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CONTENTS

DRDO News

DRDO Technology News

Press Information Bureau
Government of India

Ministry of Defence

29 NOV 2020 6:41PM

Enhancement in ICU Capacity at Sardar Vallabhbhai Patel Covid Hospital Delhi

Defence Research & Development Organisation (DRDO) has increased the number of ICU beds to 500 in Sardar Vallabhbhai Patel Covid Hospital at Delhi Cantonment on the advice of Union Government in view of the rising number of cases in Delhi NCR. All the beds are provided with oxygen support. Director General Armed Forces Medical Services (DGAFMS), Lt Gen Anup Banerji, SM, PHS, has been continuously monitoring the updating of the facility to meet the current upsurge and the information has been updated on Delhi Government portal.

Sardar Vallabhbhai Patel Covid Hospital is DRDO's 1000 bed facility, which was made operational on 5th July 2020 with a mandate to treat COVID-19 positive patients from Delhi and other states. The increase in the number of ICU beds required additional equipment like ICU monitors, HFNC machines, and up-gradation of existing oxygen pipeline. To deal with the unprecedented surge in number of cases, AFMS has increased the medics. Doctors and nursing staff from ITBP, CAPF and other services have joined and are working round the clock.

There have been 3271 admissions in the hospital so far out of which 2796 patients have been cured/ discharged. There are 434 patients undergoing treatment in the hospital presently, out of which 356 are civilians and 78 are service personnel.

The hospital has been admitting patients from all over Delhi and adjoining states like Haryana, Rajasthan, Uttar Pradesh, Himachal Pradesh, Punjab and Madhya Pradesh. The Directorate General Armed Forces Medical Services (DGAFMS) has provided Doctors, Nursing officers, paramedics and associated manpower for state of the art medical treatment to Covid-19 patient care. The support services and the technical services for the routine hospital activities like Housekeeping Services, Laundry, CSSD, Food and Beverages, and Fire Services are maintained by DCW&E and CCR&D Central, DRDO. Sh Ajai Singh, Chief Engineer of DRDO Works Department (Civil Works & Estate) stated that this is the biggest facility in Delhi in terms of ICUs for COVID-19 patients and infrastructure has been made such that more ICU beds can be made available on requirement.

DRDO undertook the design, development and operationalisation of the facility on war footing and built it in a record time of 12 days jointly with Ministry of Home Affairs (MHA), Ministry of Health and Family Welfare (MoHFW), Armed Forces, Tata Sons and other industries. The existing facilities at the hospital include oxygen supply to each bed, x-ray, electrocardiogram (ECG), haematological test facilities, ventilators, COVID Test Lab, Wheel Chairs, Stretchers and other medical equipment. DRDO developed COVID-19 technologies productionised by the Industry such as ventilators, decontamination tunnels, personal protective equipment (PPEs), N95 masks, contact-free sanitizer dispensers, sanitisation chambers and medical robots, trolleys etc., have also been utilised at the facility.

In this hospital, patients are treated free of cost including diagnostics, medicines and food. The patients being treated in the hospital have expressed satisfaction and appreciation for the care and hygienic facilities at the hospital.

https://pib.gov.in/PressReleseDetail.aspx?PRID=1677018

Hindustan Times

Mon, 30 Nov 2020

DRDO adds 500 ICU beds to Sardar Vallabhbhai Patel Covid Hospital in Delhi

On the advice of Union Government, in view of the rising number of Covid cases in Delhi NCR, Sardar Vallabhbhai Patel Covid Hospital which is DRDO's 1000 bed facility which was made operational on 5th July 2020 with a mandate to treat Covid-19 positive patients from Delhi and other states, will add 500 more ICU beds, Defence Ministry said

New Delhi: With Covid-19 cases surging in the national capital, the Defence Research & Development Organisation (DRDO) has added 500 more ICU (Intensive Care Unit) beds to the Sardar Vallabhbhai Patel Covid Hospital in Delhi.

Covid-19 patients in the Intensive Care Unit (ICU) of a Delhi hospital. (Representative Photo/Reuters)

On the advice of Union Government, in view of the rising number of Covid cases in Delhi NCR, all the beds are provided with oxygen support, said Defence Ministry.

Director General Armed Forces Medical Services (DGAFMS), Lieutenant General Anup Banerji has been continuously monitoring the updating of the facility to meet the current upsurge and the information has been updated on Delhi Government portal, Defence Ministry added.

Sardar Vallabhbhai Patel Covid Hospital is DRDO's 1000 bed facility, which was made operational on 5th July 2020 with a mandate to treat Covid-19 positive patients from Delhi and other states, Defence Ministry said.

A total of 4907 new cases have been reported in Delhi on Sunday, out of 64186 tests conducted here. Meanwhile, 68 people lost their lives due to the deadly virus.

The positivity rate stands at 7.64 per cent. The total number of 6,325 people have been recovered/ discharged/ migrated on Sunday.

The death toll reached 9066, with case fatality rate at 1.6 per cent. However, the death rate based on last 10 days data stands at 1.83 per cent.

A total number of 62,37,395 tests have been done so far in the national capital. The total number of 35, 091 cases are active in the state.

https://www.hindustantimes.com/delhi-news/drdo-adds-500-icu-beds-to-sardar-vallabhbhai-patel-covid-hospital-in-delhi/story-R9p3EbD4ix0uUPNxe8jjtM.html

Hindustan Times

Mon, 30 Nov 2020

DRDO ready with anti-drone system for armed forces, PM Modi to have drone killer as part of his security detail

It is understood that anti-drone systems are now a part of Prime Minister Narendra Modi's security detail at his residence and portable ones will be part of his car cavalcade

By Shishir Gupta

New Delhi: The Defence Research and Development Organization (DRDO) has designated Bharat Electronics as the lead agency for development and production of much needed anti-drone system for the armed forces.

DRDO has been able to successfully develop passive and active anti-drone technology to either disable or shoot down enemy drones. (HT Archive)

It is understood that anti-drone systems are now a part of Prime Minister Narendra Modi's security detail at his residence and portable ones will be part of his car cavalcade. This has been made mandatory as there has been a drone threat since beginning of 2020.

With Pakistan based terrorists using Chinese made commercial drones to cart weapon payloads and drugs across the Line of Control (LoC) in Jammu and Kashmir and international border, the DRDO has been able to successfully develop passive and active anti-drone technology to either disable or shoot down enemy drones.

It is understood that DRDO Chief Satheesh Reddy will write to the Indian armed forces soon informing them about the production of indigenous anti-drone system. The anti-drone system, which was deployed during 2020 Republic and Independence Day, has a range of over two to three kilometres with radar capability to pick up the drone and then use frequencies to jam the unmanned aerial vehicle. The other developed option includes spotting the drone through radar and then targeting it by laser beam.

Since 2019, Pakistan based groups have launched serial drone sorties across the IB in Punjab for delivering weapons and drugs to revive militancy in the border state. The same modus operandi is being used across the IB and LoC in Jammu and Kashmir. Commercially available Chinese drones can carry upto 10 kilograms of weapons and drug payloads.

While the DRDO has developed the system, the Indian private sector along with the security agencies have also been able to concurrently developed anti-drone system. The system has been tested on the LoC and has been able to successfully repel the aerial threat.

https://www.hindustantimes.com/india-news/drdo-ready-with-anti-drone-system-for-armed-forces-pm-modi-to-have-drone-killer-as-part-of-his-security-detail/story-ZzSLytENkCubX9CuP0XV7N.html

JAGRAN English

Mon, 30 Nov 2020

Drone killer added to Prime Minister Narendra Modi's security detail after threat: Report

The drone killer was also deployed during India's Independence Day and Republic Day 2020 functions. It has a range of up to three kilometers with a radar that can pick up the enemy drone and jam it using frequencies

New Delhi: Amid drone threat, an anti-drone system has been added to the security detail of Prime Minister Narendra Modi. The Defence Research and Development Organization (DRDO) has asked Bharat Electronics to develop and produce these anti-drone systems, which will also be used by the armed forces. According to a report by the Hindustan Times, anti-drone systems are now a part of PM Modi's security detail at his residence as well as his car cavalcade.

AS per the report, DRDO Chief Satheesh Reddy will soon inform the armed forces about the production of a made-in-India anti-drone system. The drone killer was also deployed during India's Independence Day and Republic Day 2020 functions. It has a range of up to three kilometers with a radar that can pick up the enemy drone and jam it using frequencies. It can also destroy the drone by using a laser beam.

The development has come amid increased drone sorties by Pakistan along the International Border to deliver weapons and drugs.

An anti-drone system was deployed during Prime Minister Narendra Modi's address at the Red Fort in the national capital on the occasion of the 74th Independence Day.

The system is equipped to instantaneously detect and identify drone threats and terminate them. It can bring down micro drones through either jamming of command and control links or by damaging electronics of drones through laser-based Directed Energy Weapon.

This indigenously-developed system is capable of detecting and jamming micro drones up to 3 kilometers away and it uses the laser beam to bring down a target up to 1 to 2.5 kilometers depending on the wattage of the laser weapon

The system can be an effective counter to increased drone-based activity in the western and northern sectors.

https://english.jagran.com/india/drone-killer-added-to-prime-minister-narendra-modis-security-detail-after-threat-report-10020525

Mon, 30 Nov 2020

PM मोदी की सुरक्षा में तैनात होगा 'ड्रोन किलर', स्वदेशी तकनीक से रखी जाएगी दुश्मनों पर निगाहें

ये एंटी-ड्रोन सिस्टम प्रधानमंत्री नरेंद्र मोदी (Prime Minister Narendra Modi) की सुरक्षा का भी हिस्सा होंगे इन पोर्टेबल 'ड्रोन किलर' को उनके हर काफिले में मौजूद रखा जाएगा, ताकि किसी भी तरह का खतरा न हो

नई दिल्ली: कोरोना और लॉकडाउन के बाद भारत अपने हर क्षेत्र को मजबूत कर रहा है. रक्षा क्षेत्र (Defense sector) को मजबूत करने के कई प्रयास किये जा रहे हैं. इसी कड़ी में रक्षा अनुसंधान और विकास संगठन (Defence Research and Development Organization, DRDO) ने भारतीय सेनाओं (Indian Army) के लिए बेहद जरूरी एंटी ड्रोन्स सिस्टम्स के विकास और उत्पादन की जिम्मेदारी भारत इलेक्ट्रॉनिक्स को सौंपी है. हिंदुस्तान टाइम्स की रिपोर्ट के मुताबिक, ये एंटी-ड्रोन सिस्टम प्रधानमंत्री नरेंद्र मोदी (Prime Minister Narendra Modi) की सुरक्षा का भी हिस्सा होंगे. इन पोर्टेबल 'ड्रोन किलर' को उनके हर काफिले में मौजूद रखा जाएगा, ताकि किसी भी तरह का खतरा न हो.

दरअसल, पाकिस्तानी आतंकवादी लाइन ऑफ कंट्रोल और इंटरनेशनल बॉर्डर के पार जम्मू-कश्मीर में हथियार भेजने के लिए चाइनीज निर्मित कॉमर्शियल ड्रोन्स का इस्तेमाल कर रहे हैं. डीआरडीओ ने पैसिव और एक्टिव एंट्री ड्रोन टेक्नोलॉजी विकसित की है जिससे दुश्मन के ड्रोन्स को निष्क्रिय कर कुछ ही पलों में ध्वस्त किया जा सकता है.

डीआरडीओ ने पैसिव और एक्टिव एंट्री ड्रोन टेक्नॉलजी विकसित की है जिससे दुश्मन के ड्रोन्स को निष्क्रिय किया जा सकता है.

जानिए क्यों खास है ये ड्रोन्स सिस्टम

रिपोर्ट में सूत्रों के हवाले से कहा गया है कि डीआरडीओ चीफ सतीश रेड्डी जल्द ही देसी एंटी ड्रोन्स सिस्टम के उत्पादन को लेकर सेनाओं को सूचित करेंगे. इस साल गणतंत्र दिवस और स्वतंत्रता दिवस पर तैनात किए गए एंटी ड्रोन सिस्टम्स की रेंज 2-3 किलोमीटर तक है. इसका रडार ड्रोन को ढूंढने के साथ फ्रीक्वेंसी सिग्नल के जरिए यूएवी को जाम कर देता है. दूसरा विकसित विकल्प ड्रोन को स्पॉट करने के बाद लेजर बीम से टारगेट करने का है.

एलओसी पर हुई ड्रोन्स की टेस्टिंग

एक तरफ डीआरडीओ ने सिस्टम डिवेलप कर लिया है तो प्राइवेट सेक्टर ने भी सिक्योरिटी एजेंसियों के साथ एंटी ड्रोन सिस्टम डिवेलप किया है. जानकारी के मुताबिक, इन ड्रोन्स की टेस्टिंग एलओसी पर की गई है और यह दुश्मन के हवाई खतरे को नाकाम करने में सफल रहा है.

https://hindi.news18.com/news/nation/drdo-anti-drone-system-for-armed-forces-pm-modi-drone-killer-as-part-of-his-security-detail-3357475.html

Live हिन्दुस्तान .com

Mon, 30 Nov 2020

DRDO ने सेना के लिए तैयार किया एंटी ड्रोन सिस्टम, पीएम मोदी की सुरक्षा में भी होगी 'ड्रोन किलर' की तैनाती

शिशिर गुप्ता

नई दिल्ली: डिफेंस रिसर्च एंड डिवेपलमेंट ऑर्गेनाइजेशन (DRDO) ने सेनाओं के लिए बेहद जरूरी एंटी ड्रोन्स सिस्टम्स के विकास और उत्पादन की जिम्मेदारी भारत इलेक्ट्रॉनिक्स को सौंपी है। यह भी बताया जा रहा है कि एंटी ड्रोन सिस्टम अब पीएम नरेंद्र मोदी की सुरक्षा का भी हिस्सा है। आवास के अलावा पोर्टेबल 'ड्रोन किलर' उनके काफिले में भी मौजूद रहेंगे। 2020 की शुरुआत से ही ड्रोन खतरे को देखते हुए इसे आवश्यक बना दिया गया है।

पाकिस्तानी आतंकवादी लाइन ऑफ कंट्रोल और इंटरनेशनल बॉर्डर के पार जम्मू-कश्मीर में हथियार भेजने के लिए चाइनीज निर्मित कॉमर्शल ड्रोन्स का इस्तेमाल कर रहे हैं। डीआरडीओ ने पैसिव और एक्टिव एंट्री ड्रोन टेक्नॉलजी विकसित की है जिससे दुश्मन के ड्रोन्स को निष्क्रिय किया जा सकता है या फिर ध्वस्त किया जा सकता है।

सूत्रों से मिली जानकारी के मुताबिक, डीआरडीओ चीफ सतीश रेड्डी जल्द ही देसी एंटी ड्रोन्स सिस्टम के उत्पादन को लेकर सेनाओं को सूचित करेंगे। इस साल गणतंत्रता दिवस और स्वतंत्रता दिवस पर तैनात किए गए एंटी ड्रोन सिस्टम्स का रेंज 2-3 किलोमीटर तक का है। इसका रडार ड्रोन को ढूंढने के साथ फ्रीक्वेंसी सिग्नल के जरिए यूएवी को जैम कर देता है। दूसरा विकसित विकल्प ड्रोन को स्पॉट करने के बाद लेजर बीम से टारगेट करने का है।

2019 के बाद से पाकिस्तान स्थित आतंकवादी समूहों ने पंजाब में अंतरराष्ट्रीय सीमा पर कई बार ड्रोन उड़ाकर ड्रग और हथियार पहुंचाने की कोशिश की है ताकि राज्य में आतंक को दोबारा जिंदा कर सके। यही तरीका जम्मू-कश्मीर में भी एलओसी और आईबी पर अपनाया जा रहा है। बाजार में उपलब्ध चाइनीज ड्रोन्स 10 किलोग्राम तक हथियार या ड्रग्स ले जा सकते हैं।

एक तरफ डीआरडीओ ने सिस्टम डिवेलप कर लिया है तो प्राइवेट सेक्टर ने भी सिक्यॉरिटी एजेंसियों के साथ एंटी ड्रोन सिस्टम डिवेलप किया है। सिस्टम को एलओसी पर परखा गया है और यह दुश्मन के हवाई खतरे को नाकाम करने में सफल रहा है।

https://www.livehindustan.com/national/story-pm-modi-to-have-drone-anti-drone-system-as-part-of-his-security-drdo-aso-develops-for-armed-forces-3655629.html

The Indian EXPRESS

Sun, 29 Nov 2020

Explained: BrahMos missile and significance of ongoing series of tests by Armed forces

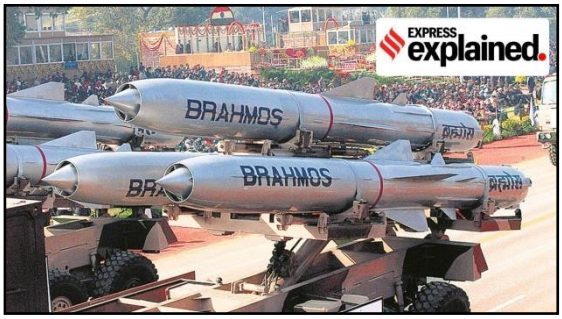
A look at the supersonic cruise missile, the significance of its land, sea, and air-launched versions and the strategic posturing behind the ongoing series of tests in the light situation with China and of competition in the strategically important Indian Ocean Region.

