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Health ministry puts Central Hall option back on table to hold monsoon session

By Nidhi Sharma

Synopsis

According to sources, health ministry officials briefed Lok Sabha secretary-general Snehlata Shrivastava on the need for maintaining social distancing norm of 6 feet and wearing a face mask even during the sittings.

New Delhi: The ministry of health and family welfare has recommended holding the monsoon session of Parliament in Lok Sabha chambers and the Central Hall with strict sanitisation protocols, seating members in the visitors' gallery and disallowing visitors and MPs' staff during the sittings.

Lok Sabha secretary-general Snehlata Shrivastava held discussions with ministries of health and family welfare and defence last week to understand the requirements of holding the monsoon session.

According to sources, health ministry officials briefed Shrivastava on the need for maintaining social distancing norm of 6 feet and wearing a face mask even during the sittings.

The ministry said that the number of active cases in Delhi is an important factor in holding the monsoon session. As per ministry estimates presented to Lok Sabha secretariat, the number of cases are plateauing and would be down to levels in April by end of July.

"There are indications that the government would like to hold the session as soon as possible," a senior official, who did not wish to be identified, told ET. "Due to heightened security ahead of August 15 and the Covid-19 numbers, the session should be held in August end. This is the sense we have got from meetings with ministries."

Lok Sabha and Rajya Sabha secretariats are once again considering holding the sittings in the Central Hall and Lok Sabha chambers. "The ministry has suggested that no visitors and staff of MPs be allowed to reduce the numbers inside the Parliament complex," the official said.

The visitors galleries will also be used to seat members. One of the biggest challenges before the government is sanitising the Parliament House complex, especially the chambers where the sitting would take place.

The government is seriously considering a proposal of Defence Research and Development Organisation (DRDO) of using various technological innovations developed to not only sanitise Parliament corridors and chambers but also disinfect bags and briefcases being carried inside by MPs. "The defence secretary has briefed secretariat officials on the innovations and these would be used to ensure complete sanitisation in the quickest possible time," the official said.

The DRDO proposal being discussed includes deploying UV blaster disinfection system, which uses ultraviolet rays to completely disinfect corridors and office spaces. This is remotely operated through a laptop or a mobile phone and can disinfect a 12 feet by 12 feet room within 10 minutes.



Another ultraviolet-based automated luggage disinfection system would also be installed at the entrances to Parliament House complex. “These are indigenous technologies and all the proposals would now be put before the presiding officers— Lok Sabha speaker and Rajya Sabha chairman,” said the official.

<https://economictimes.indiatimes.com/news/politics-and-nation/health-ministry-puts-central-hall-option-back-on-table-to-hold-monsoon-session/articleshow/77058266.cms>

Defence News

Defence Strategic: National/International

Business Today

Tue, 21 July 2020

'Make in India' push to defence sector! Draft policy offers financial incentives, reforms stability

Department for Promotion of Industry and Internal Trade (DPIIT) has suggested a series of measures that can boost defence manufacturing in India

By Nirbhay Kumar

KEY HIGHLIGHTS

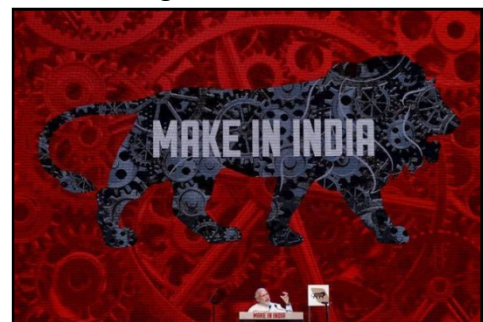
- *DPIIT proposes to freeze changes to Defence Procurement Policy for 4-5 years to provide confidence to industry for making long-term investment decisions*
- *Comprehensive package of financial and non-financial incentives to boost the domestic industry and make it more attractive to foreign investors*
- *Increasing period of performance for offsets to 10-12 years to allow enough time for building necessary capabilities and ensuring effective technology transfer is also on the table*
- *Defence industry accounts for about 12% of government expenditure. In 2018-19, spending on India's defence sector was nearly \$63 billion of which capital expenditure accounted for about 34%*

In a major push to local defence industry, the government plans to offer a host of incentives to the sector including capex and R&D subsidy, tax exemptions, cheaper finance and one-stop shop for clearances. The steps are also aimed at making defence manufacturing in India more attractive to foreign investors.

The proposals are part of the draft industrial policy, promising to give much-needed shot in the arm to the manufacturing sector.

