japan and the United Nations. The IOC is a regional forum in the southwest Indian Ocean, comprising five nations — Comoros, France (Reunion), Madagascar, Mauritius and Seychelles. China and the European Union (EU) have been Observers in the IOC since 2016 and 2017, respectively.

The Navy LO is expected to be posted at EMASOH by July and at the RMIFC by September or October, the source said. India has an LO at the IFC in Singapore for over four years now.

The EMASOH headquarters is composed of Belgium, Denmark, the Netherlands and French officers and based at the French naval base in Abu Dhabi. The aim is “to monitor maritime activity and guarantee freedom of navigation in the Persian Gulf and the Strait of Hormuz.” On February 5, the initiative was declared operational by the French Ministry of Armed Forces.

The Navy set up the IFC-IOR in December 2018 within the premises of the Information Management and Analysis Centre (IMAC) in Gurugram to track maritime movements in the region. France became the first country to deploy a Liaison Officer at the IFC-IOR followed by the U.S. and several other countries including Australia, Japan and the United Kingdom have announced their intention to post LOs. Currently, infrastructure is being built to house the foreign

officers. Pre-fabricated structures are being built and are expected to be ready by the end of the year, a second source said.

Of late, India has signed a series of white shipping agreements, Logistics Support Agreements (LSA) and maritime cooperation agreements with several countries. For instance, at the virtual summit, India and Australia announced a joint declaration on a shared vision for maritime cooperation in the Indo-Pacific in which they agreed to “deepen navy-to-navy cooperation and strengthen MDA in the Indo-Pacific region through enhanced exchange of information”.

As reported by *The Hindu* in October last, the IFC-IOR is coordinating with similar centres across the globe. These include Virtual Regional Maritime Traffic Centre (VRMTC), Maritime Security Centre- Horn of Africa (MSCHOA), Regional Cooperation Agreement on Combating Piracy and Armed Robbery (ReCAAP), Information Fusion Centre-Singapore (IFC-SG), and International Maritime Bureau - Piracy Reporting Centre (IMB PRC).

<https://www.thehindu.com/news/national/india-looks-to-deploy-naval-liaisons-at-madagascar-abu-dhabi-for-information-exchange/article31828272.ece>

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India seeks to widen Indo-Pacific partnership with Philippines amid China's aggression

While conversation focussed on fight against Covid both leaders also shared satisfaction in its bilateral relationship, including defense cooperation, with Modi noting how India sees the Philippines as a “vital partner” in the Indo-Pacific region. The Philippines also expressed similar sentiments, ET has learnt

By Dipanjan Roy Chaudhury

PM Narendra Modi’s recent conversation with Philippines President Rodrigo Duterte is significant as it opens up the possibility of wider Indo-Pacific partnership between Delhi and Manila in the backdrop of China’s tough posturing along the LAC and South China Sea region.

While conversation focussed on fight against Covid both leaders also shared satisfaction in its bilateral relationship, including defense cooperation, with Modi noting how India sees the Philippines as a “vital partner” in the Indo-Pacific region. The Philippines also expressed similar sentiments, ET has learnt.

The Philippines President in fact wanted India to play a bigger role in the Indo-Pacific region.

As part of growing defence partnership Philippines Navy Chief Giovanni Carlo J. Bacordo praised the Indian Navy for helping out one of its navy ship after a fire broke out in engine room which injured two Philippines navy personnel.

Fire had broken in Philippines' ship BRP Ramon Alcaraz on May 7. India not only repaired the ship free of cost at Navy Shipyard in Kochi but took care of the both the personnel in Indian hospitals.

The Philippine Navy chief Rear Admiral Giovanni Carlo J. Bacordo in a letter to Navy chief Admiral Karambir Singh wrote, "your support in this unfortunate accident is way beyond our expectations and it is a testament of your sincerity in deepening our Navy to Navy partnership. Rest assured that the Philippine Navy remains committed to this Partnership. We hope to expand this relationship as we seek better ways to make our seas safer and more secure for



Philippines also participated in the Def-Expo in April 2018. Indian Navy and coast guard ships regularly visit the Philippines and hold consultations with their counterparts.

everyone...fervent wishes for your continuing success in leading the Indian Navy's sustained resolve to be a global maritime force".

Gen Filemon Santos, Chief of Staff Armed Forces of the Philippines also wrote to CDS Gen Bipin Rawat lauding him for Delhi's assistance.