By Sushant Kulkarni

India's Armed forces – Army, Navy, and the Air Force – are conducting back-toback tests of various versions of BrahMos missile. A look at the supersonic cruise missile, the significance of its Land, Sea, and Air-launched versions and the strategic posturing behind the ongoing series of tests in the light situation with China and of competition in the strategically important Indian Ocean Region.

What is the BrahMos missile which the tri-services are testing?

A combination of the names of Brahmaputra and Moskva rivers, BrahMos missiles are designed, developed and produced by BrahMos Aerospace, a joint venture company set up by Defence Research and Development Organisation (DRDO) and Mashinostroyenia of Russia. Various versions of the BrahMos, including those which can be fired from land, warships, submarines and Sukhoi-30 fighter jets have already been developed and successfully tested in the past. The earliest versions of the ship launched BrahMos and land-based system are in service of the Indian Navy and the Indian Army since 2005 and 2007 respectively.



BrahMos is a two-stage missile with solid propellant booster as first stage and liquid ramjet as the second stage.

The cruise missiles like BrahMos are a type of systems known as the 'standoff range weapons' which are fired from a range sufficient to allow the attacker to evade defensive fire from the adversary. These weapons are in the arsenal of most major militaries in the world. The versions of the BrahMos that are being tested have an extended range of around 400 kilometers, as compared to its initial range of 290 kilometers, with more versions of higher ranges currently under development.

What is the significance of having land, sea and air-launched BrahMos? The land-based system: The land-based Brahmos Complex has four to six mobile autonomous launchers, with each having three missiles on board that can be fired almost simultaneously. Batteries of the BrahMos missile land based systems have been deployed along India's land borders in various theatres.

The land attack version of BrahMos has the capability of cruising at 2.8 Mach speed and with the upgraded capability, the missile can hit targets at a range of upto 400 kilometers with precision. Advanced versions of range above 1,000 kilometers and speed upto 5 Mach are said to be under development.

Ship-based system: The Indian Navy began inducting BrahMos on its frontline warships from 2005, and has capability to hit sea-based targets beyond radar horizon. The Naval version has been successful time and again in sea-to-sea and sea-to-land modes. The BrahMos from ship can be launched as a single unit or in a salvo upto eight in numbers separated by 2.5 seconds intervals.

These salvos can hit and destroy a group of frigates having modern missile defence systems. BrahMos as a 'prime strike weapon' for the ships significantly increases their capability of engaging naval surface targets at long ranges.

The Air launched version: On November 22, 2017, Brahmos was successfully flighttested for the first time from the IAF frontline fighter aircraft Sukhoi-30MKI against a sea-based target in the Bay of Bengal and has since been successfully tested multiple times.

BrahMos equipped Sukhoi-30s – which have a range of 1,500 kilometers at a stretch without mid-air refuelling – are considered as key strategic deterrence for the adversaries both along the land borders and in the strategically important Indian Ocean Region. IAF is said to be integrating BrahMos with 40 Sukhoi-30 fighter jets across the various bases.

The submarine launched version: This version has capability of being launched from around 50 meters below the water surface. The canister stored missile is launched vertically from the pressure hull of the submarine and uses different settings for underwater and out of the water flights. This version was successfully tested first in March 2013 from a submerged platform off the coast of Visakhapatnam.

What are the ongoing series of tests and the strategic posturing behind it?

On November 24, the Indian Army successfully launched its BrahMos from Car Nicobar Islands in a 'top-attack' configuration hitting a target in Bay Bengal. The launch was first in the series of launches of the various versions of missile in coming days in a display of India's tactical cruise missile triad. Tuesday's test was followed by two tests — one by the Army and another by IAF — on Wednesday. More tests including those of Naval versions are also slated to take place.

Explaining the significance of these tests, a retired IAF commander said, "While the tests of land, ship and air launched BrahMos have been done time and again, it is rare that they are being tested back-to-back that too in the Indian Ocean Region.

These tests certainly project India's firm strategic posture in the light of situations along the LAC and China ambitions in the Indian Ocean Region. We also need to understand the importance of these live tests from the preparedness point of view. Each test helps these service formations fine-tune their practices, methods and do course correction if needed. Three services doing it back to back also have a triservice integration significance where land, air and sea assets work in tandem and display a joint deterrence."

He added, "Land based BrahMos formations along the borders, BrahMos equipped Sukhoi-30s at bases in Northern theatre and and Southern peninsula, and BrahMos capable ships deployed in sea — complete a triad and their successful tests are a strong message to China."

With these back-to-back tests, BrahMos follow the series of tests of over 15 missiles belonging to a vast spectrum of purposes and ranges in September and October. BrahMos too were tested as part this flurry of tests.

On September 30, BrahMos surface-to-surface supersonic Land-Attack Cruise Missile (LACM) featuring an indigenous booster and airframe section along with many other 'Made in India' sub-systems was flight tested from ITR. On October 17, the Naval version of the BrahMos was successfully test-fired from Indian Navy's indigenously-built stealth destroyer INS Chennai, hitting a target in the Arabian Sea. On October 30, a Sukhoi jet that took off from a base in Punjab, hit a target in Bay of Bengal.

https://indianexpress.com/article/explained/brahmos-missile-and-significance-of-ongoing-series-of-tests-by-armed-forces-7070213/

THE NEW INDIAN EXPRESS

Mon, 30 Nov 2020

Hitting where it hurts: With China in mind, India test fires multiple types of missiles

The Chinese have brought in their armoured vehicles and have been showing off their missiles. This Chinese action has hastened the tests which were due

By Mayank Singh

New Delhi: Since the month of July, India has succeeded in testing multiple missiles meant for variable strike platforms and from a different medium. Defence experts see it as a message to China which has moved its forces in standoff posture along the Ladakh borders since the month of May.

BrahMos cruise missile. (File | EPS)

Among the wide array of missiles, Indian Army successfully launched its BrahMos supersonic cruise missile on 24 November hitting the target in the Bay of Bengal with pinpoint accuracy.

BrahMos missile -- a supersonic cruise missile with a speed of 2.8 mach is being jointly produced by India and Russia. It can be launched from submarines, ships, aircraft, or from land based platforms.

Lt Gen VK Chaturvedi (Retd), the Defence Analyst, says, “It is a message to the China that in case of any misadventure from its side Indian forces will be able to hit it in close ranges, standoff range and even deeper inside from land, water and air".

He added, "these tests also demonstrate our capability to produce complex offensive and defensive missile systems on our own. The country’s missile technology has acquired the capability of the reliable pin-pointed strike on enemy’s sensitive targets".

The BrahMos missile batteries have been deployed along with the other key assets at several strategic locations along the Line of Actual Control (LAC) with China in Ladakh and Arunachal Pradesh. BrahMos missiles are also being integrated on over 40 Sukhoi fighter jets to add to the combat capability of the force.

The DRDO successfully test-fired the Brahmos with an extended range of 400 kilometers, as per the sources. Clarifying the quick tests of missiles Brg SK Chatterji, Defence Analyst says, “It is a show of strength to the Chinese, we will hit where it hurt.”

"The Chinese have brought in their armoured vehicles and have been showing off their missiles. This Chinese action has hastened the tests which were due. We have tested anti-tank missiles and helicopter fired tank busting missiles also," added Brg Chatterji who happens to be a gunner himself.

India in July successfully tested the Dhruvastra, a helicopter version of ‘Nag Helina’, which is meant to destroy enemy bunkers, armoured vehicles, and main battle tanks. In October, the third generation Anti-Tank Guided Missile (AT GM) Nag completed successfully the final user trial.

In October anti-radiation missile named Rudram-1 was tested from a Sukhoi-30 MKI, which is planned to be inducted into service by 2022. The missile is meant to destroy enemy radars, communication sites and similar targets thus disabling adversaries from launching surface-to-air missiles. In doing so, it exposes the enemy to attacks via relatively inexpensive short-range weapons.

Raising the missile capability further, Hypersonic Technology Demonstrator Vehicle (HSTDV), DRDO fired the next generation hypersonic cruise missiles on 7 September. The HSTDV

technology will be assisting the country to develop futuristic space assets like long-range missile systems and aerial platforms.

The HSTDV is capable of powering missiles to attain a speed of around Mach 6 or six times the speed of sound, the officials said, adding only a very few countries like the US, Russia and China have such a capability.

The tests in these few months have also been done to spruce up the nuclear warhead delivery capability at shorter ranges. Nuclear-capable Shaurya supersonic missiles and the supersonic missile assisted release of the torpedo that targets submarines apart from test-firing the laser-guided anti-tank guided missile were tested in quick succession, just 10 days apart.

In between, the DRDO also carried out a night trial of the nuclear-capable ballistic missile Prithvi-II, the surface-to-surface missile capable of attacking targets at a range of 300 km. It is India's first indigenous surface-to-surface strategic missile.

The terrain-hugging subsonic Nirbhay missile has been tested and can be deployed along the Ladakh border in limited numbers.

"The Shaurya missile would be next," an official said about the new-age weapon that can carry a nuclear warhead weighing around 200 kg and flies at 2.4 km per second.

https://www.newindianexpress.com/nation/2020/nov/29/hitting-where-it-hurts-with-china-in-mind-india-test-fires-multiple-types-of-missiles-2229700.html

ThePrint

Sat, 28 Nov 2020

Rajnath Singh assures 'friend' Vietnam of help modernising its armed forces

India has been in talks with Vietnam, which has maritime border issues with China in the South China Sea, over Hanoi's interest in acquiring supersonic cruise missile BrahMos

By Snehesh Alex Philip

New Delhi: Union Defence Minister Rajnath Singh Friday assured Vietnam of India's help in modernisation of its armed forces, with a focus on enhancing maritime capabilities, as both sides work on a new joint vision statement, ThePrint has learnt.

The assurance came as Singh held bilateral talks with his Vietnamese counterpart General Ngo Xuan Lich over video-conferencing.

India has been in talks with Vietnam, which has maritime border issues with China in the South China Sea, over Hanoi's interest in acquiring the Indo-Russian supersonic cruise missile BrahMos.

Defence sources said Vietnam is keen on acquiring a host of military equipment, including India's Akash air defence system and the Dhruv helicopters, besides the BrahMos.

Union Defence Minister Rajnath Singh in interaction with his Vietnamese counterpart General Ngo Xuan Lich Friday | Twitter | @Rajnathsingh

According to sources in the know of bilateral discussions held Friday, Singh told his counterpart that defence cooperation has been one of the most significant pillars of the Comprehensive Strategic Partnership initiated by the two countries in 2016.

Both countries, the sources added, are committed to maintenance of security and stability in their countries, the region and also addressing non-traditional security threats.

"India remains committed to the modernisation of Vietnamese armed forces," Singh was quoted as saying.

While Vietnam has been keen on acquiring the BrahMos, a deal has not materialised because of a number of reasons, including funding.

Roman Babushkin, deputy chief of mission, Russian Embassy, had said earlier this month that Brahmos Aerospace plans to start exporting the missiles to third countries, starting with the Philippines.

A new joint vision statement

Sources said the two countries are now looking for a joint vision statement next year, with the five-year term envisaged in the earlier one — the 'Joint Vision Statement for 2015-2020', signed May 2015 — ending in 2020.

Besides extending Line of Credit arrangements with Vietnam, India remains resolved to capability-building and enhancement in the armed forces of Vietnam, sources in the defence ministry said.

Joint training involving pilots of the respective air forces and training of forces for deployment on UN assignments are another area of focus, a source said. Collaboration in defence industry capability-building, training, and cooperation in UN Peacekeeping Operations was also discussed by the ministers.

"India sees Vietnam as a friendly foreign country with shared concerns and common interests. Both countries are also looking at collaborating in multiple domains of defence cooperation like ship-building, surface and subsurface capacities at sea," the source added.

A statement released by the Ministry of Defence Friday said both sides signed an implementing arrangement for cooperation in the field of hydrography. The arrangement will enable sharing of hydrographic data and assist in the production of navigational charts by both sides.

Indian firm L&T is currently in the process of constructing 12 high-speed patrol boats for the Vietnam Border Guard.

https://theprint.in/defence/rajnath-singh-assures-friend-vietnam-of-help-modernising-its-armed-forces/553405/

The EurAsian Times

Sat, 28 Nov 2020

BrahMos goes global; after Indonesia, Brazil could arm its Saab Gripen Jets with the 'Lethal' Missile

The BrahMos-NG is intended to be a mini-version of the existing BrahMos, being lighter and shorter while still having a range of about 300 km. It would be India's premier air-to-surface missile and would arm most of its fighter fleet which includes the Su-30MKI, LCA Tejas, MiG-29UPG, MiG-29K, and even the Dassault Rafale

As India continues with its series of extensive missile tests since September, the world has been keeping an eye on the country's missile developments. The most popular of all, the BrahMos, has already attracted the attention of various nations including, the Philippines.

Now, Brazil has evinced interest in procuring the BrahMos-NG (New-Generation) version of the missile.

While initial talks already began regarding the acquisition of the missile systems, the pandemic is believed to have delayed the acquisition, according to The Financial Express. Even South American nations such as Chile, Argentina, and Venezuela are eyeing BrahMos.

The BrahMos — a portmanteau formed from the names of India's Brahmaputra River and the Moskva of Russia — is a supersonic cruise missile developed from the P-800 Oniks, in a joint venture between the Indian DRDO and the Russian NPO Mashinostroyeniya.

Brazil has been looking forward to buying the missile systems to equip its under-construction nuclear attack submarines. Seeing the success of BrahMos, which is currently the only effectively operational supersonic anti-ship cruise missile in service, the country made its decision.

A Brazilian official was quoted as saying, "Because the existing fleet of submarines will undergo mid-life refit as well as capability enhancements. And these platforms can be a potential user for BrahMos-NG."

The BrahMos-NG is intended to be a mini-version of the existing BrahMos, being lighter and shorter while still having a range of about 300 km. It would be India's premier air-to-surface missile and would arm most of its fighter fleet which includes the Su-30MKI, LCA Tejas, MiG-29UPG, MiG-29K, and even the Dassault Rafale.

Being shorter, the missile would also arm future submarines of the Indian Navy. It is likely that the missile would be fully developed in the next two years and would feature an AESA radar, rather than the existing mechanically scanned one on the earlier BrahMos variants.

The Brazilian official also said that the missile could arm the new Gripen single-engine fighter aircraft, giving them superior firepower and strike abilities.

"For Brazil, the Indo-Russian missile BrahMos-NG can be a suitable choice for their new Gripen aircraft. The new BrahMos-NG systems are designed for a wide range of fighter aircraft platforms with best in class specifications," he stated.

"The Brazilian aircraft Embraer can also be a suitable platform for BrahMos –NG," he added.

While the development of this 'New Generation' variant of BrahMos is still behind the curtain, the Brazilian interest does indicate that the work is making progress at BrahMos Aerospace. Indeed, the system is one of the flagship offerings of India for its export market, along with the LCA Mk-1A and the LCH.

As of now, the Russian and Indian governments are cooperating to refine their export strategies. About the venture, a top officer of Russia's Federal Service for Military-Technical Cooperation (FSMTC) had told Financial Express Online that "it is a 'precious gem' in the defense cooperation between India and Russia. And can be exported to other countries after all the intergovernmental procedures have been cleared".

https://eurasiantimes.com/indian-brahmos-goes-global-after-indonesia-brazil-looks-to-arms-its-gripen-jets-with-indo-russian-missile/

ThePrint

Sun, 29 Nov 2020

How Army's artillery modernisation plan, stuck in a rut after Bofors, is picking up pace

The Army's artillery modernisation plans have picked up pace since 2010 and have a major indigenous component in them

By Amrita Nayak Dutta

New Delhi: The Indian Army's artillery modernisation plan — first drafted over two decades ago — is back in the spotlight following a report that the indigenously developed Advanced Towed Artillery Gun System (ATAGS) is ready to fire again after an accident in September.

The *Business Standard* report has stated that the gun has undergone changes — after a barrel burst during trials in September — and is ready to fire again. The September incident was followed by a detailed probe conducted by a multi-agency Failure Investigation Committee and the changes have followed that.

Pinaka multi-barrel rocket launcher (Representational image) | Wiki Commons

India's artillery acquisition had stalled for nearly two decades after the Swedish Bofors guns were acquired in the late 1980s. The deal was mired in corruption allegations and it led to a fear in the civil services, which, combined with political apathy, prevented India from buying heavy guns at least until 2010.

The Bofors guns proved their mettle during the 1999 Kargil conflict, particularly with their "shoot-and-scoot" technology — the ability to fire a shell and then move away from the location by up to three kilometres.

The Army subsequently in 1999 drafted a Field Artillery Rationalisation Plan to acquire around 3,000 pieces of 155 mm weaponry, including tracked self-propelled guns, truck-mounted gun systems, towed artillery pieces and wheeled self-propelled guns in over two decades.