With the need for strengthening the defence sector amplified in the wake of border tensions with China, Department for Promotion of Industry and Internal Trade (DPIIT) has suggested a freeze in changes to the Defence Procurement Policy for 4-5 years to provide confidence to the industry for making long-term investment decisions.

DPIIT has observed that Defence Procurement Policy went through 6 revisions between 2005 and 2017 - underlining lack of long-term stability in regulations.



The government recently increased foreign direct investment (FDI) limit from 49% to 74% through automatic route to push 'Make-in-India' in defence sector

The country's defence industry accounts for about 12% of government expenditure. In 2018-19, spending on India's defence sector was nearly \$63 billion, of which capital expenditure accounted for about 34%. During this period, total production by defence public sector undertakings (DPSUs) and the Ordnance Factory Board (OFB) amounted to about \$ 8 billion, and India accounted for 15% of global arms imports.

The government recently increased foreign direct investment (FDI) limit from 49% to 74% through automatic route to push 'Make-in-India' in defence sector. The new industrial policy stresses on development of large platforms and complex systems which are currently imported, apart from focussing on futuristic technology.

It calls for inducting indigenous systems and limiting dependence on foreign sources to components and systems where no indigenous options are available.

"The Ministry of Defence can increase the share of spending on Defence R&D and involve the private sector in related efforts. This could be done through open competitive bidding and involving the industry and academia as partners to DRDO (Defence Research and Development Organisation)," the draft policy says.

BusinessToday.In has seen DPIIT's strategy paper on reforming industrial growth in India. The department has sought comments from industry stakeholders on the policy and held a meeting last Friday to consult various representatives.

<https://www.businesstoday.in/current/economy-politics/make-in-india-push-to-defence-sector-draft-policy-offers-financial-incentives-reforms-stability/story/410419.html>

hindustantimes

Tue, 21 July 2020

MoD signs contract with BEML for 1,512 mine plough for T-90 tanks

The army's combat capability will be further enhanced once the exercise to make and fit the 1,512 mine ploughs is completed by 2027

Edited By Sabir Hussain

New Delhi: The Ministry of Defence (MoD) signed a Rs 557-crore contract with Bharat Earth Movers Limited (BEML) on Monday for procurement of 1,512 mine plough (MP) for the Indian army's main battle tank T-90, according to an official statement.

The decision is expected to boost the government's 'Make in India' initiative.

"Acquisition Wing of Ministry of Defence (MoD), has today signed a Contract with Bharat Earth Movers Limited (BEML) for procurement of 1,512 Mine Plough (MP) for Tank T-90 S/SK at an approximate cost of Rs 557 crore. The contract has Buy and Make (Indian) categorisation with a minimum of 50 per cent indigenous content in make portion of the contract," the statement said.



The T-90 is the Indian Army's main battle tank. (HT FILE PHOTO)

Mine ploughs help tanks to clear minefields and minimize risks to men and machines.

"These mine ploughs will be fitted on T-90 tanks of Indian Armoured Corps which will facilitate individual mobility to tanks while negotiating mine fields. Mobility of Tank Fleet will enhance manifold, which in turn would extend the reach of Armoured Formation deep into enemy territory without becoming mine causality," it said.

It also said the army's combat capability will be further enhanced once the exercise to make and fit the 1,512 mine ploughs is completed by 2027.

The army recently deployed the Russian-origin T-90 main battle tanks in the Galwan Valley sector of Ladakh amid the face-off with Chinese troops.

<https://www.hindustantimes.com/india-news/mod-signs-contract-with-beml-for-1-512-mine-plough-for-t-90-tanks/story-UJ90v274Vtkv6unpLpZ8ZI.html>



Tue, 21 July 2020

Air defence system under review amidst India-China tensions

By Vikash Aiyappa

New Delhi: Top commanders of the Indian Air Force will carry out an in-depth review of the country's air defence system at a three-day conference beginning Wednesday in view of the bitter border row with China in eastern Ladakh as well as evolving regional security scenario, military sources said.

The commanders are also expected to specifically deliberate on the deployment of the first batch of around six Rafale fighter jets which are expected to join the IAF's fighter fleet later this month, they said.

The main focus of the commanders' conference will be to deliberate on the overall situation in eastern Ladakh and on ways to enhance the IAF's combat prowess and surveillance over the country's air space in all sensitive sectors including in Arunachal Pradesh, Sikkim and Uttarakhand, the sources said.

"The commanders will also review the evolving security architecture in the region and ways to boost IAF's combat capability," said a source.

The conference will be chaired by Chief of Air Staff Air Chief Marshal RKS Bhadauria. Defence Minister Rajnath Singh is also expected to address the IAF commanders.