The mainstay of bilateral defence cooperation continue to be capacity building and training, exchange visits of delegations and naval and coast guard ship visits. Secretary, National Defense, Delfin Lorenzana visited India with a five member delegation for the first ever bilateral defence minister level visit from 8-11 March 2018. Apart from bilateral interactions with his counterpart, he also visited defence establishments and defence equipment production centres in India.

Philippines also participated in the Def-Expo in April 2018. Indian Navy and coast guard ships regularly visit the Philippines and hold consultations with their counterparts. Recently, ICGS Shaunak visited Manila on 1st February 2019 on the occasion of Indian Coast Guard Day. Indian Navy Vessel, INS Rana (D52) visited Manila from 23-26 October 2018. ICGS Shaurya visited Manila from December 1-5, 2017, INS Satpura and INS Kadmatt visited Manila from 3-6 October 2017, Indian Coast guard Ship ICGS Samarth visited Manila from 7-10 January 2017, INS Sahyadri and INS Sakthi visited Manila on a goodwill visit to Subic Bay from 30 May -2 June 2016; INS Sahyadri visited Manila from 1-4 November 2015; and from 20-23 August 2014; ICGS Samudra Paheredar visited Manila from 19-22 September 2014; a flotilla of four Indian ships from the Eastern Fleet, namely INS Shakti, INS Satupura, INS Ranjit and INS Kirch visited Manila on a goodwill visit from 12-16 June, 2013.

The participation of officers of the armed forces of both countries in various specialized training courses in each other's countries has intensified, as have visits by National Defence College (NDC) delegations, including the first ever NDC visit from the Philippines to India. A delegation from the College of Defence Management of India visited Philippines from 23-31 October 2015 and again in October, 2018; a delegation from Army High Command Course of India visited the Philippines from 10-14 November 2014. INTELLEX meetings have contributed towards sharing and exchanging information on a range of sensitive issues; the last INTELLEX meeting took place in Manila in January 2015 with the previous one being held in New Delhi in February 2013. In recognition of the need to further strengthen defence cooperation, the Joint Defence Cooperation Committee was constituted and had its first meeting in Manila in January 2012 followed by the 2nd meeting in New Delhi on 24 March 2017.

On 21 October 2018, a 21 member delegation from the College of Defense Management (CDM) Secunderabad visited Manila. The visit was a part of the International Strategic Management tour of the higher defense management course-14 of CDM Secunderabad. Government of India sent an Indian Air Force flight with relief material for the victims of super typhoon 'Haiyan, which struck Philippines on 7-8 November 2013. Following the tragic loss of life, livelihood and property as a result of typhoon Pablo/Bopha, which struck southern Philippines in December 2012, the Government of India provided disaster relief assistance of \$200,000 to the Philippines Government and \$ 100,000 as disaster relief assistance following the October 2013 earthquake in Bohol. India announced an immediate relief assistance of \$ 500,000 (equivalent to 25 million pesos) on 11 July 2017 for the relief and rehabilitation efforts underway in the city of Marawi which had come under siege on May 23, 2017 after armed terrorists belonging to the Maute group owing allegiance to ISIS took over the city.

<https://economictimes.indiatimes.com/news/defence/india-seeks-to-widen-indo-pacific-partnership-with-philippines-amid-chinas-aggression/articleshow/76362720.cms>

Sun, 14 June 2020

Indian and Chinese soldiers likely to participate in Russian victory day parade in Moscow on June 24

While the faceoff in Ladakh continues, the Indian and Chinese soldiers are likely to participate in the Russian Victory Day parade in Moscow on June 24. Seventy-five Indian armed forces personnel, 25 each from the army, navy and Air Force will participate in the function. A Chinese contingent is also expected.

The defence minister, Rajnath Singh, will not be attending the ceremony, keeping in mind the coronavirus crisis. Despite the COVID-19 problems, India has decided to send participants to the parade, keeping in mind the close relationship with Russia, particularly in the defence sector.

The decision has been taken at a time when the Indian government has stopped military to military exercises with all countries. In the wake of the pandemic, exercises have been seen as an avoidable risk.

The 75 armed forces personnel are going into quarantine and will be tested before being sent to Russia. They will arrive a few days before the parade, that commemorates the victory over Nazi Germany in 1945. They will also be quarantined after their return.

An estimated 27 million Soviet citizens, civilians and military personnel died in the four years of bitter fighting.