The plan was to have 1,580 towed gun systems, 814 mounted gun systems, 100 self-propelled Howitzers and 145 M777 155mm/39 calibre lightweight Howitzers for the mountains.

This meant equipping 169 artillery regiments with medium artillery weapons or as defence experts put it, a "mediumisation" of artillery.

Army officers say that while the artillery modernisation plan progressed at a snail's place until about 2010-2011, it has gained momentum in the last few years.

A senior officer from the artillery regiment told ThePrint that the modernisation plan has progressed rapidly in the last five years with faster orders and inductions of the M777 Ultra Lightweight Howitzers and the indigenously-built Dhanush guns.

"The modernisation plan is being taken forward keeping in mind the Make in India programme," the officer said, adding that there is a push to manufacture indigenous ammunition.

Lt Gen P.R. Shankar (retd), former director general of artillery, said the latest artillery profile — or the artillery profile 2027 (an acquisition plan) — was drafted in 2008 and the modernisation plan was progressing in line with that.

"Among all arms and services, I would say the artillery modernisation has progressed according to plan," he said.

Asked if the Army has the desired strength of guns, he said the force already had guns. "But they were old guns. The modern guns will have an advantage over them," he added. "After 2000,

there were several failed attempts at modernisation of artillery. Even the indigenous scene was not great.

"However after 2010, the whole scene changed. We had five major 155 mm gun programmes going, and all of them succeeded," he said. "We could procure the M777 through the FMS route (the US' foreign military sales route) and some are deployed in Eastern Ladakh. Induction of K9 Vajra is on schedule and will finish by March 2021."

He added that Dhanush induction has commenced. "Production of upgunned Sharang has also started. ATAGS is on the verge of trials," he said. "Our rocket and missile programs are also going on track. We are going to have one of the most fearsome artilleries in the world."

With a number of developments in the sector, ThePrint looks at the progress of the major programmes of the Army's artillery modernisation drive.

M777 Ultra Lightweight Howitzers (ULH)

The M777 Ultra Lightweight Howitzers — meant for mountainous terrains — weigh approximately 4,200 kg each.

Used by the US Marine Corps, a contract to procure 145 155mm/39 calibre ULHs was signed with the United States government in November 2016.

According to the contract, 25 fully assembled Howitzers were to be handed over by the US government and the remaining 120 Howitzers were to be assembled in India by BAE Systems in partnership with Mahindra Defence.

Reports say the Army is likely to get all the 145 Howitzers by the end of 2021 to equip the M777 regiments that it is planning to form.

Army sources told ThePrint that 42 M777 ULHs have already been inducted so far.

BAE systems had by March this year reportedly delivered 25 guns to the Army, while the Army was to receive another 70 by this year-end.

Dhanush guns

This is the first indigenously-built artillery gun with a range of 38 km; its automated technology allows three guns to be fired simultaneously at a rate of 42 rounds per hour.

The Ordnance Factory Board (OFB) was to produce 144 155mm/45 calibre Howitzers based on transfer of technology from Bofors in the 1980s.

Subsequently, the OFB also handed over six Dhanush guns to the Army in 2019, which was touted as a major success story of the Make in India initiative. The OFB was to deliver another six to eight guns, but could not because of a Covid-19 lockdown.

Sources, however, said the orders are progressing and the Army is looking at inducting 18 guns soon. According to reports, the OFB is now working on the next two versions of the Dhanush gun including a truck-mounted version.

155mm/52 calibre towed Howitzer

According to this report, the process of acquiring 1,580 towed Howitzers from a foreign supplier have progressed and are at the stage of cost negotiation.

The report states that there are plans to buy 400 ATHOS 2052 (Autonomous Towed Howitzer Ordnance System) guns from Elbit of Israel in a ready-to-use condition, while the remaining 1,180 are to be assembled in India in partnership with Bharat Forge.

ATAGS

The indigenous 155mm/52 calibre towed gun system is being developed by the Defence Research and Development Organisation (DRDO) along with two private-sector firms.

An all-electric drive, high mobility, advanced communications system and automated command and control system are some of the significant features of the ATAGS gun.

The defence ministry had approved a purchase of 150 of these guns at an approximate cost of Rs 3,365 crore.

ATAGS have been undergoing evaluation trials when an accident of barrel burst occurred in September.

K9 Vajra-T

L&T had in 2017 won the contract from the ministry to supply 100 K9 Vajra-T 155 mm/52 calibre tracked self-propelled gun systems in 42 months to the Indian Army.

The K9, called the Vajra in its customised Indian version, is a tracked and self-propelled piece of artillery originally developed by Samsung for the South Korean military.

The Rs 4,366 crore contract for the Vajra is meant to arm 18 regiments, and replace the 50-year-old 105-mm Abbott, which India inherited from the British in 1964.

According to the contract, L&T was to complete delivery of all 100 K9 Vajra-Ts to the Army by the end of 2020.

Sources in the Army said that 77 K9 Vajras have already been handed over to the Army.

Pinaka rocket system

The defence ministry had in August signed contracts to supply six Army regiments with Pinaka rocket launchers by 2024, at an approximate cost of Rs 2,580 crore.

The contract with the Bharat Earth Movers, Tata Power Company and Larsen & Toubro states that at least 70 per cent indigenous content will be used in the weapon systems.

Originally developed by the DRDO in the 1980s, this rocket system was extensively used during the Kargil conflict of 1999.

The initial version of the weapon system was called Mark I, which had a range of 40 km. The upgraded version or Pinaka Mark II has an extended range of 70 to 80 km. It can carry different types of warheads.

Earlier, this month, the DRDO successfully tested the enhanced Pinaka rocket from Chandipur off the coast of Odisha.

https://theprint.in/defence/how-armys-artillery-modernisation-plan-stuck-in-a-rut-after-bofors-is-picking-up-pace/553053/

INDIA TODAY

Sat, 28 Nov 2020

Aiming for the top

The first India Today Defence Summit brought together key stakeholders policymakers, scientists, military officials and members of India's defence-industrial complex to discuss key challenges

By Sandeep Unnithan

New Delhi: This year, India saw a convergence of multiple security threats, economic, military and health-related. A pandemic triggered an economic crisis and a military deployment by China triggered anxiety on the country's northern borders. But, as they say, sometimes it takes a crisis to kickstart reform, especially in the defence sector.

In May, the ministry of defence (MoD) rolled out some of its biggest policy incentives to boost indigenous defence manufacturing. The biggest post-Independence reforms announced over the past year include the appointment of a new chief of defence staff (CDS), a decision to corporatise the 40 defence ordnance factories and banning certain defence imports. These will help India address the twin challenges of modernising its ageing military hardware and indigenising its military to achieve self-sufficiency.

The DRDO's Quick Reaction Surface-to- Air Missile (QR-SAM) being test-fired on November 17 at Chandipur, Odisha

The first India Today Defence Summit, held virtually on November 21, brought key stakeholders on board to discuss the MoD's indigenisation drive. There was plenty of optimism about the current round of defence reforms which has set clear objectives and deliverables. It was heartening to see government officials speak of the public and private sector in the same breath, marking a huge change in attitude. There are, of course, concerns over the long road ahead, the yawning gap between technology and indigenous capacity and the slow pace of realisation between an intention and an order. The summit addressed these issues and many others.

The MoD's vision for Atmanirbhar Bharat

The defence ministry has, for the first time ever, set a goal of a $25 billion or Rs 1.75 lakh crore turnover in defence manufacturing in the next five years. This includes an export target of $5 billion or Rs 35,000 crore worth of military hardware. It has given a commitment of orders worth Rs 50,000 crore to the Indian industry each year and hiked FDI in defence under the automatic route from 49 per cent to 74 per cent.

Raj Kumar, secretary, defence production, says 'Atmanirbhar Bharat' is a step-up from the MoD's 2016 'Make in India' policy; it is an expression of confidence in indigenous capabilities. The MoD had announced a first negative list of 101 items (for which there would be an embargo on import) and is planning to follow soon with a second list. The course correction includes increasing the indigenous content in imported equipment and reserving items for production by Indian owned and controlled entities. The system is changing in unprecedented ways. As M.V.

Gowtama, chairman and managing director of the public sector Bharat Electronics Ltd, says, Indian defence firms now routinely get tips on export opportunities from embassies and military attachés overseas, which was unheard of in the past. The key to all government policy, however, is time, particularly for private sector players in defence for whom time and money are inextricably linked. No one knows this better than Satyanarayan Nandlal Nuwal whose Solar Group is one of the world's top five commercial explosives manufacturers and who is beginning to receive his first orders after nearly a decade of investing in the defence sector.

Investing in future-ready defence technologies

One of the biggest challenges facing India's armed forces has been the need to equip itself with rapidly changing defence technologies. But, given the existing deficiencies in the defence industrial production base, these technologies are either never conceptualised or never acquired in time. It could well be argued that the current procurements for warships, tanks and fighter aircraft were part of an earlier 'revolution in military affairs', whereas the blistering rate of change means that the era of the 'disruption in military affairs', where hypersonic missiles, combat drones and robots, can potentially change the face of war. India's previous system of users, designers and production agencies working in silos rather than jointly is not fit for the purpose of acquiring rapidly-evolving critical technologies.

The panelists, which included an official from the government's premier defence research agency, a leading private sector producer and a military-academic, highlighted the need to rethink technologies, a civil-military fusion with armed forces driving procurements while being plugged into a network comprising the DRDO, academia and industry. This is the approach the US followed in the past century and what China has done in the present one. This is the only way India can boost its percentage of indigenous military hardware to a desired 80 or 90 per cent.

Small arms, big worries

When will India become Atmanirbhar in small arms?

Among the biggest Indian defence conundrums is that a country that is self-sufficient in making intercontinental ballistic missiles is today shopping for simple assault rifles from the US, Russia and, believe it or not, even the UAE. Beginning this year, the world's second-largest army began receiving its first US-made assault rifles and will set up a production line to build a Russian rifle. There is a promise meanwhile that future procurements will be made from the Indian industry, but so far there is no sign of this happening.

Small arms manufacturing was a public sector monopoly, specifically of the giant ordnance factories. The problem, as articulated by our panelists, a decorated Indian army general, a former chairman of the Ordnance Factory Board and the CEO of a Bengaluru-based start-up, is this: most of the technology and knowhow are already available within the country, but we need guidance and synergy that will come from all stakeholders being on board. The army, in particular, needs to have skin in the game by encouraging the development of an indigenous small arms industry, just as manufacturers do, to make investments in production capacity.

From a builder's Navy to an exporter's Navy

Can Indian shipbuilding make this leap?

An area where the government's export push has great potential is the design, construction and export of warships. India is fully self-sufficient in warship construction, it makes all classes of fighting vessels, from aircraft carriers to frigates, in its domestic shipyards. The country still has some distance to go before it can break into the export market, but now would be a good time to begin. This year, the Garden Reach Shipyard and Engineers (GRSE) Ltd delivered the fourth and last unit of the Kamorta class anti-submarine corvette, the warship with an indigenous content of over 80 per cent, the highest ever for an Indian platform. Indigenous designs like these have export potential.

The panelists, the head of one of India's largest public sector shipyards and the head of the defence division of India's largest private sector defence player, agreed that it was time for India to start developing and exporting complete platforms. The India head of Spain's largest shipyard,

another panelist, explained how his country broke into the highly competitive world of global warship exports, first by meeting the needs of their navy by gradually indigenising platforms and then focusing on export markets.

https://www.indiatoday.in/magazine/nation/story/20201207-aiming-for-the-top-1744375-2020-11-27

THE ECONOMIC TIMES

Sat, 28 Nov 2020

$51 billion orders likely to be executed by navy for surface ships, submarines in 10 years: Govt

Synopsis

The union minister said that more than 60 per cent of the Indian Navy's budget is dedicated to capital expenditure and nearly 70 per cent of this capital budget has been spent on indigenous sourcing, amounting to nearly Rs 66,000 crore in the last five years.

Panaji: Union Minister of State for Defence Shripad Naik on Friday said expected orders for surface ships and submarines to be executed from 2020 to 2030 by the Indian Navy are to the tune of USD 51 billion. Naik was addressing a virtual meet on opportunities at Goa Shipyard Limited (GSL) and Mazagao Dock Shipbuilders Limited (MDSL), organised by the Confederation of Indian Industry (CII).

Naik was addressing a virtual meet on opportunities at Goa Shipyard Limited (GSL) and Mazagao Dock Shipbuilders Limited (MDSL), organised by the Confederation of Indian Industry (CII).

The union minister said that more than 60 per cent of the Indian Navy's budget is dedicated to capital expenditure and nearly 70 per cent of this capital budget has been spent on indigenous sourcing, amounting to nearly Rs 66,000 crore in the last five years.

He said that with more than 60 major surface and sub-surface platforms being built for mainly the Indian Navy and the Indian Coast Guard at Goa Shipyard Limited, Mazagon Docks Shipbuilders Limited, Garden Reach Shipbuilder and Engineers (GRSE), Hindustan Shipyards Limited (HSL) and Cochin Shipyard Limited (CSL), the potential for MSMEs is vast.

Naik said "expected orders for surface ships and submarines to be executed from 2020 to 2030 are to the tune of USD 51 billion".

Speaking during the event, CII Goa State Council Chairman Blaise Costabir said that with India's maritime interests growing at a fast pace in line with Prime Minister Narendra Modi's vision of a USD 5 trillion economy by 2025, the country's shipbuilding will see increased focus and demand.

The country's vast coastline and the evolving geopolitical situation in India's neighbourhood has also put a greater thrust on maritime safety and security, he added.

Chairman and Managing Director of GSL said the defence shipbuilding sector will continue to see robust growth.

There was 9.3 per cent growth in the defence budget in 2019-20, he said and added that the country expects to see the same trend for the next 10 years.

https://economictimes.indiatimes.com/news/defence/51-billion-orders-likely-to-be-executed-by-navy-for-surface-ships-submarines-in-10-years-govt/articleshow/79452620.cms

Sun, 29 Nov 2020

देश की सीमा पर बड़ा खतरा, घुसपैठ की कोशिश कर रहे आतंकी: सेना प्रमुख

सेना प्रमुख जनरल नरवणे ने कहा, 'हमारी पश्चिमी सीमाओं पर मौजूदा हालात में आतंकवाद अभी भी गंभीर खतरा बना हुआ है, कई कोशिशों के बावजूद इसमें कमी नहीं आ रही है'

नई दिल्लीः भारतीय सेना के प्रमुख आर्मी चीफ जनरल एमएम नरवणे (Indian Army Chief General MM Naravane) ने शनिवार (28 नवंबर) को चेतावनी दी है देश की सीमा पर आतंकियों का खतरा मंढरा रहा है। उन्होंने कहा कि केंद्र शासित प्रदेश (Union Territory) जम्मू-कश्मीर में सामान्य लोकतांत्रिक प्रक्रिया को बाधित करने के लिए आतंकी घुसपैठ करने की कोशिश कर रहे हैं।

सेना प्रमुख ने सीमा के पास आतंकी गतिविधियों पर चिंता जताई है....

अपनी प्रेस कॉन्फ्रेंस में सेना प्रमुख जनरल नरवणे ने कहा, 'हमारी पश्चिमी सीमाओं पर मौजूदा हालात में आतंकवाद अभी भी गंभीर खतरा बना हुआ है, कई कोशिशों के बावजूद इसमें कमी नहीं आ रही है। नियंत्रण रेखा (LoC) पर आतंकियों के लांच पैड हैं और आतंकी सामान्य लोकतांत्रिक प्रक्रिया को बाधित करने के लिए जम्मू एवं कश्मीर में घुसपैठ की कोशिश कर रहे हैं।'

सर्दियों की शुरुआत से सीमा में आने की कोशिश कर रहे आतंकी

आर्मी चीफ ने जानकारी दी है कि सर्दियों की शुरुआत के साथ ही आतंकी घुसपैठ की इस साल की आखिरी कोशिश कर रहे हैं। गौरतलब है कि बर्फ का स्तर अधिक हो जाने से सीमा पर घुसपैठ करना आतंकियों के लिए नामुमकिन हो जाता है। लिहाजा आतंकियों ने घाटी में दक्षिण दिशा की ओर से घुसपैठ की वारदातों में इजाफा किया है, यानी अब निचले इलाकों के जरिए घुसपैठ की साजिश हो रही है। इन वारदातों में अंतरराष्ट्रीय सीमा पर सुरंगें बनाना भी शामिल हैं।

सभी चुनौतियों का सामना कर रहा देश

सेना प्रमुख नरवणे ने आगे कहा, "आज देश सभी ओर से चुनौतियों का सामना कर रहा है, कुछ घरेलू हैं और कुछ बाहरी। देश की रक्षा में सशस्त्र बल सबसे मजबूत स्तंभ हैं। जब हर चीज विफल हो सकती हैं, हम नहीं हो सकते। युद्ध में कोई उपविजेता नहीं होता। हर चुनौती के समय देश हमसे ही अपेक्षा करता है चाहे युद्ध की स्थिति हो, प्राकृतिक आपदा हो, कानून-व्यवस्था बिगड़ने की स्थिति हो या फिर राजनयिक अभियान।" मालूम हो कि पिछले दिनों ही सेना प्रमुख ने भारतीय नौसैनिक अकादमी (Indian Naval Academy) की पासिंग आउट परेड का निरीक्षण किया था। प्रशिक्षण पूरा करने के बाद कुल 164 प्रशिक्षु अधिकारी बन गए हैं।

https://zeenews.india.com/hindi/india/indian-army-chief-warned-terrorists-across-the-border-are-making-desperate-attempts-to-infiltrate-into-jk/795353

The Statesman

Sat, 28 Nov 2020

Army Chief reviews security situation in N-E

The Army chief visited the formations under the Kolkata-based Eastern Command which has its territorial jurisdiction in West Bengal and over all the eight North- Eastern states including Sikkim sector. The visit comes in the wake of the India-China tension across LAC

Kolkata: In the wake of his visit to Eastern Command formations, the Chief of Army Staff (COAS), Lt Gen MM Naravane met the governor and chief minister of Nagaland to discuss security situation while the Naga insurgents have issued a stern warning to the Centre against any counter-insurgency operations against the NSCN (IM) cadres that could jeopardize peace talks.

The Army Chief visited the formations under the Kolkata-based Eastern Command which has its territorial jurisdiction in West Bengal and over all the eight North- Eastern states including Sikkim sector. The visit comes in the wake of the India-China tension across LAC.

Army sources confirmed that the COAS reviewed the security situation and operational preparedness in select formations. The Army chief exhorted all ranks to continue working with the same zeal and enthusiasm. Further, the COAS called on the governor RN Ravi and chief minister Neiphiu Rio of Nagaland and discussed the prevailing security situation. The COAS also inaugurated a new residential facility at Kohima orphanage – a project part of Indian Army's contribution towards societal development.

Chief of Army Staff, General MM Naravane. (File Photo: IANS)

While the Army commander was visiting Nagaland, the Naga rebel organisation NSCN (IM) issued a statement, warning the central government against any counter-insurgency operations which can adversely impact the ongoing peace talks. The Isak Muivah(IM) faction of NSCN is currently in the final stages of peace talks with the Central government and has strictly claimed in its statement that any counterinsurgency operation against its cadres in Manipur and Arunachal Pradesh can yield "disastrous consequences".

It may be noted that while the Army chief reviewed the security situation in Eastern Command jurisdiction, reports surfaced of China making integrated villages near Doklam sector and also constructing military storage bunkers. It may be noted that Indian and China were engaged in a long stand-off near Doklam in 2017.

https://www.thestatesman.com/cities/kolkata/army-chief-reviews-security-situation-n-e-1502937613.html

The EurAsian Times

Mon, 30 Nov 2020

HAL developed world's lightest attack helicopter a stepping stone for Indian pilots towards Apache choppers

By Mansij Asthana

As India looks to induct its indigenous Light Combat Helicopter (LCH) into its armed forces, Indian Air Force (IAF) chief, Air Chief Marshal RKS Bhadauria, recently took a sortie on the aircraft.

"Indian Air Force (IAF) Chief of Air Staff Air Chief Marshal Rakesh Kumar Singh Bhadauria flew the home-grown Light Combat Helicopter (LCH) over this aerospace city," said an official.

Developed by Hindustan Aeronautics Limited (HAL), the LCH is a multi-role attack helicopter, stated to be the lightest in the world, with its flight ceiling being the highest among all attack helicopters.

According to a HAL official, speaking to IANS – "Bhadauria flew the twin-seater LCH for the first time, taking off at 11:45 am from our airport in the city's eastern suburb, with our deputy chief test pilot Wing Commander (Retd) S.P. John."

Plans are underway to induct the aircraft into the Indian defense forces in the near future and the Air Force Chief's sortie is part of the preparations to field the aircraft in combat operations soon.

Bhadauria, who was airborne for an hour during his maiden flight sortie as a co-pilot, released a statement which said – "It was a very good sortie. I was able to look at the important flying characteristics and status of sensors installed,"

The Air Chief said he was looking forward to the aircraft's induction. "I am sure HAL will give required focus on its production at a fast pace," Bhadauria said.

As per HAL, the helicopter is a potent weapon platform owing to its state-of-the-art systems and highly accurate weapons which enable it to strike any kind of target by day or night.

"The other features of LCH include its ability to operate in the complete 'Area of Responsibility' (AOR) and altitudes. It has the capability to carry adequate weapon load at high altitudes under varied conditions. All these characteristics make it most suitable for hot and high altitude operations," according to a HAL press release.

The LCH has been proposed to meet Indian forces' requirement of a dedicated light helicopter for combat operations, with the IAF choosing to order 30 more of the aircraft.

According to R Madhavan, Chief of Media Communications, HAL – "It is the lightest attack helicopter in the world, designed and developed by HAL to meet the specific and unique requirements of the Indian Armed Forces, reflecting the crucial role of HAL in Atmanirbhar Bharat."

Amid the ongoing stand-off between India and China at the Line of Actual Control (LAC) de facto border in Eastern Ladakh, two of the LCHs developed by HAL have been deployed in Leh at high altitudes.

The attack helicopter is equipped with a two-person tandem cockpit which can accommodate a pilot and a co-pilot. The aircraft has been designed to perform several attack profiles which include anti-infantry, anti-armor missions, and relatively high altitude flight.

The helicopter can also be used to perform air defense against slow-moving aerial targets, including both manned aircraft and unmanned aerial vehicles (UAVs).

It can also undertake counter-insurgency operations (COIN) and Counter Surface Force Operations (CSFO) along with the destruction of enemy air defense operations.

Former Indian Air Force chief Fali Homi Major, while penning a piece of his own, lauded the abilities of the helicopter and stressed how the aircraft will be a step above the Apache helicopter used by the IAF pilots.

"I can say with great confidence and pride that the LCH has evolved into a very sturdy, potent, and highly maneuverable platform. I was particularly impressed by the platform stability, ease of handling it in high-G maneuvers, and control responses in the entire flight envelope that we flew,"

"Given the fact that these features form the basic requirements for a combat helicopter for accurate weapon delivery, the LCH meets most attack helicopter requirements and parameters with distinction. The indigenous helicopter could be a valuable stepping stone for our pilots moving on to the Apache." said the former IAF Air Chief.

https://eurasiantimes.com/hal-developed-worlds-lightest-attack-helicopter-a-stepping-stone-for-indian-pilots-towards-apache-choppers/

FINANCIAL EXPRESS
Read to Lead

Mon, 30 Nov 2020

India's Maritime Theatre Command structure: Know more about it

The model proposed in the study is expected to be implemented in 2022, with no liabilities towards the creation of additional posts or ranks i.e. an Organisation structure to be culled out from the existing Command Structures of each of the services

By Huma Siddiqui

Next month the Vice Chief of Naval Staff (VCNS) is expected to hand over the study related to the formation of the Maritime Theatre Command (MTC) to the CDS. The model proposed in the study is expected to be implemented in 2022, with no liabilities towards the creation of additional posts or ranks i.e. an Organisation structure to be culled out from the existing Command Structures of each of the services.

Since the Indian Navy is the smaller than the other two services (Indian Army & Indian Air Force), it shall be first seeing the implementation of MTC, though now with larger assets under its belt.

The MTC structure is proposed to integrate the assets of Indian Navy, Army, IAF and Coast Guard to achieve the goals detailed out in the Joint Forces Doctrine of 2017.

`Peninsular Command' is MTC

Earlier this year the CDS in a media interaction had announced his plans of merging the Western and Eastern Command and it was then called `Peninsular Command', however, since then the name has been changed to the Maritime Theatre Command.

"The MTC may take some time to be fully operationally and well established but shall be a trendsetter for the other two tri-services theatre commands, which are also planned to be created in the next two years. The Integrated Air Defence Command headed under the purview of Indian Air Force shall be more complex activity since IAF assets under the Chief of Air Staff needs a centralized re-location," Milind Kulshreshtha, C4I expert says.

"The Commander-in-Chief (CINC) of MTC is to report to the Joint Chiefs of Staff Committee headed by the CDS. Now, the role of Navy Chief when the operational role has been re-aligned shall mainly be focused on 'Raise, Train and Sustain' the Naval assets.The Command Headquarter of MTC is planned to be at Karwar i.e. C-in-C shall be positioned at the existing INS Kadamba Naval base there. This incidentally too was the earlier aim of Navy so as to decongest Mumbai harbour in the Western Naval Command (WNC) and evolve Karwar as the main WNC base. It is expected that staffing of the HQ personnel shall gradually be enhanced to meet the tri-services components to handle work in an efficient manner to achieve an operational Command and Control," explains the C4I expert to Financial Express Online.

The MTC Structure

The MTC structure is proposed to integrate the assets of Indian Navy, Army, IAF and Coast Guard to achieve the goals detailed out in the Joint Forces Doctrine of 2017.

Aim

"The aim here is to synergize the three-component viz. naval, air and ground forces to form a Netcentric Warfare model so as to gain an advantage over the adversary using a flexible force structure to match the varied geographic domains. MTC shall compose of Army's amphibious brigades which are already centered on coastal areas of Port Blair and Thiruvananthapuram. The other component are the IAF units and the Coast Guard," according to Milind Kulshreshtha.

The IAF provides the maritime coverage for Indian Navy using the Jaguars based at Jamnagar, with Su-30MKIs and Tejas based at Thanjavur. According to the study, the Navy proposes to create service verticals so as to allow operational execution of tasks to be handled by specialists themselves. Coast Guard units always held a close association with Indian Navy since inception, even though in the reporting structure it is responsible directly to the Defence Minister. Coast Guard possesses its own maritime sea-going vessels and aviation components. In any case, post 26/11 terrorism incident, the Indian Navy was designated as the principal authority for complete maritime security of India in order to fill the gaps in roles and responsibilities.

Will the implementation process of MTC be easy?

No. According to the C4I expert, "The implementation of MTC surely shall not be a smooth sailing due to various reasons inherent in every military organisation world over. It is not a mere exercise of re-naming and re-designation of Roles and Responsibilities but the creation of a functional matrix targeted at achieving the highest military proficiency."

Sharing his view, Mr Kulshreshtha says, "The traditional Command structure had evolved from the warfare tactics of the past and was a time tested approach. Therefore, the re-structure process of Indian Armed forces has to be implemented very carefully since we have ongoing border hostility with China and Pakistan. Various vagaries of inter-services rivalries and lack of resources should be well addressed, at all times respecting the expertise of each of the service arms. But additionally, the technological framework for seamless flow of combat information exchange amongst the three service components under MTC shall be the essential factor to achieve the desired operational efficiency. Indian Navy is well placed to undertake these responsibilities due to being already technologically advance and possessing its own three-dimensional arms viz, aircraft, warships and submarines."

Background

Indian Armed Forces released the Joint Doctrine in 2017 elaborating various Military objectives like preventing war through strategic and conventional deterrence across the full spectrum of military conflict, to defend the nation and its interests and sovereignty.

Presently, the Army and the Air Force each have seven existing commands. The Indian navy is deployed under three area commands, each headed by a flag officer. Various inter-service commands and institutions such as the Strategic Forces Command, the Andaman and Nicobar Command and the Integrated Defence Staff (IDS) are already operational. The joint-services Strategic Forces Command has the operational responsibility to handle India's Nuclear arsenal.

As has been reported by Financial Express Online earlier this year, the agenda for the new Chief of Defence Staff (CDS) role is aimed at re-organisation India's existing single-service commands into only five joint commands with a focus on enhanced operational efficiency.

More about Theatreisation?

There will be specific units of personnel from the three services — the Indian Army, Navy and Air Force. All will be under a common theatre commander. And, they will all fight as a cohesive unit, just like in the US and China.

"This Theaterisation aims at compiling all the resources of land forces, naval units and aviation assets under a single theatre commander for efficient availability of resources to meet the military objectives in today's hi-tech warfare. The restructuring shall have Northern, Eastern and Western theatre commands to directly address the hostile China and Pakistan. The Indian Army possess highly motivated manpower which holds a rich combat experience and operational expertise to operate in diverse terrains as per the varied geography at the border's to be protected," Mr Kulshreshtha explains further.

What does the Study on MTC suggest?

The study has suggested plans for the Maritime Theatre Command (MTC), under which the Eastern and Western naval commands will be merged and there will be elements from the Indian Army and the IAF, and also the assets of the Coast under its operational control.

This means the assets could be operated by the MTC which is likely to come up by 2022 based on the approval by CDS before the Government takes the final decision, the Coast Guard will continue reporting to the MoD.

https://www.financialexpress.com/defence/indias-maritime-theatre-command-structure-know-more-about-it/2139633/

ThePrint

Sat, 28 Nov 2020

Maritime Theatre Command could bring Coast Guard ships under its control

The government will decide which authority the MTC will report to, but it is likely to be the Joint Chiefs of Staff Committee headed by the CDS

By Snehesh Alex Philip

New Delhi: India's plan for the Maritime Theatre Command (MTC), which will merge the Eastern and Western naval commands besides getting elements from the Army and the Air Force, could involve bringing the Indian Coast Guard assets under its operational control, ThePrint has learnt.

This means that while the Coast Guard will continue to report to the Ministry of Defence, its assets — ships — will be operated by the MTC. The command is likely to start operations by 2022.

According to sources in the defence and security establishment, these are part of the plans mooted by a study conducted by the Navy on how the MTC can be structured. The study aims to get the MTC sailing off in nine months from the date of approval.

Representational image of Indian Navy ships | Photo: Commons

The chief of defence staff (CDS) will look into the study before approvals from the government are taken for the same. Sources said the MTC is likely to be headquartered at INS Kadamba in

Karwar. The government will decide which authority the MTC will report to, but it is likely to be the Joint Chiefs of Staff Committee headed by the CDS.

The country's only tri-service command — Andaman and Nicobar Command (ANC) — is likely to come under the MTC and will act just like another outpost.

The original plan was not to tinker with the ANC and keep it out of the new Theatre Command doctrine, which is about bringing specific units of personnel and equipment from the three services — Army, Navy and Air Force — under a common leader for cohesion.

Both the US and China follow a theatre command doctrine.

The Coast Guard assets

A source said, "Besides the ANC, the assets of the Coast Guard will come under the operational control of the MTC. Yes, the Coast Guard DG will be there, he will take care of the raise, train and sustain process."

This means that the Coast Guard director general will continue to report to the Ministry of Defence and focus on training and growth, but the force's assets will remain under the MTC.

Sources said this also means that the Coast Guard ships can be used to patrol international waters, if necessary.

The two amphibious brigades of the Army, based in Kerala and Port Blair, will come under the MTC besides maritime strike assets of the Air Force based in Jamnagar (Jaguars) in Gujarat and Thanjavur (Su30 MKI) in Tamil Nadu, said the source.

In February this year, CDS General Bipin Rawat had outlined his objective behind merging the Western and Eastern Command into what was then called as the "Peninsular Command". The name has since changed to the Maritime Theatre Command.

https://theprint.in/defence/maritime-theatre-command-could-bring-coast-guard-ships-under-its-control/553228/

Scroll.in

Mon, 30 Nov 2020

Expert's view: How the Indian Army is fighting Ladakh's harsh weather amid the standoff with China

Maintaining the health of the troops is perhaps the most daunting task for the Army, writes the first General Officer Commanding of the Leh sub area

By Major General Yash Mor

Though the Indian Army has been guarding the frontiers of the entire Ladakh region assiduously for the last 70 years, this year it faces a unique challenge. Never in history did India have such a large deployment of troops in the Eastern Ladakh sector.

The stand-off with an aggressive and belligerent China continuing without any signs of "pull back" for the last six months. This "no-war no-peace" situation is unprecedented on the Line of Actual Control with Chinese People's Liberation Army. In fact, de-facto the LAC has turned into Line of Control in the sector quite similar to what we have with Pakistan all along the mountainous region of Jammu and

Harsh weather conditions in winter add to the Army's logistical challanges | Reuters/Pawel Kopczynski

Kashmir. With no solution in sight, the Indian Army has galvanised its logistic resources at war footing. The advance winter stoking has never ever been done at such a frantic pace and with such a mammoth level.

The war effort has now shifted focus from the enemy PLA to the natural elements of weather. The chances of another skirmish are now remote due to freezing temperatures and bone-chilling wind factor. Even the 1962 war had ended, when the PLA withdrew on November 21. Since it was no longer possible for them to push forward or even hold on to the gains made by them in the Chushul sector. Some of the severe challenges created by holding additional troops in the inhospitable terrain are very apparent to every military planner.

Medical challenges

Maintaining the health of the troops is perhaps the most daunting task for the Army. The medical resources designed for the troops normally posted to the 14 Corps Zone are taken care of by the Army Hospital in Leh, a 200-bed capacity hospital now increased to 300. The troops deployed at forward posts may have at the best one young medical officer for one unit.

Winter-related cold injuries like hypothermia, chill blains, frostbites, cerebrovascular accidents, cortical venous thrombosis, heart attacks, pulmonary hypertension are so serious that many patients have to be airlifted to Chandigarh. The logistics of lifting sick soldiers from their post to the hospital in Leh and onward treatment is a nightmare.