The parade, usually held in early May was postponed because of the coronavirus problem. Prime minister Narendra Modi was initially scheduled to be part of the function along with other international leaders. This is the 75th anniversary of the victory over Nazi Germany. The German surrender ended the European segment of the Second World War.

<https://www.defencenews.in/article/Indian-and-Chinese-soldiers-likely-to-participate-in-Russian-Victory-Day-parade-in-Moscow-on-June-24-841114>

DECCAN
Chronicle

Mon, 15 June 2020

Woman on a mission

Major Suman Gawani is the first female army officer to receive the UN Military Gender Advocate of the Year Award

By Priyanka Chandani

Every girl's first role model is her father and Indian Army Major Suman Gawani's story is no different.

The first woman of the Indian Defence Forces to receive the prestigious United Nations Military Gender Advocate of the Year Award, was awestruck by her now-retired father's firefighter uniform that he wore with pride every day. And when it came to her own career, she chose the Armed Forces.

Major victory

Gawani received the award from the UN Secretary-General Antonio Guterres at an online ceremony on the occasion of International Day of United Nations Peacekeepers. She was selected to attend specialised training on Conflict-Related Sexual



Major Suman Gawani

Violence (CRSV) in Nairobi and also participated in various UN forums to demonstrate how a gender perspective can help in protecting civilians, especially from CRSV.

During her UN Mission in South Sudan from November 2018 to December 2019, Gawani was the focal point of contact for gender issues and trained about 230 Military Observers on conflict-related sexual violence.

During the mission, she encouraged participation in joint military patrols to maintain gender balance, irrespective of the hardships under extreme field conditions. Additionally, she also strived to integrate the gender perspective into planning and military activities.

“Serving under the Blue Helmet and wearing the Indian flag in a UN peacekeeping mission is considered an absolute honour and I am proud of that,” she says, adding that the selection criteria for being an ambassador of India and its Armed Forces is very stringent.

“It is a dream for most of the soldiers to serve in a peacekeeping mission. Apart from professional satisfaction that it brings along, the vast exposure that we get in an international operational environment is unmatched,” says the Major. Presently, India is ranked as the third-largest troop contributor to the UN peacekeeping missions.

Breaking the glass ceiling

Hailing from Tehri Garhwal district of Uttarakhand, Gawani and her two siblings – an older sister and a younger brother who now serves in the Indian Air Force – grew up with having many soldiers around who would share their tales of bravery that inspired her to don the Army uniform.

She joined the Indian Army in 2011 and since then, there has been no looking back. “It has been an enriching journey serving in the army. I have been fortunate enough to serve in the North East and the Northern areas of India,” she smiles.

Apart from combating serious threats to global peace and security as well as gender issues of armed conflicts, Gawani, during the mission, extensively worked towards protecting civilians from the issues such as sexual violence and abuse that require a comprehensive response from military, police and civilian factors to tackle it effectively.

“Gender does not mean only women, it covers men too, but women, being more vulnerable, are worst affected. If there is more participation and knowledge about the issue, the crimes will automatically reduce,” explains the officer and adds that sensitising people about gender will help them understand their rights and duties too.

When asked if deploying women in peacekeeping missions helps communities in conflict zones open up about their issues, Gawani’s answer is affirmative.

“Women can play a very big role in peacekeeping. Local populations in host countries often feel more comfortable liaising and sharing information with military troops that include women alongside men.

And by obtaining better information, we can protect these communities better,” observes the officer and opines that women have a natural instinct which makes both men and women more comfortable while communicating.

<https://www.deccanchronicle.com/lifestyle/culture-and-society/140620/woman-on-a-mission.html>

China's global Navy eyeing sea control by 2030, superiority by 2049

I assess that the PLA Navy by 2030 will consist of a surface force of over 450 ships and a submarine force approaching 110 submarines, an almost 10% increase from my 2015 estimate. It may still be a low estimate

By Captain James E. Fanell (Retd)

In June 2018, I stood aboard the fantail of the PLA Navy guided missile frigate Binzhou in port Kiel, Germany—it was never clearer to me than at that moment that Beijing has the national will to dominate the seas.

Binzhou had been at sea for two and a half months, patrolling the waters of the Gulf of Aden, as part of China's anti-piracy naval task force. Moored among German, British and United States warships, Binzhou stood out with its immaculate appearance. Staff, ship's officers and crew exuded confidence and preparedness to get underway...to sea where they looked like they belonged. This contrasted sharply with my recollections from a 2004 visit aboard the destroyer Luhuhu in Qingdao, as well as many subsequent visits aboard Chinese warships over the course of the next 15 years.