To add to the agony is the sudden "packing up" of the weather not permitting any air evacuation. The loss of life due to the vagaries of the weather are heartbreaking and have a very telling effect on the state of mind of other soldiers. It is to the credit of the medical fraternity within the forces that the very best young doctors are posted to Leh and Srinagar hospitals.

Special clothing requirements

The Indian Army has scaled up its requirements of extreme winter clothing. The clothing required below 12,000 feet is not much of an issue as all products are made in India and sufficient stocks are available as reserves. The real challenge is "special" winter clothing for deployments beyond that altitude.

Almost the entire range of clothing has to be procured from abroad at exorbitant rates. The Army has done well to get the required clothing from various agencies and as per reports over 15,000 new special clothing sets have been purchased off the shelf from foreign countries.

Habitation and heating

The habitation for the troops has been constructed at war footing and much of the work may still be in progress. Just making these special shelters to withstand extreme cold and bone-chilling winds is not sufficient, these have to be provided with heating arrangements. With no electric generation capacity in these areas, the entire load is on diesel generating sets consuming huge amounts of diesel.

The good old "bhukahri" too needs colossal amounts of kerosene oil. This kind of requirements of fuel for heating purposes has never ever been stocked earlier. The region does not have underground storage capacity and hence most of this stock may be kept on the "wheels" adding to further difficulties.

Water woes

The water resources have all been frozen as the rivers that provide fresh drinking water are already at freezing point. The troops need water not only for drinking but also for bathing and cooking. Carriage of water from lower altitudes on water tankers on very narrow roads is an unfathomable task for the logistic echelons.

Maintenance of equipment

A large amount of high-tech equipment has been deployed in the region in view of the likely war breaking out with the PLA during the summers. It includes the T 90 and T 72 tanks, mechanised infantry combat vehicle, radar systems for air defence and early warning, specialist

radio equipment, Artillery guns and mortars, Surveillance equipment and a plethora of other optoelectronic devices.

This kind of equipment needs temperature-controlled repair and maintenance sheds, which are almost nonexistent in this desolate region. Such facilities too require power supply through generating sets, which adds to the requirement of fuel. To add to the logistic challenge is the requirement of specialist lubricants for such a variety of equipment. Many of these are imported and need lead time for procurement agencies.

Road infrastructure

The supply chain is very complicated and to add to their problems is poor road infrastructure in the region. The Chushul-Pangong Tso sector is serviced by one road coming from Leh across the formidable Changla Pass. Due to heavy snowfall, the pass often becomes unfit for the movement of vehicles. The narrow road can be blocked for hours with only one truck getting stuck or a vehicle meeting with an accident. At best the road is fair weather even in the summer season. The task of moving thousands of tons of supplies and troops on this single road must have been a major management challenge.

Covid-19 pandemic

The Covid-19 pandemic could not have come at a worse time for the forces already stretched due to the almost war-like situation with China. The cases in Ladakh among the forces though under control but did cause concern to the military leadership. The Covid-19 protocols have added to the overall logistic burden on the system already stretched to its seams due to induction of additional troops in May.

The transit camps at Chandigarh and Delhi which are “holding” places for induction to the sector are overloaded. Many a time troops have to be told to stay at home and not join back on duty due to lack of billeting spaces. The compulsory quarantine at various camps extending from 14 to 21 days has further added to the uncertainty and “state of nothingness” for the troops.

Fire hazard

With so much of the fuel required to be used for almost everything from cooking to living billets, the chances of fire increase manifold. The good old bhukahri is one kind of jugaad and often responsible for many fire accidents in winter months. This is thus a big challenge for the junior leadership to ensure zero fire accidents. The loss of equipment and life due to fire is thus taken very seriously by the army leadership at all levels.

Parting shot

The challenges of the winter months are real and almost overburdening. From the health of human resource to the upkeep of costly high-tech equipment is an everyday challenge. The best part, however, is the “never say die” attitude of the Indian army soldier and junior leadership. Their grit and determination against heavy odds and still keep high morale in face of adversity makes the Indian Army one of the best fighting forces of the world.

(Major General Yash Mor has served in South Kashmir and in Punjab in counter-terrorist operations and with the United Nations in Mozambique. He was the first General Officer Commanding of the Leh sub area responsible for stocking and operational logistics of the entire Ladakh region.)

https://scroll.in/article/979590/experts-view-how-the-indian-army-is-fighting-ladakhs-harsh-weather-amid-the-standoff-with-china

INDIA TODAY

Sat, 28 Nov 2020

Eye on China, India sets up coastal radars in neighbourhood

India is setting up coastal surveillance radar systems in the neighbourhood as part of its policy to enhance military diplomacy that will also lead to increased security measures in these friendly countries

By Abhishek Bhalla

New Delhi: Looking to counter China's influence and increasing presence in the Indian Ocean Region (IOR), India is setting up coastal surveillance radar systems in the neighbourhood as part of its policy to enhance military diplomacy that will also lead to increased security measures in these friendly countries.

While the radars meant for maritime surveillance have already been installed in Sri Lanka, Mauritius and Seychelles, these will be very soon set up in Maldives, Myanmar and Bangladesh, sources in the security establishment said.

"Similar projects are under proposal for Maldives and Myanmar while Bangladesh is at an advanced stage and at least 12 other countries are perceived for a similar requirement," said an official privy to the detail.

The Coastal Surveillance Radar system is capable of detecting small boats, fishing vessels, ships and monitors any illegal activities in the sea. (Representational Image)

The Coastal Surveillance Radar system is capable of detecting small boats, fishing vessels, ships and monitors any illegal activities in the sea.

India has been looking to enhance assistance to friendly countries in the neighbourhood as China's influence is on the rise in the India Ocean Region. Recently, India handed over INS Sindhuvir to Myanmar, making it the first submarine in its naval fleet.

India has also constructed the Sitwe port in Myanmar as part of the Kaladan transport project. The transit project will connect Kolkata to Sitwe port in Myanmar and finally end up linking Mizoram. This will be a new gateway to the landlocked North-East, reducing the distance from Kolkata to Mizoram by nearly a thousand kilometres and the travel time by at least four days.

China has also been carrying out development projects at Kyaukpyu port near Sitwe.

The assistance to these countries comes under India's programme called SAGAR, Security and Growth for All in the Region, and New Delhi is committed to build self-reliant capabilities in the neighbourhood.

China's increasing forays in Indian Ocean Region

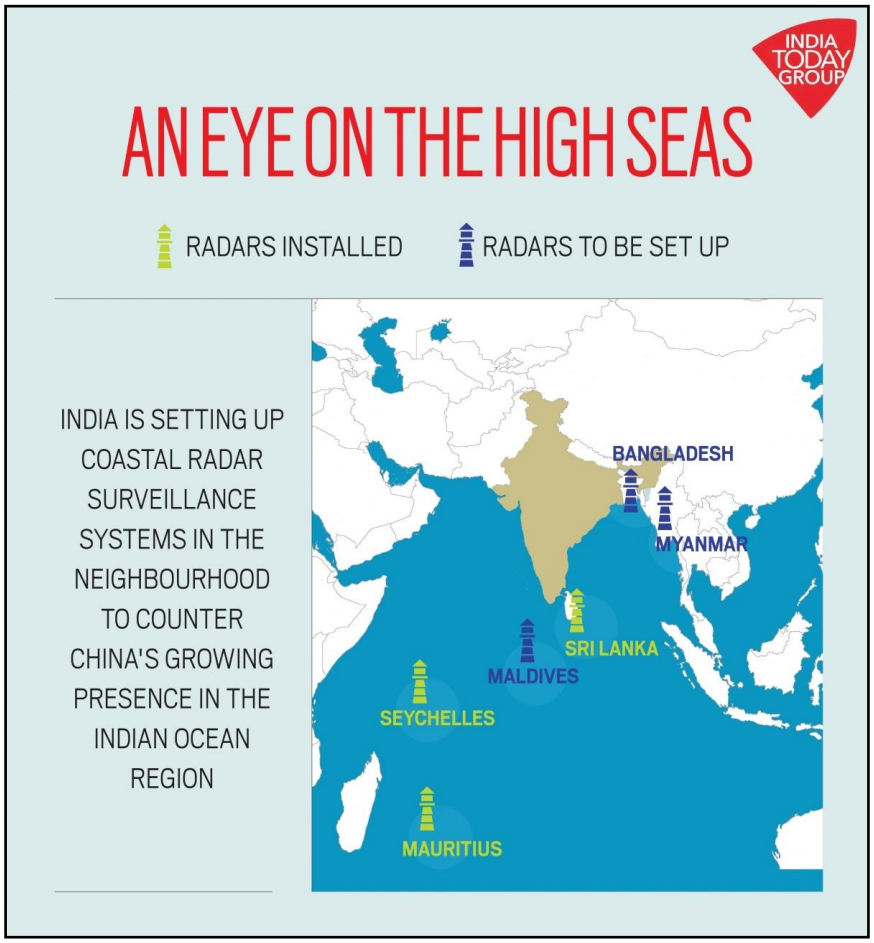
There has been a steady rise in the deployment of Chinese research vessels in the Indian Ocean Region (IOR), recent trends show. This has been spotted in the south-eastern and western parts of the Indian Ocean over the last few years.

A sharp rise in Chinese fishing vessels in the IOR in the last four years has also been observed. On an average, there were 300 Chinese fishing vessels that sailed the IOR every year but the number went up to 450 last year, sources said.

Around 100 vessels have been sailing from China to Pakistan but there has been no "discernable pattern" found, officials said.

Increasing presence of China in the India Ocean Region has been a strategic concern for India.

The Chinese Navy vessels, including their submarines, frequent the water on the pretext of anti-piracy operations, intelligence reports suggest.



China has been expanding its naval operations in the Indian Ocean Region and the Indian Navy is aware of its growing maritime prowess. They have been shifting a lot of resources from other arms to the Navy, keeping in line with their aim of becoming a global power.

In September last year, a Chinese vessel close to the Indian waters was asked to go back after it was suspected to be on a spying mission.

Indian Navy's growing international outreach

The Indian Ocean Region accounts for 75 per cent of the world's maritime trade and 50 per cent of global consumption passes through it, prompting security measures involving multiple countries.

At any given time, there are close to 12,000 ships in the Indian Ocean Region and 300 fishing vessels that need to be always monitored. There are close to 3 lakh Indian fishing vessels operating in the seas.

The Indian Navy is able to get real-time information through its Information Fusion Centre-Indian Ocean Region. An association with 22 countries, including Australia, France, Italy, Japan, Maldives, the USA, New Zealand, Mauritius, Myanmar and Bangladesh, along with 22 multi-national agencies, allows in quick sharing of information in the Indian Ocean Region.

The International Fusion Centre was started in December 2018, facilitating maritime information to the member countries. The Indian Navy has got the go-ahead to have white shipping agreements with 36 countries; of which 22 have been signed them and 17 are operationalised, sources said.

Recently, the four-nation Malabar Exercise involving India, Australia, the USA and Japan was concluded and hosted in two phases by the Indian Navy in the Bay of Bengal and Arabian Sea.

https://www.indiatoday.in/india/story/india-sets-up-coastal-radars-in-neighbourhood-to-keep-eye-on-china-1744751-2020-11-27

Hindustan Times

Sun, 29 Nov 2020

India-China faceoff: Indian Navy's MARCOS deployed near Ladakh's Pangong lake

Indian Army's Special Forces including the Para Special Forces and Cabinet Secretariat's Special Frontier Force have been operating in Eastern Ladakh for carrying out special operations for a long time

New Delhi: Amid the ongoing stand-off between India and China, the Marine Commandos (MARCOS) of the Indian Navy have been deployed in the Pangong lake area in eastern Ladakh.

The idea behind the deployment of the MARCOS in Eastern Ladakh where Indian Air Force's Garud operatives and Indian Army's Para Special Forces, which have been there since day one of the conflicts, is to enhance the integration of the three services and provide the naval commandos exposure to extreme cold weather conditions, government sources told ANI.

"The MARCOS have been deployed in the Pangong lake area where the Indian and Chinese forces have been engaged in a conflict situation since April-May timeframe this year," the sources said.

The Navy commandos are also soon going to get new boats for operations in the lake are along with the existing infrastructure for operations in the lake, they said.

The idea behind the deployment of the MARCOS in Eastern Ladakh where Indian Air Force's Garud operatives and Indian Army's Para Special Forces, which have been there since day one of the conflicts, is to enhance the integration of the three services. (HT

Indian Army's Special Forces including the Para Special Forces and Cabinet Secretariat's Special Frontier Force have been operating in Eastern Ladakh for carrying out special operations for a long time.

The Indian Air Force's Garud Special Forces moved to hilltops on the strategic heights on the Line of Actual Control (LAC) along with their Igla shoulder-fired air defence systems in the early days of the conflict to take care of any fighter or other aircraft of the enemy which may have tried to violate Indian air space.

The special troops belonging to both the Army and Air Force have been there for more than six months now.

On August 29-30 also, the Indian side had used the special forces to occupy strategic heights along the LAC to preempt the Chinese from doing so. The Chinese have also maintained special troops on their side of the LAC.

The Indian Navy has deployed teams of its MARCOS in the Wular lake area of Jammu and Kashmir to tackle terrorism there. The Indian Air Force started deploying Garuds in Kashmir valley after the 2016 Pathankot operations to give them the feel of real operations as part of plans of the then Army chief and now Chief of Defence Staff Gen Bipin Rawat.

Soon after their deployment, the Garuds proved their mettle and earned one Ashok Chakra, three Shaurya Chakras, and many other gallantry awards for eliminating a team of terrorists led by the nephew of 26/11 terrorist Zaki Ur Rehman Lakhvi.

After that operation, the Air Force has been sending regular Garud teams for forward deployment in Kashmir valley.

The Indian Army has many of its special forces battalions deployed in the Kashmir valley for counter-terrorist operations including the ones which carried out surgical strikes in 2016.

https://www.hindustantimes.com/india-news/india-china-faceoff-indian-navy-s-marcos-deployed-near-ladakh-s-pangong-lake/story-UHg6IOBjuYfEGNqZ5EaZYM.html

Live हिन्दुस्तान .com

Sun, 29 Nov 2020

चीन ने चालबाजी की तो मिलेगा मुंहतोड़ जवाब, भारत ने पैंगोंग झील के पास तैनात किए मार्कोस कमांडो

नई दिल्ली: भारत और चीन के बीच चल रहे गतिरोध के बीच, भारतीय नौसेने ने अपने मरीन कमांडो (MARCOS) को पूर्वी लद्दाख में पैंगोंग झील क्षेत्र में तैनात कर दिया है। पूर्वी लद्दाख में चीन के साथ गतिरोध के पहले दिन से भारतीय वायुसेना के गरुड़ और थल सेना के पैरा स्पेशल फोर्स के कमांडो तैनात है। और अब नौसेना ने भी अपने मरीन कमांडो की तैनाती कर दी है।

न्यूज एजेंसी एएनआई ने सरकारी सूत्रों के हवाले से बताया कि मरीन कमांडो की तैनाती का मकसद, तीन सेवाओं के एकीकरण को बढ़ाना और अत्यधिक ठंड के मौसम की स्थिति में नौसैनिक कमांडो अपनी ताकत को दिखा सकते हैं। सूत्रों की माने तो मार्कोस को पैंगोंग झील क्षेत्र में तैनात किया गया है।

जहां भारत और चीन की सेना इस साल अप्रैल-मई से ही आमने-सामने हैं। इसके अलावा नौसेना के कमांडो को जल्द ही झील में आने-जाने के लिए नई नावों की तैनाती भी करने जा रहा है, वो भी झील में परिचालन के लिए मौजूदा बुनियादी ढांचे के साथ। भारतीय सेना की स्पेशल फोर्स जिनमें पैरा स्पेशल फोर्सेज और कैबिनेट सेक्रेटेरिएट की स्पेशल फ्रंटियर फोर्स शामिल हैं। पूर्वी लद्दाख में लंबे समय से स्पेशल ऑपरेशन चला रही हैं।

चीन के साथ संघर्ष के शुरुआती दिनों में भारतीय वायु सेना के गरुड़ विशेष बलों ने किसी भी लड़ाकू या अन्य विमानों की देखरेख करने के लिए अपने अपने रक्षा प्रणाली के साथ एलएसी पर पहाड़ी की चोटी पर भेज दिया है। इससे पहले भारतीय नौसेना ने जम्मू-कश्मीर के वुलर झील एरिया में आतंकवाद से निपटने के लिए अपने मार्कोस टीम को तैनात कर रखा है।

भारतीय सेना में लद्दाख में मोर्चे पर तैनात अपने जवानों के लिए बेहतरीन आवासीय सुविधाएं उपलब्ध कराई हैं। सेना ने खास तरह की सामग्री के इस्तेमाल से स्मार्ट कैंप स्थापित किए हैं जो चौबीसों घंटे गर्म रहते हैं। ये कैंप पूरी तरह से सुरक्षित एवं बुनियादी सुविधाओं से लैस हैं।