The visit to the Binzhou, in that port halfway around the world from China, crystallized for me that in the short space of a decade and a half I had witnessed the transformation of the PLA Navy from a timid near-seas assembly of ships into a global naval force where their ships and crews were as comfortable, confident and capable mariners as were their German, British, American and Indian counterparts.

A half decade ago the conventional wisdom held that the PRC's leaders were only focused on "domestic concerns" of regime survival. We were wrong. In hindsight it's now clear the PRC was building a naval force intended to sail and eventually dominate the seven seas.

After 20 years of transformation, the PLA Navy operates around the world from the Baltic to the South Pacific and from the Arctic to the Antarctic. China's naval shipbuilding continues unabated in order to support the PLA Navy's expanding set of missions to fulfill the "China Dream" of national rejuvenation and restoration.

In 2015, I assessed there would be "a massive expansion in the size of the PLA Navy" for the period of 2015 to 2030. While that assessment essentially remains on track, there is one impediment in the strategic environment that could stymie the PRC's maritime strategy—the Donald Trump administration. The current administration has challenged 40 years' worth of assumptions about how to deal with the PRC. It's definitive decision to treat the PRC as a strategic competitor, especially if combined with the deepening partnerships with our allies, may be the only chance to stop the PRC from becoming the dominant global military and naval power over the course of the next three decades.

The PRC's naval expansion is already well advanced. Since 2008, the PLA Navy has dispatched 35 naval escort task forces through the Indian Ocean and into the Gulf of Aden, and PLA Navy ships have visited over 60 nations. According to the US Navy War College China Maritime Studies Institute, these naval escort task force deployments have provided the PLA Navy with



Visitors hold their mobile phones in front of exhibits showing People's Liberation Army (PLA) Navy's first aircraft carrier Liaoning, during an exhibition on China's achievements marking the 70th anniversary of the founding of the People's Republic of China (PRC) at the Beijing Exhibition Center, in Beijing, China on 24 September 2019. REUTERS

“irreplaceable naval training” and catalyzed “the development of naval skill sets often taken for granted but absolutely critical for long-distance operations”.

In the summer of 2018, the PLA Daily announced the Chinese Navy is no longer worried about warship shortages. Not only were more warships built, but the qualities have also been improved, transforming the Chinese Navy from a green-water navy into a robust blue-water navy. They aren't building those ships to stay in port, or even to stay in East Asia. They have been in India's backyard for over a decade.

Perhaps no platform has received more attention than the PLA Navy's aircraft carrier program. A decade ago, Chinese naval planners were aware of “the problem of a relatively small aggregate tonnage of naval vessels must be resolved, in order to increase the navy's capability to confront naval hegemonies in the world”.

As of today, the PLA Navy has two operational aircraft carriers and a third under construction. Just how many aircraft carriers the PRC will build is a topic of great discussion in the PRC press. Given the PRC's penchant for being the “biggest” or “number one”, I believe the PRC is determined to build more carriers than the US, despite their assertions of needing just six. I expect at least ten by 2049. And with this number, the people of India should expect to see PLA Navy aircraft carrier strike groups operating in the Indian Ocean in the next 1-3 years.

Another facet is the dramatic expansion of the PLA Marine Corps to 100,000 strong personnel—a tenfold increase of its Marine Corps of just a few years ago. Reporting indicates some of these new PLA Marine Corps forces will be dispatched to Gwadar, Pakistan or its new PLA Navy base in Djibouti. The growth of PLA Marine Corps personnel is necessary to keep up with the increasing number of high-end, large amphibious warships that China has acquired and is intent on building over the near term. For instance, the PLA Navy has 59 amphibious warships, including the large, modern Yuzhao-class Type 071 amphibious transport docks (LPD), that are perfectly fitted for an amphibious island campaign as they “can carry up to four of the new air cushion landing craft”, as well as “four or more helicopters, armored vehicles, and troops”.

Not content with the Yuzhao, China started building a new generation of Yushen-class Type 075 landing helicopter (LHA) amphibious assault vessels that will strengthen the Navy as it plays a more dominant role in projecting the PRC's power overseas. Indian Naval officers can expect to see PLA Navy and Marine Corp expeditionary strike groups patrolling in the Indian Ocean within this decade.

Regarding PLA Navy submarines, between 2006 and 2013, PLA Navy submarine operations expanded into the South China and Philippine Seas and became a normalized pattern of activity. Since 2013, PLA Navy submarines have conducted regular deployments into the Indian Ocean and can be expected to be the eyes and ears for future PLA Navy aircraft carrier and expeditionary strike group operations into the Indian Ocean.

As for the number of PLA Navy submarines that can be expected in the future, given the expected increased production from a new production facility in Huludao, the PRC may be able to launch up to two SSNs and one SSBN annually, meaning the PLA Navy could have as many as 24 SSNs and 14 SSBNs by 2030. These are SSBNs that most assuredly will have missiles pointed at the United States, but also India. And while some may scoff at this estimate, recall as late as a decade ago similar doubts existed for Chinese destroyer production.

As a result of the past 20-year trajectory in PRC naval construction, the PRC's expressed desire and ability to continue to increase its spending on naval shipbuilding, the cost advantages its shipbuilding industry enjoys compared to foreign naval shipyards, and Chinese shipbuilders continued trend of indigenous technical mastery of complex designs and systems integration, I assess the PLA Navy will surpass the combined number of US Navy and Indian Navy warships as early as 2030.

Specifically, I assess that the PLA Navy by 2030 will consist of a surface force of over 450 ships and a submarine force approaching 110 submarines, an almost 10% increase from my 2015 estimate. It may still be a low estimate. The most notable feature of our China assessments is that

all of our misjudgements have been in the same direction—underestimating China’s rise in military aggressiveness and capabilities—perfectly fitting the definition of systematic error. The most accurate predictions of the PLA Navy are derived from an in-depth and consistent observation of what the PLA Navy is actually building and where their ships and submarines are actually operating.

So then, what does the future hold for the PLA Navy in the far seas? All indicators point to a global naval presence, first to the Indian Ocean, and then beyond. A future similar to what the world witnessed in the South and East China Seas over the past decade as PLA Navy forces bullied and intimidated weaker nations to comply with Beijing’s dictates.

Given the PLA Navy’s operational and naval construction trajectory, the PRC’s overall economic strength, the PLA Navy’s decade long experience operating in the far seas, and its established track record of intimidating neighbours to forfeit their coastal state rights to China, we can also assess the PRC is on track to be able to achieve sea control in the global maritime commons as early as 2030, and potentially even sea superiority by 2049, and it will use its power for the expansion of China’s interests at the expense of others. A global PLA Navy will increasingly threaten US, India and allied interests abroad, increasing, not decreasing the risk of major power war.

It is popular to say that conflict with China is not inevitable. Of course, it’s not. However, the likelihood of conflict will not be wished away by platitudes and more unconstrained engagement. The best option to avert future conflict is for the US and India to adopt a combined effort to significantly enhance our whole of government approach to strengthen and integrate our military capabilities to confront the PRC’s bad behaviour, especially at sea.

(Captain James E. Fanell (Retd) was the Director of Intelligence and Information Operations for the US Pacific Fleet.)

<https://www.sundayguardianlive.com/news/chinas-global-navy-eyeing-sea-control-2030-superiority-2049>

Science & Technology News



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Mon, 15 June 2020

Biochemical quantitative phase imaging delivers unprecedented 3D images of live cells plus details of molecules inside

No damage caused by strong light, no artificial dyes or fluorescent tags needed

The insides of living cells can be seen in their natural state in greater detail than ever before using a new technique developed by researchers in Japan. This advance should help reveal the complex and fragile biological interactions of medical mysteries, like how stem cells develop or how to deliver drugs more effectively.

“Our system is based on a simple concept, which is one of its advantages,” said Associate Professor Takuro Ideguchi from the University of Tokyo Research Institute for Photon Science and Technology. The results of Ideguchi’s team were published recently in *Optica*, the Optical Society’s research journal.

The new method also has the advantages of not needing to kill the cells, damage them with intense light, or artificially attach fluorescent tags to specific molecules.

The technique combines two pre-existing microscopy tools and uses them simultaneously. The combination of these tools can be thought of simply as like a coloring book.

“We gather the black-and-white outline of the cell and we virtually color in the details about where different types of molecules are located,” said Ideguchi.

Quantitative phase microscopy gathers information about the black-and-white outline of the cell using pulses of light and measuring the shift in the light waves after they pass through a sample. This information is used to reconstruct a 3D image of the major structures inside the cell.