सेना के अनुसार नवंबर के बाद पूर्वी लद्दाख के ऊंचाई वाले इलाकों में बर्फबारी शुरू हो जाती है। 40 फुट तक बर्फ जमा हो जाती है। सर्द हवाओं का प्रकोप रहता है। तापमान शून्य से 30-40 डिग्री नीचे चला जाता है। सड़कों का उपयोग करना भी मुश्किल हो जाती है।

https://www.livehindustan.com/national/story-india-china-faceoff-indian-navy-deployed-marine-commandos-marcos-near-ladakh-pangong-lake-3654328.html

INDIA TODAY

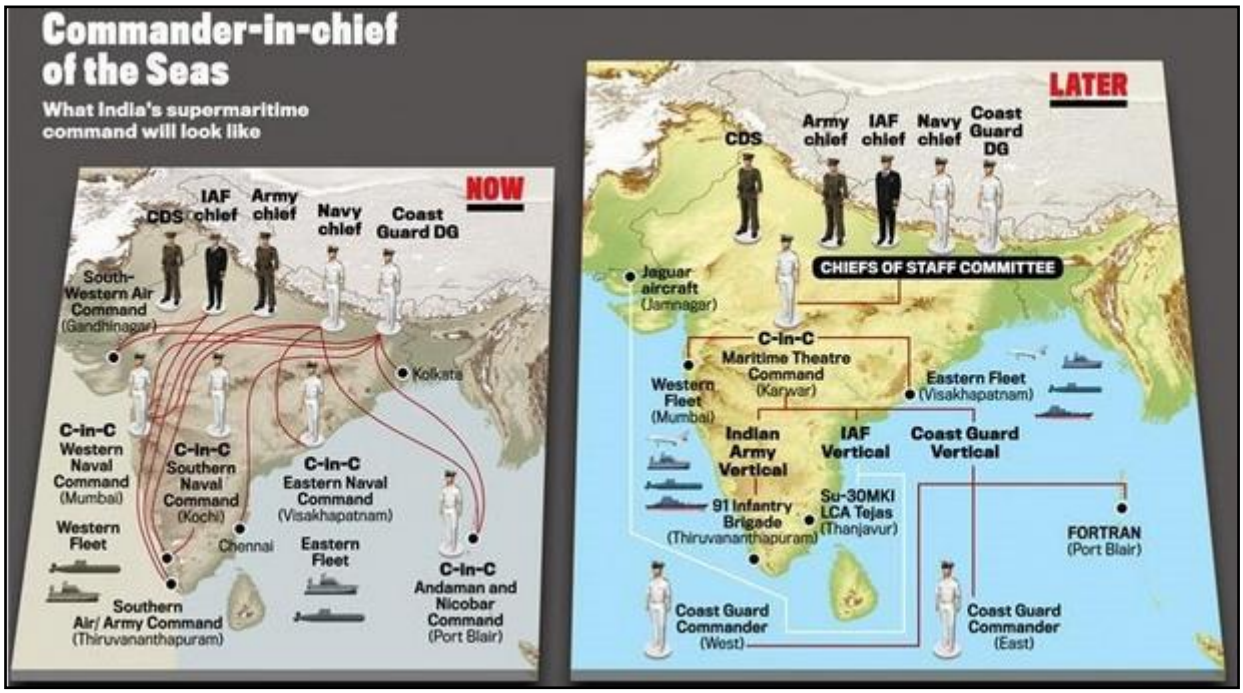
Sat, 28 Nov 2020

The high se as command

A joint study draws up the ambitious Maritime Theatre Command by restructuring existing military commandsto straddle India's entire maritime sphere. Will it take wings or meet the fate of its predecessor?

By Sandeep Unnithan

New Delhi: From his headquarters near the picturesque Binaga Bay in Karwar, Karnataka, the commander-in-chief (C-in-C) of India's first Maritime Theatre Command (MTC) will have an overview of his enormous responsibilities. His ships will not only patrol the country's 7,516-km-long coastline but also its distant maritime interests astride the world's most important ocean, stretching as far as the Cape of Good Hope off South Africa and to the southern shores of the Indonesian archipelago.



Graphic by Tanmoy Chakraborty

The creation of the post of maritime theatre commander and a new integrated command, subsuming all operational aspects of the four existing naval commands, are key recommendations of a recent Indian Navy study. The proposed MTC will also include Indian Air Force (IAF) fighter jets, helicopters and transport aircraft on the Indian peninsula, two Indian Army brigades, comprising around 10,000 soldiers, and, interestingly, all Coast Guard patrol vessels, helicopters and aircraft.

The study, part of a government mandate to reduce India's 17 single-service commands into five joint commands, and prepared by vice chief of naval staff Vice Admiral G. Ashok Kumar, will soon be handed over to chief of defence staff (CDS) General Bipin Rawat.

Government officials told India today that the study proposes a model that can be implemented in a short timeframe, nine months to a year, and does not require the creation of additional posts or flag ranks or even office space. It will use existing manpower and resources. It is the most complex of the two tri-services theatre commands to be created in the next two years, the other one being the Integrated Air Defence Command headed by the IAF.

Significantly, the MTC will be the first one that loosens a service chief's command over operations and assets. A parallel study for setting up the Air Defence Command is underway, but it's not as radical because the IAF chief will hold on to his fighter, transport and combat fleets.

The MTC commander-in-chief will report to the Joint Chiefs of Staff Committee headed by the CDS. The navy chief will shed their operational roles and be primarily responsible for 'Raise, Train and Sustain' functions, administration, acquisitions and training. The three C-in-Cs will be reported to the CNS for 'raise train and sustain' functions and to the Maritime Theatre Commander for operations. The navy study, thus, paints a picture of the desired end state of independent India's most significant military reform that kicked off this year with the appointment of the first CDS and the bifurcation of the military into theatres and service headquarters.

The MTC, earlier called the Peninsular Command, is likely to be the more significant of the first two theatres because it has a larger share of assets from the air force and the army. It could serve as a template for other more complex theatre commands to follow. The northern, eastern and western theatre commands, which directly address China and Pakistan, portend greater inter-services rivalry and will have to be undertaken on live borders. This could push their implementation to the second phase of the theaterisation.

The commands' challenge

General Rawat completes the first year of his CDS tenure on January 1, 2021. He has just two more years to complete his biggest task, of creating integrated theatre commands. A command is a military formation headed by a three-star C-in-C and is responsible for all military tasks in a given operational space. All of India's 18 commands presently are single-service commands, which means they are exclusively run by the army, navy or the air force. The army and the air force have seven commands each; the navy has the remaining four. The Strategic Forces Command, which has operational control of India's nuclear weapons, is the sole joint-services command.

The 18 commands are not co-located, and train, plan and exercise separately. If the IAF commander, for instance, needs to ask for a naval platform to assist his operations, he will have to initiate a complicated bureaucratic procedure through two service verticals.

Theaterisation pools in all resources, army, navy and air force, under a single theatre commander. "The setting up of such a maritime command, especially if it is to operate under the chairman of the Chiefs of Staff Committee, is a right step that will address the issue of dual-hatted chiefs, which is an anomaly and a managerial nightmare," says Anit Mukherjee, associate professor in the South Asia Programme at the S. Rajaratnam School of International Studies (RSIS), Singapore. "It is encouraging, though, as it seemingly addresses a fundamental tenet for jointness/ unity of command and control."

The MTC integrates all Indian navy, army, air force and coast guard assets to achieve what the 2017 'Joint Forces Doctrine' terms the addressing of the 'integrated theatre battle'. This operationally adaptable force will ensure decisive victory in a network-centric environment across the entire spectrum of conflict in varied geographic domains. The Joint Maritime Theatre will not only have to address the growing power of China's PLA Navy, which with 350 warships is the world's largest, but also integrated Chinese military power. China's president Xi Jinping recently set the goal of turning the PLA into a 'fully modern military' matching the US by 2027.

"Indian sea power today will not have the luxury of fighting the PLA Navy alone," says Rear Admiral Sudarshan Shrikhande, who once headed naval intelligence. "It will also be fighting all the combined elements of the PLA's military power, from air power to long-range ballistic missiles, range of expeditionary capabilities, cyber warfare and space-based assets. Our responses against the PLA Navy likewise, ought to be joint."

Before that, MTC will have to deal with inter-services rivalries arising from the sharing of assets. The navy might not have trouble persuading the army to shed two amphibious brigades, based in Thiruvananthapuram and Port Blair, a force of nearly 12,000 infantry soldiers who can be transported on naval utility vessels to enemy shores. But it could face resistance while getting the

IAF to move its maritime strike assets to the MTC, the Jaguars based in Jamnagar and Su-30MKIs and Tejas aircraft in Thanjavur.

Senior IAF commanders loathe tying their air assets to geographical theatres. Top navy officials say they have addressed this by proposing service verticals within the MTC. While the command will be headed by a three-star navy officer, the army and IAF verticals will be better interfaces with their respective services. The MTC will have a similar vertical for the Coast Guard, which presently reports to the defence minister through the defence secretary.

While this reporting chain will continue, Coast Guard assets will be placed under the MTC. The maritime theatre commander, for instance, could deploy Coast Guard patrol vessels for the navy's 'mission-based deployments', warships deployed at seven vital points in the Indian Ocean, Arabian Sea and the Bay of Bengal. Navy officials cite the government designating the navy as the principal authority for overall maritime security post-26/11 as the logic behind this move.

The MTC is being created with the navy's inhouse resources. The MTC C-in-C will be based out of the navy's existing base, INS Kadamba in Karwar, and function with less than 300 staff, lesser than the crew strength of a Delhi-class destroyer.

Moreover, 2021 could well be the time to implement drastic restructuring in the service. The navy will see a rare and unprecedented reshuffle of its top brass when chief of naval staff Admiral Karambir Singh, vice chief of naval staff Vice Admiral Ashok Kumar, C-in-C West Vice Admiral Ajit Kumar, C-in-C East Vice Admiral A.K. Jain and C-in-C South Vice Admiral A.K. Chawla all retire within months of each other.

The cost benefit

The navy is yet to calculate savings on account of this command. Top navy officials point to potential savings by halting acquisitions and new infrastructure for the Coast Guard. "The nation can ill-afford two maritime forces," says a senior naval official.

Former Coast Guard director general Prabhakaran Paleri terms as "ridiculous" the move to place the Coast Guard under the navy in peacetime. (It is done so only in war.) "Navies cannot enforce maritime law; they are meant for war, which is why the navy itself had proposed the raising of the Coast Guard in 1978," he says. The MTC structure will call for modifying the Navy Act and the Coast Guard Act, he adds.

The MTC is a gigantic version of the much smaller Andaman and Nicobar tri-services command that India had unsuccessfully attempted to create in 2001. The command was held in rotation by three-star officers from each service. This experiment was envisaged as a template for other geographically and functionally delineated joint commands. Lack of political will and inter-services rivalry thwarted this model from being replicated. Finally, in 2016, the navy took this command back.

Under MTC, the Andaman and Nicobar Command will go back to what it was in the mid-1990s, Fortress Andaman or FORTAN, just another outpost in the maritime theatre commander's new domain.

https://www.indiatoday.in/magazine/special-report/story/20201207-the-high-se-as-command-1744377-2020-11-27

The Tribune

Sat, 28 Nov 2020

Sharpen tech focus to boost defence prowess

The most revolutionary changes are likely to come in the information and communication technology (ICT) sector. To exploit this, we must leverage our talent and skills that exist in the civil industry and academia. Relying on government R&D institutions that are neither agile nor innovative in ICT could be counterproductive. The Indian industry can help build trusted networks based on indigenous hardware and software

By Lt Gen DS Hooda (Retd)

New Delhi: Looking to counter China's influence and increasing presence in the Indian Ocean Region (IOR), India is setting up coastal surveillance radar systems in the neighbourhood as part of its policy to enhance military diplomacy that will also lead to increased security measures in these friendly countries.

WORRISOME: The military leadership is reluctant to lessen the reliance on the existing organisational structures and systems.

The final round of the United States Defense Advanced Research Projects Agency's (DARPA) Alfa dogfight trials took place on August 20. The trials aimed to "demonstrate advanced AI (artificial intelligence) algorithms capable of performing simulated within-visual-range air combat manoeuvring, colloquially known as a dogfight." Eight teams participated in the event, and the winning team, Heron Systems, squared off against a top

F-16 pilot. The AI pilot won 5-0.

Although the simulation was a simple one-on-one scenario and did not imply that AI is ready to replace pilots, it demonstrated that an AI agent could effectively learn and successfully apply basic fighter manoeuvres. A DARPA official said, "This was a crucible that lets us now begin teaming humans with machines… where we hope to demonstrate a collaborative relationship with an AI agent handling tactical tasks like dogfighting while the onboard pilot focuses on higher-level strategy as a battle manager supervising multiple airborne platforms."

Technology has always played a crucial role in warfighting and the character of war. However, some sceptics state that the impact of technology is overrated. They point out the failure of a network-centric US military to defeat the insurgencies in Iraq and Afghanistan. There is a similar discussion in India on how far technology can overcome the challenges posed by the terrain along the Himalayan watershed or in areas like Siachen.

There is no doubt that the quality of human resource, levels of training, motivation, and human ingenuity will be major war-winning factors. But we must also recognise that today, technology is having a more transformative impact on the world than ever before. Klaus Schwab, founder of the World Economic Forum, in his book The Fourth Industrial Revolution, writes that the most critical challenge today is to understand the "speed and breadth" of the technology revolution. Many of the emerging technology breakthroughs are in their infancy but are "already reaching an inflection point in their development as they build on and amplify each other in a fusion of technologies across the physical, digital and biological worlds."

We are yet to grasp all the implications of this new revolution fully, but it is clear that emerging technologies, while empowering individuals and societies, are also disrupting traditional models of business, governance, and even social interaction.

The 'empowerment-disruption' effect is equally real for warfare. There is a blurring of lines between war and peace as hybrid conflicts take centre-stage. The distinction between civil and

military technologies is disappearing with the diffusion of technologies, resulting in non-state actors increasingly getting access to lethal weapon systems. Saudi Arabia is among the top five countries globally in military expenditure, yet it has been regularly attacked by drones and missiles fired by Yemen Houthi rebels.

The Indian military faces the twin challenges of an assertive China and stressed budgets. In view of this, there is little option but to look at capability enhancement through greater adoption of technology. However, there is still some hesitation in the military to move firmly in this direction. The military leadership has grown up with and is comfortable with the existing organisational structures and systems. There is an understandable reluctance to lessen the reliance on high-value monolithic platforms like tanks, battleships, and manned aircraft that have served us well in the past.

While it is clear that the fighter pilot and the tank may not disappear soon from the battlefield, it is equally clear that these are decades-old systems, and there is a limit to how much incremental technology can be applied to make them more potent. In future capability building, we should be aiming for transformational change, not incremental.

One more reason why emerging technology is attractive is that the development and operating cost of traditional military platforms are becoming prohibitive. The development cost of the F-35 aircraft is $400 billion and the cost to own and operate the entire F-35 fleet over its expected 60-year lifetime is a staggering $1.12 trillion. This is prompting countries to explore the option of low-cost but highly networked systems to defeat conventional weapon systems.

In looking at the future, we need to have clarity on areas of technology focus and the approach to be followed. The adoption of advanced technology is uniformly low in the three services, and while this is worrying, it also provides us a second-mover advantage. We could learn from the successes and failures of others and move straight into areas of technology that offer revolutionary progress.

Michael O'Hanlon, in his study Forecasting Change in Military Technology, 2020-40, looked at 39 categories of military-relevant technologies. Of these categories, he found that revolutionary advances are most likely in artificial intelligence, computer hardware and software, internet of things, offensive cyber operations, robotics and autonomous systems.

It is evident that the most revolutionary changes are likely to come in the information and communication technology (ICT) sector. To exploit this, we must leverage our considerable talent and skills that exist in the civil industry and academia. Relying on government R&D institutions that are neither agile nor innovative in ICT could be counterproductive.

The Indian industry can help build trusted networks based on indigenous hardware and software. Our military will inevitably become more networked in the future, and if these networks are built on foreign hardware and software (as is currently the case), there is a huge vulnerability that can easily be exploited by our adversaries.

Even in robotics and autonomous systems, there is considerable expertise and adoption in the civil industry. Research in autonomous vehicles is more advanced in the auto industry than in the military. Here again, industry knowledge needs to be utilised. Where the defence R&D can play its role is in funding the AI-based backbone that enables relatively inexpensive commercial systems to be employed as a networked attack swarm with a degree of autonomy.

The fourth industrial revolution is already here. It demands a faster embrace of future technologies and a change in our traditional reliance on government organisations to lead the military R&D effort.

(Lt Gen DS Hooda (retd) Former Northern Army Commander)

https://www.tribuneindia.com/news/comment/sharpen-tech-focus-to-boost-defence-prowess-176926

ThePrint

Sat, 28 Nov 2020

UAE pushes for long-pending carbine deal under Make in India during Jaishankar visit

The CQB Carbines, with short barrel, are meant for operations in urban environment and room interventions, especially in counter-terrorism operations like in Jammu and Kashmir

By Snehesh Alex Philip

New Delhi: The United Arab Emirates has pushed for the long-pending contract for 93,895 Close Quarter Battle (CQB) Carbines for Indian Army won by its state-owned firm, Caracal, during the recent visit of External Affairs Minister S. Jaishankar, ThePrint has learnt.