Molecular vibrational imaging provides the virtual color using pulses of mid-infrared light to add energy to specific types of molecules. That extra energy causes the molecules to vibrate, which heats up their local surroundings. Researchers can choose to raise the temperature of specific types of chemical bonds by using different wavelengths of midinfrared light.

Researchers take a quantitative phase microscopy image of the cell with the midinfrared light turned off and an image with it turned on. The difference between those two images then reveals both the outline of major structures inside the cell and the exact locations of the type of molecule that was targeted by the infrared light.

Researchers refer to their new combined imaging method as biochemical quantitative phase imaging with mid-infrared photothermal effect.

“We were impressed when we first observed the molecular vibrational signature characteristic of proteins, and we were further excited when this protein-specific signal appeared in the same location as the nucleolus, an intracellular structure where high amounts of proteins would be expected,” said Ideguchi.

Ideguchi’s team hopes their technique might allow researchers to determine the distribution of fundamental types of molecules inside single cells. The quantitative phase microscopy outline of major structures could be virtually colored in using different wavelengths of light to specifically target proteins, lipids (fats) or nucleic acids (DNA, RNA).

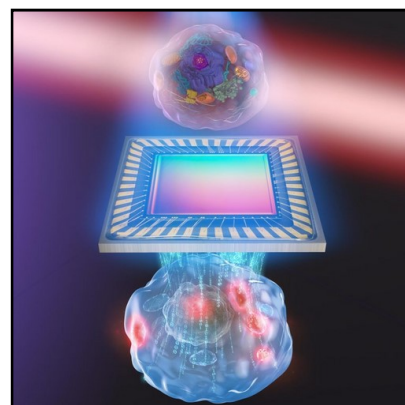
Currently, capturing one complete image can take 50 seconds or longer. Researchers are confident that they can speed up the process with simple improvements to their tools, including a higher-powered light source and a more sensitive camera.

Reference:

“Label-free biochemical quantitative phase imaging with mid-infrared photothermal effect” by Miu Tamamitsu, Keiichiro Toda, Hiroyuki Shimada, Takaaki Honda, Masaharu Takarada, Kohki Okabe, Yu Nagashima, Ryoichi Horisaki and Takuro Ideguchi, 20 April 2020, *Optica*. DOI: [10.1364/OPTICA.390186](https://doi.org/10.1364/OPTICA.390186)

Collaborators at Osaka University, other departments at the University of Tokyo and the Japan Science and Technology Agency also contributed to this research.

<https://scitechdaily.com/biochemical-quantitative-phase-imaging-delivers-unprecedented-3d-images-of-live-cells-plus-details-of-molecules-inside/>



An artistic representation of the new imaging method called biochemical quantitative phase imaging with midinfrared photothermal effect, developed by a research team at the University of Tokyo. Credit: s-graphics.co.jp

One minute simultaneous analysis of pungency components in kimchi

The World Institute of Kimchi has developed a high-sensitivity, simultaneous analysis technique for capsaicin and dihydrocapsaicin

The World Institute of Kimchi (WiKim) announced its development of a rapid analysis method for quantifying capsaicin (CAP) and dihydrocapsaicin (DHC), which are major pungency components in kimchi, within 1 min.

The new analysis method, which was jointly developed by the research teams of Prof. Seong Ho Kang at Kyung Hee University and Dr. Ji-Hyoung Ha at WiKim, refers to high-sensitivity capillary electrophoresis that is performed in submillimeter diameter capillaries filled with surfactants in conjunction with an applied electric field and a laser. This analytical technique intends to quickly and accurately detect only CAP and DHC among various components in the samples.

Conventional tests, such as high-performance liquid chromatography (HPLC), have been employed to identify the pungency components using specialized analysis equipment. However, the HPLC method takes about an hour to analyze the CAP and DHC content in kimchi.

Moreover, the new analytical method developed by the joint research team is designed to utilize voltage program (VP)-based micellar electrokinetic chromatography (MEKC), which uses a combination of the two types of surfactants with different charge characteristics for enhanced detection sensitivity that is applied to samples, in particular.

A micelle is a cluster of colloidal particles, which are formed spontaneously through the self-assembly of molecules or ions.

Micellar electrokinetic chromatography (MEKC) is a modification of capillary electrophoresis, where analytes are separated based on analyte-micelle interaction mechanism in the capillaries that is mainly determined by hydrophobicity.

As a result of the experiment, CAP and DHC were simultaneously separated and detected in only 53 s, which shows the improved detection sensitivity of the major pungency components by 4,230 times and 2,382 times, respectively, compared with the conventional HPLC method.

"Our new analysis will allow detailed information on the spicy tastes of kimchi to be provided for the consumers, allowing them to choose different kimchi products that suit their preferences. We will also continue pursuing standardization research regarding the tastes and smells of kimchi in the future," Acting Director Dr. Hak-Jong Choi remarked.

The findings of this research will be published in the September issue of *Food Chemistry*, an international journal in the field of food science and technology.

The World Institute of Kimchi (Wikim) (https://www.nst.re.kr/nst_en/member/03_17.jsp) is A government-funded research institute established to perform research and development related to kimchi, to lead national technological innovation, nature and develop the kimchi industry that will boost the national growth.

Article Title: Voltage program-based MEKC with LIF detection for rapid quantification of native capsaicin and dihydrocapsaicin in foods

Corresponding author: Dr. Ji-Hyoung Ha of Hygienic Safety and Analysis Center at the World Institute of Kimchi and Prof. Seong Ho Kang of the Department of Applied Chemistry at Kyung Hee University

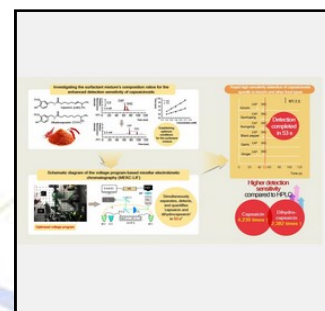


Image: High-sensitivity, simultaneous analysis technique of pungency components in kimchi.

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https://www.eurekalert.org/pub_releases/2020-06/nrco-oms061120.php

COVID-19 Research News

Scroll.in

Mon, 15 June 2020

Coronavirus: Patanjali CEO claims his company has found Ayurveda cure, gives 100% favourable results

However, there are currently no certified vaccines or drugs approved to treat or prevent Covid-19.

The Chief Executive Officer of Patanjali Ayurveda Limited on Saturday claimed that the company has developed an Ayurveda medicine that has been successful in curing coronavirus patients within a span of five to 14 days, ANI reported. Patanjali is one of India's most well-known ayurvedic brands.

Acharya Balkrishna, also the co-founder of Patanjali, said that the company appointed a team of scientists after the outbreak began. "First, the simulation was done and compounds were identified which can fight the virus and stop its spread in the body," he told reporters in Uttarakhand. "Then, we conducted a clinical case study on hundreds of positive patients and we have got 100% favourable results."

There are currently no certified vaccines or drugs to treat or prevent Covid-19, the respiratory illness caused by the novel coronavirus. Doctors around the world are trying to come up with a variety of solutions that might alter the course of the disease. Neither the health ministry nor the Indian Council of Medical Research, the country's nodal body for coronavirus testing, have made any statement related to Balkrishna's claim.

He added that the company is currently conducting controlled clinical trials and will release evidence in less than a week. "After taking our medicine, Covid patients recovered in 5-14 days and then tested negative," Balkrishna said. "So, we can say the cure for Covid is possible through Ayurveda."

Balakrishna, who founded Patanjali along with yoga guru Ramdev, did not mention where the clinical trials were being performed.

In 2014, Prime Minister Narendra Modi had created the Ministry of AYUSH to promote and regulate ayurvedic remedies and yoga. It is the country's indigenous medicine ministry.

Last month, Union minister [Shripad Y Naik](#) had said India is working on four traditional medicine formulations to treat the coronavirus. More than 100 potential Covid-19 candidate vaccines are now under development by biotech and research teams around the world, and at least six of these are in preliminary testing in people in what is known as Phase 1 clinical trials.

<https://scroll.in/latest/964684/coronavirus-patanjali-ceo-claims-his-company-has-found-ayurveda-cure-gives-100-favourable-results>

Scientists identify three phases of coronavirus progression

According to the scientists, including those from the University of Florence in Italy, three distinct phases of COVID-19 infection, with variable degrees of symptoms have been observed in people who test positive for the deadly disease

London: Scientists have described three distinct phases of COVID-19 disease progression in patients, urging medical professionals to consider an individualised treatment approach for patients based on their symptoms corresponding to these stages of infection. According to the scientists, including those from the University of Florence in Italy, three distinct phases of COVID-19 infection, with variable degrees of symptoms have been observed in people who test positive for the deadly disease.

The review research, published in the journal *Physiological Reviews*, noted that each of these phases is characterised by a different type of biological interaction with the virus.