Sources in the know said the matter came up during the talks held with the Indian delegation led by Jaishankar, and the UAE has pitched the deal under the 'Make in India' initiative.

"The issue of the pending deal for carbines did come up. The deal is in progress," a source said.

Officials in the External Affairs Ministry, however, remained tight-lipped when ThePrint reached for a formal comment on the matter.

The CQB Carbines, with short barrel, are meant for operations in urban environment and room interventions, especially in counter-terrorism operations like in Jammu and Kashmir.

Caracal's CAR 816 | Commons

The UAE has been pushing hard for the deal in which Caracal had emerged as the lowest bidder in 2018 for a contract that was supposed to be fast-tracked.

ThePrint had reported on 15 September that the Defence Ministry had decided to scrap this deal and proceed under the 'Make in India' initiative.

Following this, the UAE envoy to India had met with Chief of Defence Staff General Bipin Rawat to convey UAE's commitment to India.

When Caracal's CAR 816 carbine was shortlisted in 2018, it was seen as more of a diplomatic maneuvering to keep the UAE happy rather than a pure military decision.

This is the first time Indian forces will start using a weapon from the UAE, which itself is one of the largest importers of defence equipment.

Why contract ran into rough weather

The UAE carbines are meant to replace the outdated and ageing 9 mm British Sterling 1A1 sub-machine guns that are in service with the armed forces.

While there is an overall demand of about 3.5 lakh such weapons, the Army had in 2017 decided to opt for Fast Track Procurement (FTP) of 93,895 new carbines.

However, the contract ran into rough weather over several issues, including costs and complaints from other bidders.

The delivery of 72,400 American SiG 716 G2 battle rifles, selected at the same time as Caracal in 2018 under FTP, has been completed and the Indian Army has moved ahead with an order for another 72,000 such rifles to arm its frontline troops.

As reported earlier, efforts to acquire the CQB carbines since 2008 have not materialised as the carbines of state-owned DRDO and Ordnance Factory Board had failed to meet Army requirements.

Global tender of 44,618 CQB Carbines issued in 2011

A global tender for procurement of 44,618 CQB Carbines was issued in 2011 wherein four companies — Israel's IWI, Italian Beretta, and American firms Colt and Sig Sauer — participated. However, only IWI qualified on qualitative requirements pertaining to night vision mounting systems.

But the Defence Ministry did not procure them because IWI had become a single vendor, which is not allowed according to the procurement manual.

In 2017, a global Request for Information (RFI) was issued for the purchase of 2 lakh carbines, while a separate process was rolled out to procure 93,895 under FTP.

The request for proposal was expected within a year of issuing RFI, but it is still awaited.

https://theprint.in/defence/uae-pushes-for-long-pending-carbine-deal-under-make-in-india-during-jaishankar-visit/553663/

The EurAsian Times

Sat, 28 Nov 2020

What is US' deadliest submarine killer – The P-8 Poseidon doing at 15,000 feet on India-China border?

By Mansij Asthana

Developed and produced by Boeing Defense, Space, and Security for the United States Navy, the P-8 Poseidon is meant to operate mainly in the anti-submarine warfare (ASW), anti-surface warfare (ASUW), and shipping interdiction roles.

P-8I Poseidon

The Indian variant of the aircraft, known as the P-8I, been designed to carry out all additional operations such as intelligence, surveillance, and reconnaissance missions.

By equipping P-8I Neptune with a CAE Inc AN/ASQ-508A Magnetic Anomaly Detector (MAD) and a Griffon Corporation Telephonics APS-143C(V)3 multi-mode radar, India has been very successful in harnessing its capabilities on land, which is not its traditional habitat.

The Indian Navy-operated aircraft has been deployed in Ladakh as a surveillance platform in view of the border tension. The move is also aimed at creating a synergy between the three services – the army, the navy, and the air force.

In this mission, the maritime planes have been complementing a fleet of IAF aircraft, including the Mikoyan MiG-29K, MiG-29UPG, Mirage-2000, Sukhoi Su-30MKI, among others.

According to a retired IAF official, the aircraft can be the country's eyes in the sky and support the operations of the forces.

"The American aircraft have been specifically customized by the Indian armed forces in order to be adaptable to different surroundings. While their major role lies in the sea, they can work as an additional pair of eyes out in the Ladakh region, and assist in other missions when needed," he said requesting anonymity.

This is not the first time that the P-8I has been deployed for non-maritime operations. In 2017, it used to carry out battlefield surveillance and management roles during the 73-day Doklam standoff between Indian and PLA troops.

Earlier this year, Chief of Defense Staff, General Bipin Rawat, had revealed how he got familiarized with the P-8I aircraft, which were also used in the aftermath of the 2019 Pulwama terror attack in India's Jammu and Kashmir in which 40 security personnel were killed.

"I came to know about the capabilities of the P-8I anti-submarine warfare planes after they were deployed in Doklam for surveillance," said Rawat.

Besides, the aircraft can be used in other critical missions including search-and-rescue and anti-piracy ones.

Just a week ago, the Indian Navy received its ninth P-8I aircraft as part of the $1-billion deal signed with the United States for four additional planes back in 2016.

The country has been negotiating a deal for six more P-8Is with the US through the government-to-government route.

The Indian Navy was the first military wing of any country to get its hands on the American-made aircraft and currently ranks as the largest international customer. The patrol planes recently finished seven years of service with the Indian forces.

According to Managing Director of Boeing Defense India, Surendra Ahuja, "Our focus has been, and will be, on delivering the world's best maritime patrol aircraft to the Indian Navy."

"The P-8I, with its exceptional maritime surveillance and reconnaissance capabilities, versatility, and operational readiness, has proven to be an important asset to the Indian Navy. We remain committed to supporting the modernization and mission readiness of India's defense forces," he said.

The P-8I provides India's maritime forces an edge in the strategically crucial Indian Ocean region, especially at a time when China has bullishly carried out expansionist policy throughout the South China Sea and on one side of India's border.

The aircraft that is armed with torpedoes, Harpoon anti-ship missiles, and other weapons, can play a key role to secure India's future.

https://eurasiantimes.com/what-is-us-most-lethal-submarine-killer-the-p-8-poseidon-doing-on-india-china-border-at-15000-feet/

The EurAsian Times

Sun, 29 Nov 2020

Modified version of BrahMos anti-ship cruise missile successfully tested; hits target with pinpoint accuracy

The Russian Navy has once again test-fired its latest hypersonic anti-ship missile Zircon, also spelled as Tsirkon which is reported to be the advanced version of BrahMos, from the Northern Fleet's Admiral Gorshkov frigate in the White Sea, the Russian defense ministry announced.

The missile traveled about 450 kilometers before successfully hitting its target in the Barents Sea. This was the third test of Zircon in a year. Besides the missile, several other systems were tested, including a new air defense missile system, the defense ministry said on Thursday.

The hypersonic missile achieved a speed of 'over Mach 8', the ministry reported. "According to the recording data, the Tsirkon hypersonic anti-ship missile successfully struck a sea target at a distance of 450 km. In its flight, the missile developed a speed of over Mach 8," it said.

Previously, the Admiral Gorshkov had test-fired the Zircon in early October, marking the 68th Birthday of President Vladimir Putin. Like the latest one, it was fired from the frigate in the White

Sea and successfully struck the target at the Barents Sea, covering a distance of 450 kilometers and reaching an altitude of 28 kilometers. The missile's total flight time was reported to be four and a half minutes.

A Hypersonic Cruise Missile

The Zircon is currently one of the few hypersonic surface-to-surface cruise missiles in production, and the only one to be in the final stages of formal induction. Primarily designed as an anti-ship missile, it can achieve speeds of Mach 8 or 9800 kilometers per hour. The missile carries a 300-400 kg warhead and is powered by a scramjet engine.

Being a hypersonic vehicle, the missile would be virtually immune to any existing air defense system and can be launched from surface-based platforms, mainly ships and submarines. Its land-based variant is stated to be in the development stages.

It was tested for the first time via the same Admiral Gorshkov frigate in January earlier this year from the Barents Sea when it successfully hit a ground target in excess of 500 kilometers in Northern Urals.

According to unconfirmed reports, the Zircon is a modified version of the BrahMos supersonic anti-ship cruise missile – a joint Russian-Indian design based on the P-800 Onyx missile. Therefore, by analogy, the Zircon could have an effective range of about 400 kilometers.

https://eurasiantimes.com/modified-version-of-brahmos-anti-ship-cruise-missile-successfully-tested-hits-target-with-pinpoint-accuracy/

नवभारत टाइम्स

Sun, 29 Nov 2020

चंद्रयान, मंगलयान के बाद अब शुक्रयान के लिए तैयार ISRO, इन देशों संग सबसे गर्म ग्रह पर खोजेगा जीवन के निशान

इसरो ने शुक्र पर जीवन की खोज के लिए Shukrayaan Mission की तैयारी शुरू कर दी है। सोलर सिस्टम के सबसे गर्म ग्रह को स्टडी किया जाएगा।

By Shatakshi Asthana

बेंगलुरु: चंद्रयान और मंगलयान से उत्साहित भारतीय स्पेस रिसर्च ऑर्गनाइजेशन (ISRO) अब शुक्र की ओर अपना मिशन भेजने की तैयारी में है। शुक्रयान-1 के तहत हमारे सोलर सिस्टम के सबसे गर्म ग्रह शुक्र को स्टडी करने के लिए ISRO ने मिशन का प्रस्ताव दिया है। धरती के सबसे करीबी ग्रह शुक्र का वायुमंडल काफी घना है। इसकी सतह पर तापमान 470 डिग्री सेल्सियस तक पहुंच जाता है और यहां दबाव धरती की तुलना में 90 गुना ज्यादा है। इंसान तो दूर, किसी स्पेसक्राफ्ट के ऐसी स्थिति में वहां पहुंचना न के बराबर है। हालांकि, ताजा स्टडीज के आधार पर वहां जीवन की मौजूदगी के संकेत मिले हैं।

शुक्र पर मिशन भेजेगा इसरो

मिशन में क्या होगा शामिल?

दरअसल, शुक्र की सतह के 50 किमी ऊपर धरती जैसा तापमान और दबाव पाया गया है। वैज्ञानिकों को इस क्षेत्र में माइक्रोब्स भी मिले हैं। ISRO ने जिस मिशन का प्रस्ताव दिया है, उसके तहत ग्रह का चक्कर लगाया जाएगा और इसके वायुमंडल की केमिस्ट्री को स्टडी किया जाएगा। सोलर रेडिएशन और सोलर विंड के बीच स्पेसक्राफ्ट को ISRO के सबसे अडवांस्ड GSLV मार्क iii के साथ लॉन्च किया जाएगा। इस पर भारत के 16 और 7 अंतरराष्ट्रीय पेलोड होंगे जो शुक्र का चक्कर काटेंगे और चार साल तक उसे स्टडी करेंगे।

इस साल शुक्र पर अहम खोज

इसी साल सितंबर में इंटरनैशनल ऐस्ट्रोनॉमर्स की एक टीम को शुक्र के वायुमंडल में फॉस्फीन गैस मिली थी। इससे पहले यूरोपियन स्पेस एजेंसी के मिशन वीनस एक्सप्रेस को 2022 में ऊपरी वायुमंडल में ओजोन के निशान मिले थे। इन्हें बायोमार्कर (Biomarker) कहते हैं जो किसी ग्रह पर जीवन के संकेत की संभावना जताते हैं।

रूस, फ्रांस और स्वीडन साथ आए

VIRAL (वीनस इन्फ्रारेड अटमॉस्फीरिक गैसेज लिंकर) इंस्ट्रुमेंट को रूस की फेडरल स्पेस एजेंसी Roscosomos और LATMOS अटमॉस्फीयर्स, फ्रांस के साइंटिफिक रिसर्च सेंटर के साथ मिलकर बनाया जा रहा है। वहीं, स्वीडन ने भी अब इससे जुड़ने का फैसला किया है। वह ग्रह पर खोज करने के लिए एक वैज्ञानिक उपकरण उपलब्ध कराएगा। भारत में स्वीडन के राजदूत, क्लास मोलिन ने कहा कि इसमें स्वीडिश अंतरिक्ष भौतिकी संस्थान (आईआरएफ) भारत का सहयोग करेगा। भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) के साथ आईआरएफ का यह दूसरा सहयोग है।

https://navbharattimes.indiatimes.com/world/science-news/isro-prepares-for-venus-mission-shukrayaan-as-phosphine-discovered-on-the-hottest-planet-in-breakthrough-study/articleshow/79461192.cms

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Sat, 28 Nov 2020

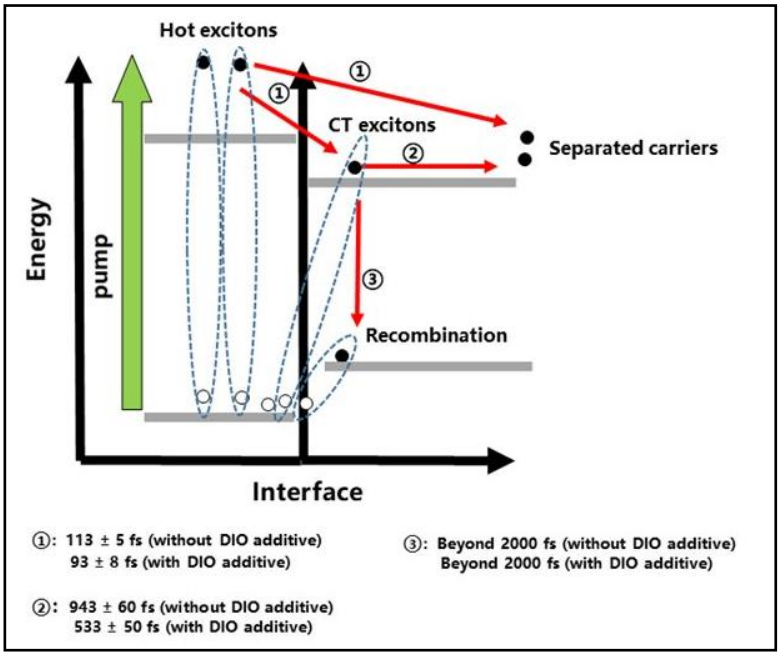
DIO additives contribute to efficiency of polymer solar cells

By Wu Xiufeng

Recently, researchers from the Shanghai Institute of Optics and Fine Mechanics of the Chinese Academy of Sciences (CAS) have made progress in ultrafast dynamics of polymer solar cells (PSCs) with Soochow University.

The research team used femtosecond transient absorption technology to study active layer of organic solar cells, explaining the contribution of 1,8-diiodooctane (DIO) additives to the efficiency enhancement of PSCs. The results have been published in *Nanomaterials*.

As a new type of solar cell device, PSCs have the advantages of light weight, mechanical flexibility and low-cost fabrication. But low efficiency is the main limit of its large-scale application.



A schematic of ultrafast interfacial excitons dynamics in the P51:PC71BM blend after photoexcitation. Credit: SIOM

The research team studied the effect of DIO additives on photocarrier generation in donor materials (P51) and bulk heterojunction films (P51:PC71BM) by pump-probe measurement.

They found that the introduction of DIO additives could improve the lifetime of polaron pairs in P51, which was beneficial to the photocarrier generation. Moreover, in bulk heterojunction films (P51:PC71BM), DIO additives could promote free charge generation as well as charge transfer excitons generation and separation.

From the aspect of ultrafast dynamics, these results reveal the effect of DIO on carrier generation and separation, providing an effective route to improve the efficiency of nanoscale polymer solar cells.