SARS-CoV-2, the novel coronavirus that causes COVID-19, is transmitted through droplets expelled from an infected person's nose or mouth when they cough, sneeze or, in some cases, talk, the researchers said.

During the early infection phase (Phase 1), they said the virus multiplies inside the body and is likely to cause mild symptoms that may be confused with a common cold or flu. The second phase, according to the scientists, is the pulmonary phase (Phase 2), when the immune system becomes strongly affected by infection, and leads to primarily respiratory symptoms such as persistent cough, shortness of breath, and low oxygen levels.

Problems with blood clotting -- especially with the formation of blood clots -- may be predominant in Phase 2, the scientists noted in the study.

The third, hyperinflammatory phase, occurs when a hyperactivated immune system may cause injury to the heart, kidneys, and other organs, they said. In this phase, the study noted that a "cytokine storm" -- where the body attacks its own tissues -- may occur.

While there may be overlap among the three stages of disease, the scientists said it is crucial to recognise each stage in order to tailor personalised treatment to patients. With many of the drugs used to treat people with COVID-19 still being investigated for safety and effectiveness, the researchers said these experimental treatments need to be evaluated based on the specific disease phase they are being prescribed for along with what is happening in the body as COVID-19 progresses.

In the review, the scientists suggested a personalised treatment plan with several medications and potential treatments. They said in the early phase of infection, plasma containing antibodies from recovered COVID-19 patients have been found to reduce the amount of infectious viral particles in the body.

According to the study authors, antiviral drugs, including remdesivir, which have helped interrupt viral replication in Phase 1, may be beneficial in Phase 2. They said tissue plasminogen activator (tPA) -- a drug used to treat stroke -- breaks up blood clots that may occur during Phase 2.

Inflammation-fighting medications like corticosteroids, tocilizumab and sarilumab may help reduce system-wide inflammation in Phases 2 and 3, the researchers said.

The anti-clotting drug heparin is important during any stage of the disease to prevent blood clots in blood vessels and capillaries, the scientists added. However, they cautioned that there are no drugs proven to treat COVID-19. "We are now entering a new era of the pandemic, with many

ongoing randomised controlled trials aimed at identifying patient-tailored drugs, and drugs better suited to the specific phase of the disease with improved precision," the scientists noted.

<https://www.freepressjournal.in/science/scientists-identify-three-phases-of-coronavirus-progression>



Sun, 14 June 2020

Coronavirus vaccine update: India okays use of remdesivir and other developments

New Delhi: The centre on Saturday released guidelines for doctors to use investigational antiviral medication remdesivir in treating India's Covid-19 patients, but there is still little clarity on how patients can access the drug. Health activists and industry sources allege "not a single" vial of the drug has been brought into India since its approval for emergency use by Drug Controller General of India (DCGI) on June 1.

It is unclear though how many firms with voluntary licences from Gilead have received the drug regulator's go-ahead to manufacture and supply remdesivir in India. Only Jubilant Life Sciences confirmed it received "conditional approval" for its generic version "subject to certain criterion being met". It plans to launch its remdesivir in July 2020.

Meanwhile, even though the US and China seem to be on the global frontline in terms of developing a Covid-19 vaccine, an Italian Health Ministry official said Europe was far ahead in the race and the results of an ongoing research could lead to first doses "by autumn-winter".

On the other hand, Johnson & Johnson (J&J) has decided to expedite the start of human clinical trials for its experimental Covid-19 vaccine by two months to the second half of July. The move saw its shares rising nearly 2 per cent to \$148.69. On the other hand, Moderna Inc has started testing its vaccine candidate in a 600-subject mid-stage trial.

More than 100 potential Covid-19 vaccines are in various stages of development around the world. Coming to India, New Delhi-based biotechnology company Panacea Biotec has partnered with US-based Refana Inc to develop, manufacture and distribute an experimental Covid-19 vaccine, Reuters reported.

London's Imperial College, which is developing a coronavirus vaccine based on self-amplifying RNA technology, has set up a special company to distribute it if they are successful, rather than partnering with a big pharmaceutical company, to ensure access for the world's poorest.

Britain's AstraZeneca, which last week said it had started to mass-produce its experimental AZD1222 vaccine developed by Oxford University, has approached US rival Gilead Sciences about a possible merger, Bloomberg reported. Gilead has also been in the vanguard of Covid-19 treatments and its remdesivir antiviral is the first drug to lead to improvement in patients in formal clinical trials.

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