More information: Tongchao Shi et al. Ultrafast Charge Generation Enhancement in Nanoscale Polymer Solar Cells with DIO Additive, *Nanomaterials* (2020). DOI: 10.3390/nano10112174

https://phys.org/news/2020-11-dio-additives-contribute-efficiency-polymer.html

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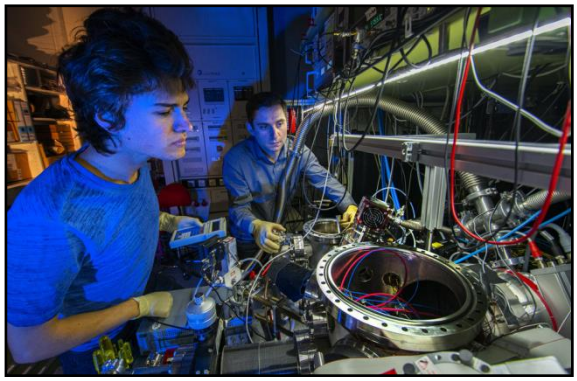
Sat, 28 Nov 2020

Unprecedented accuracy in quantum electrodynamics: Giant leap toward solving proton charge radius puzzle

By Katharina Jarrah

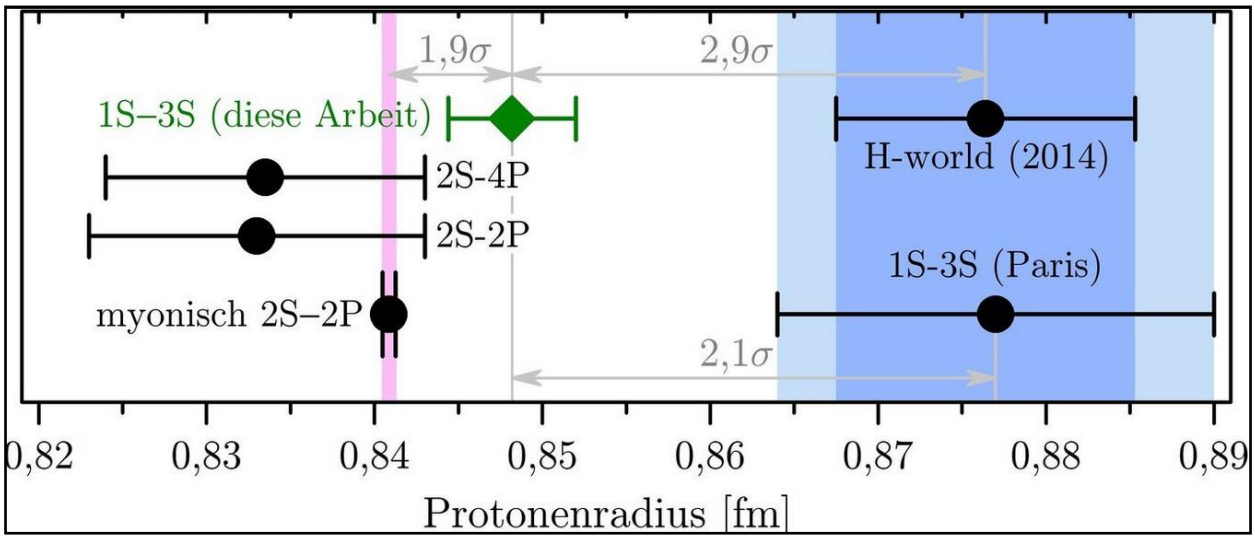
Physicists at the Max Planck Institute of Quantum Optics have tested quantum mechanics to a completely new level of precision using hydrogen spectroscopy, and in doing so they came much closer to solving the well-known proton charge radius puzzle.

Scientists at the Max Planck Institute of Quantum Optics (MPQ) have succeeded in testing quantum electrodynamics with unprecedented accuracy to 13 decimal places. The new measurement is almost twice as accurate as all previous hydrogen measurements combined and moves science one step closer to solving the proton size puzzle. This high accuracy was achieved by the Nobel Prize-winning frequency comb technique, which debuted here for the first time to excite atoms in high-resolution spectroscopy. The results are published today in *Science*.



Alexey Grinin and Dery Taray are working on the vacuum system of the 1S-3S experiment. Credit: Max Planck Society

Physics is said to be an exact science. This means that predictions of physical theories – exact numbers – can be verified or falsified by experiments. The experiment is the highest judge of any theory. Quantum electrodynamics, the relativistic version of quantum mechanics, is without doubt the most successful theory to date. It allows extremely precise calculations to be performed, for example, the description of the spectrum of atomic hydrogen to 12 decimal places. Hydrogen is the most common element in the universe and at the same time the simplest with only one electron. And still, it hosts a mystery yet unknown.



In this figure, different results for the proton radius are compared in femtometer [fm], i.e. m. The new value from the 1S-3S transition in ordinary hydrogen is closer to the value obtained from the 2S-2P transition in muonic hydrogen. Although this exotic atom can only be produced for the short time of two millionths of a second, it is particularly "sensitive" to the proton radius. It therefore bears the smallest measurement errors (horizontal black error bars). Credit: Max Planck Society

The proton size puzzle

The electron in the hydrogen atom "senses" the size of the proton, which is reflected in minimal shifts in energy levels. For many decades, countless measurements on hydrogen have yielded a consistent proton radius. But Spectroscopic investigations of the so-called muonic hydrogen, in which the electron was replaced by its 200 times heavier twin - the muon – revealed a mystery. The measurements were performed in 2010 in collaboration with Randolf Pohl, at that time group leader in the Laser Spectroscopy Department of Prof. Hänsch (MPQ) and now professor at the Johannes Gutenberg University in Mainz. The value for the proton radius that can be derived from these experiments is four percent smaller than that of ordinary hydrogen. If all the experiments are thought to be correct, a contradiction to the theory of quantum electrodynamics arises as all measurements in muonic and ordinary hydrogen must report the same proton radius, when all theoretical terms are correct. In consequence, this "proton radius puzzle" motivated new precision measurements all over the world. However, while new measurements from Garching and Toronto confirmed the smaller proton radius, a measurement from Paris again supported the previous larger value.

Science thrives on independent comparisons. That's why the Garching team led by Alexey Grinin, Arthur Matveev and Thomas Udem from Theodor Hänsch's Laser Spectroscopy Department wanted to measure the same transition as in Paris using a completely different and thus complementary method. Using the so-called Doppler-free two-photon frequency comb spectroscopy, they have now succeeded in improving the accuracy by a factor of four. The result for the proton radius was now twice as accurate as all the previous measurements on hydrogen together. It is the first time that quantum mechanics is checked to the thirteenth decimal place. The value for the proton radius determined this way confirms the smaller proton radius and thus excludes the theory as cause. Because for the same transition, the experimental results must agree, regardless of the theory. The following figure (fig. 1) shows the current situation.

Evaluations on the validity of quantum electrodynamics are possible only with several independent measurements being compared. If the theory and its application holds true, and all experiments are conducted correctly, the values for the proton radius must agree with each other within the bounds of the experimental uncertainty. But this isn't the case, as we can see in the picture. The disclosure of this discrepancy – the proton puzzle – opened up the possibility that quantum electrodynamics, the most precise physical theory, may be carrying a fundamental flaw. The new result however suggests that the problem is of experimental rather than fundamental nature. And quantum electrodynamics would have succeeded once again.

New milestone in frequency comb spectroscopy

Blue laser light (410nm) is generated as the second harmonic of a pulsed Titanium:Sapphire laser utitlizing a nonlinear crystal.

The success of the frequency comb spectroscopy performed in this project also means an important milestone in science for another reason. Precision spectroscopy on hydrogen and other atoms and molecules has so far been performed almost exclusively with continuous wave lasers. In contrast, the frequency comb is generated by a pulsed laser. With such lasers it is possible to penetrate to much shorter wavelengths up to the extreme ultraviolet range. With continuous wave lasers, this seems to be a hopeless endeavor. Highly interesting ions, such as the hydrogen-like helium ion, have their transitions in this spectral range, but even more than 100 years after the development of the first quantum theory, they cannot be studied precisely, which means with laser light. The experiment now presented is an essential step to change this unsatisfactory situation. In addition, it is hoped that these ultraviolet frequency combs will allow biologically and chemically important elements such as hydrogen and carbon to be cooled directly by laser, enabling science to study them with even higher precision.

More information: Alexey Grinin et al. Two-photon frequency comb spectroscopy of atomic hydrogen, *Science* (2020). DOI: 10.1126/science.abc7776

Journal information: *Science*

https://phys.org/news/2020-11-unprecedented-accuracy-quantum-electrodynamics-giant.html

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Sat, 28 Nov 2020

Lanthanide nanocrystals brighten molecular triplet excitons

By Liu Xiaogang

NUS scientists have developed an approach to improve the generation and luminescent harvesting of molecular triplets by coupling them with lanthanide-doped nanoparticles. This innovation provides new insights on lanthanide nanocrystal-molecule interaction in the optoelectronic field.

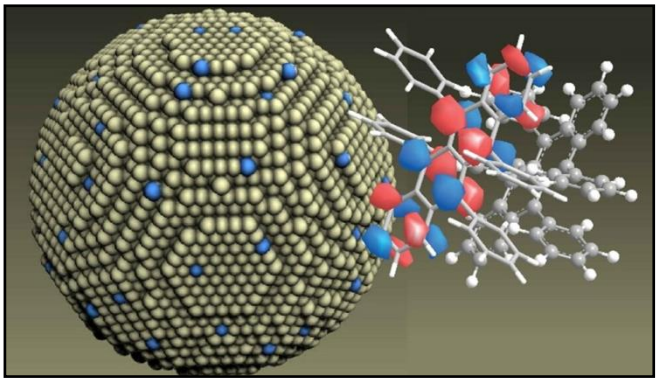

Figure shows a schematic illustration of a lanthanide-doped nanoparticle couped with an organic semiconductor. The research findings by the team provide a new way to control triplet excitons, which is important for optoelectronic research. Credit: HAN Sanyang

The generation, control and transfer of triplet excitons (bound electron-hole pairs) in molecular and hybrid systems is a topic of great interest across various disciplines, from physics and chemistry to materials science and biology. This interest is driven by a range of potential applications, such as light emission from molecules, photon frequency conversion, photocatalysis, sensing, and photodynamic therapy. However, molecular triplets are poor light emitters so special techniques are used to circumvent this limitation. The techniques include heavy metal-based spin-orbit coupling and tuning of the singlet-triplet energy splitting. However, both these approaches are not suitable as they focus mainly on the harvesting of the light emissions from the triplets and this places strict constraints on the molecular design.

A research team led by Prof Xiaogang Liu from the Department of Chemistry, NUS has developed a new approach to control the light emission properties of these molecular triplets by coupling organic molecules to lanthanide-doped nanoparticles (see Figure). This research is in collaboration with Prof Renren Deng from Zhejiang University, China and Prof Akshay Rao from Cambridge University, United Kingdom. Using their method, molecular triplets can be directly generated on the organic molecules by photon absorption. This means that the molecules can gain energy and transit directly from the ground-state singlet to become excited-state triplets. This direct optical transition was not possible previously. The researchers found that the transition can happen on timescales below 10 picoseconds with unity efficiency. As they are coupled to the lanthanide-doped nanoparticles, these triplet exciton states of the molecules can then undergo energy transfer to the lanthanide ions with unity efficiency, allowing for light emission.

Prof Liu said, "We have addressed a long-standing experimental challenge faced by scientists working in the optoelectronic field, and it has been shown to be an effective strategy for luminescent harvesting of molecular triplets. These results also establish a new method to manipulate molecular triplet excitons and are expected to open up new avenues for a broad range of disciplines, including triplet sensitisation, photocatalysis, optoelectronics, biomedicine therapeutics, sensing, and photon frequency conversion."

More information: Sanyang Han et al. Lanthanide-doped inorganic nanoparticles turn molecular triplet excitons bright, *Nature* (2020). DOI: 10.1038/s41586-020-2932-2

Journal information: *Nature*

https://phys.org/news/2020-11-lanthanide-nanocrystals-brighten-molecular-triplet.html

PHYS.ORG

Sat, 28 Nov 2020

Creating energy and valuable products from fruit waste

Waste from the citrus industry can provide biogas and valuable products for a range of industries. This has been shown by Lukitawesa, who recently defended his doctoral thesis at the Department of Resource Recovery and Building Technology at the University of Borås.

Climate change has increased the need for resource recycling and a circular economy. What to do with waste is one such challenge; more environmentally friendly alternatives are needed when it comes to recycling and producing materials and energy from things humans discard. This is the starting point of Lukitawesa's doctoral thesisMethane and Volatile Fatty Acid Production from Toxic Substrates,which focuses on waste from citrus fruits.

"In my home town of Yogyakarta in Indonesia alone, the amount of waste in the Gemah Ripah Fruits and Vegetables Wholesale Market is between one and two tons—every day. From a single market. So you can imagine how much there is globally," says Lukitawesa, who has the aim of contributing to improvements.

Credit: Pixabay/CC0 Public Domain

He points out that the entire industry is a significant environmental problem.

"The citrus industry creates so much waste that it corresponds to between 40 and 60 percent of the total citrus mass. Imagine how much waste there is when the world's total citrus production is 132 million tons of fruit per year. Therefore, it is extremely important to recycle what is thrown away."

Anaerobic digestion and valuable fatty acids

Lukitawesa's research aims to develop methods for how citrus waste can be made into methane/biogas and building block chemical for biocomposite of plastic. This is a major challenge, as the waste contains toxic citrus peel oil and thus becomes difficult to use in anaerobic (non-oxygen demanding) digestion. However, the study shows that it is, in fact, possible.

Toxic organic waste such as fruit waste has traditionally been disposed of in landfills. But anaerobic digestion can be used to produce biogas or fatty acids—all for the sake of the environment and the climate. The solution that Lukitawesa highlights is anaerobic digestion in two steps, using a membrane.

In the first part of the doctoral thesis, biogas production from citrus waste was studied. This is something that can reduce environmental destruction and increase the production of renewable energy.

"Afterwards, we realized that even the direct product of the first stage of digestion, fatty acids, is valuable," says Lukitawesa.

The second half of his doctoral thesis deals with how bioreactors can produce volatile fatty acids when loaded with a large amount of citrus waste. Previous research in the field has focused primarily on loading a smaller amount of citrus waste.

Volatile fatty acids today have a wide range of uses within industry and are included in a wide variety of products: from medicines and food to paints and plastics. But the volatile fatty acids that are normally used industrially are fossil-based; here, we have a climate-friendly alternative.

Important to take care of the planet—for the future

Lukitawesa says he wants to do more research on how citrus waste can produce volatile fatty acids. The doctoral thesis has raised new questions and has laid the foundation for new important studies.

"Ideas and thoughts about how the process can be improved still pop up in my head. I also believe that my research may be useful within the livestock industry in order to reduce livestock production of methane, a greenhouse gas that contributes to global warming," he says, continuing: "Livestock convert the food they eat into fatty acids in their stomachs and microorganisms then convert some of these fatty acids into methane. Citrus waste could be given as a dietary supplement to animals in order to inhibit these microorganisms."

More studies are needed to develop more effective methods in the field; Lukitawesa is driven by his significant engagement with the subject.

"As researchers, we can, through new findings, contribute to solving the problem of climate change. The main purpose of the research is to create better living conditions for humanity. We have to take care of our planet. Otherwise, we have no future," he says.

More information: Thesis: Methane and Volatile Fatty Acids Production from Toxic Substrate: hb.diva-portal.org/smash/record.jsf?pid=diva2%3A1415139&dswid=-6007

https://phys.org/news/2020-11-energy-valuable-products-fruit.html

COVID-19 Research News

THE HINDU

Sun, 29 Nov 2020

Coronavirus | PM takes stock of COVID-19 vaccine development by three firms

Narendra Modi visits biotechnology companies Zydus Cadila, Bharat Biotech and Serum Institute of India in Ahmedabad, Hyderabad and Pune

New Delhi: Prime Minister Narendra Modi on Saturday visited the facilities of three biotechnology companies that are testing different COVID-19 vaccine candidates. The companies, two of which have begun Phase 3 trials in thousands of volunteers, are expected to manufacture millions of doses in the first half of 2021 if the candidates pass regulatory muster.

Mr. Modi began his tour by visiting Zydus Cadila's manufacturing facility near Ahmedabad, Gujarat. Wearing a PPE kit, he reviewed the vaccine development process at the company's research centre.

The company had commenced the Phase 2 clinical trials of its vaccine candidate, ZyCoV-D, in August.

Zydus Cadila chairman Pankaj Patel recently said the company was aiming to complete the trial by March 2021, and could produce up to 100 million doses a year.

"Visited the Zydus Biotech Park in Ahmedabad to know more about the indigenous DNA-based vaccine being developed by Zydus Cadila. I compliment the team behind this effort for their work. Government of India is actively working with them to support them in this journey," Mr. Modi tweeted.

The Prime Minister next visited Bharat Biotech's manufacturing facility in Genome Valley, Hyderabad, which is now testing 'Covaxin', a candidate developed based on an inactivated strain sourced from the Indian Council of Medical Research, which is being tested in 26,000 volunteers.

The company in a statement said the Prime Minister's visit "serves as a great inspiration to our team, and further reinforces our commitment towards scientific discovery, solving public health issues and the fight against COVID-19".

In the final leg of his tour, Mr. Modi visited the facilities of the Serum Institute of India (SII) in Pune.

SII, which has partnered with pharma major AstraZeneca and Oxford University, will be applying in the next two weeks for an emergency licence to permit the use of the 'Covishield' vaccine, CEO Adar Poonawalla said.

"SII's first priority for distributing 'Covishield' would be India and the COVAX countries (which includes several in Africa)," Mr. Poonawalla said at an online press briefing. "We are in the process of applying for emergency use licence in the next two weeks. While as of now, we don't have anything in writing with the Centre on how many doses they plan to purchase, the Health Ministry's indication is that they are looking at 300-400 million doses by July 2021."

Prime Minister Narendra Modi being briefed during a visit to the Bharat Biotech facility to review the development of indigenous COVID-19 vaccine candidate Covaxin, on the outskirts of Hyderabad, Saturday, Nov. 28, 2020. | Photo Credit: PTI

Remarking on the efficacy of 'Covishield' trials globally, Mr. Poonawalla said that "zero hospitalisation" had been reported during the process.

"The trials have established Covishield's efficacy as it has shown to reduce the virus in a person's system by 60%. Furthermore, zero hospitalisations were reported during the trials. What we found in these trials globally is that even if a person does get infected, it will not be a severe attack as the sterilising immunity was 60%," he said.

https://www.thehindu.com/news/national/pm-modi-reviews-vaccine-work-in-ahmedabad-hyderabad-and-pune/article33200873.ece