The IAF has been carrying out night time combat air patrols over the eastern Ladakh region in the last few weeks, in an apparent message to China that it was ready to deal with any eventualities in the mountainous region.

A number of IAF platforms participated in a military drill in Stakna in eastern Ladakh on Friday during the defence minister's visit to the region. The exercise showcased integrated combat prowess of the Army and the Indian Air Force in dealing with complex security scenarios in the high altitude terrain.

The IAF has deployed almost all its frontline fighter jets like Sukhoi 30 MKI, Jaguar and Mirage 2000 aircraft in key frontier air bases in eastern Ladakh and elsewhere along the Line of Actual Control (LAC) with China notwithstanding disengagement of troops by Chinese military from a number of friction points.

The IAF has also deployed Apache attack choppers as well as Chinook heavy-lift helicopters to transport troops to various forward locations.

The IAF has pressed into service a fleet of C-17 Globemaster III transport aircraft as well as C-130J Super Hercules in transporting heavy military equipment and weaponry to several forward bases in the region.

The sources said the commanders will also deliberate on preparations to received the first batch of the Rafale jets from France. The jets are expected to reach India by end of this month.

The aircraft is capable of carrying a range of potent weapons. European missile maker MBDA's Meteor beyond visual range air-to-air missile and Scalp cruise missile will be the mainstay of the weapons package of the Rafale jets.

The disengagement process between Indian and Chinese militaries began on July 6 after a telephonic conversation between National Security Advisor Ajit Doval and Chinese Foreign Minister Wang Yi the previous day. Doval and Wang are Special Representatives for the boundary talks.

<https://www.oneindia.com/india/air-defence-system-under-review-amidst-india-china-tensions-3122200.html>

hindustantimes

Tue, 21 July 2020

IAF to induct 5 Rafale jets at Ambala air base on July 29

The air force is inducting the fighters at a time of heightened military tensions with China

By Rahul Singh

The Indian Air Force will induct its first batch of five Rafale fighter jets imported from France at the Ambala air base on July 29 if weather permits, an IAF spokesperson said on Monday.

“The IAF’s air and ground crews have undergone comprehensive training on the aircraft, including its highly-advanced weapons systems and are fully operational now. Efforts will focus on operationalisation of the aircraft at the earliest,” said Wing Commander Indranil Nandi. A formal induction ceremony will take place next month, he said.



A view of Rafale Jet at its Dassault Aviation assembly line, in Bordeaux, France. (PTI File Photo)

The air force is inducting the fighters at a time of heightened military tensions with China. Hindustan Times on Sunday reported that the IAF could deploy its new Rafale fighters in the Ladakh sector as part of India’s overarching plan to strengthen its military posture in the region, where Indian and Chinese forces are locked in a tense border confrontation and disengagement has turned out to be a challenging process.

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

Acting on a special request by the IAF, France has accelerated the deliveries of Rafale fighters to India --- five jets are coming instead of four that were originally planned to be delivered in the first batch.

Preparations are currently on to fly the jets to India with a stopover at Al Dhafra air base near Abu Dhabi in the United Arab Emirates

The French air force will refuel the Indian fighters using its Airbus A330 multi-role tanker transport (MRTT) aircraft on their way to Al Dhafra from where aerial refueling support is expected to be provided by the IAF’s Russian Ilyushin-78 refuellers.

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

The possible deployment of Rafale fighters in Ladakh could be discussed at the IAF commanders’ conference in New Delhi from July 22 to 24 where the air force brass is expected to

focus on the ongoing border row with China, the IAF's preparedness and new purchases that have to be made fast.

"During the three-day conference, the discussions would take stock of the current operational scenario and deployments. The plan of action for operational capability enhancement of the IAF in the next decade will also be discussed," Nandi said. IAF chief Air Chief Marshal RKS Bhaduria will chair the conference. IAF in the Next Decade is the theme of the conference.

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

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

<https://www.hindustantimes.com/india-news/iaf-to-induct-5-rafale-jets-at-ambala-air-base-on-july-29/story-ioxKxAkNLJeO5ucLE4xiaK.html>



Tue, 21 July 2020

'Resurrected' Golden Arrows to fly Rafale

The 'Golden Arrows' 17 Squadron was commanded by then Air Chief BS Dhanoa during the Kargil war in 1999

Chandigarh: It was last year in September that Indian Air Force resurrected its No. 17 Squadron, also known as Golden Arrows, which had been 'number plated' since 2016.

In the aviation parlance of the IAF, the term 'number plated' means that the squadron had been retired from service. In case of Golden Arrows, the squadron was number plated after the MiG-21 aircraft that were part of its inventory were phased out.

The 'Golden Arrows' 17 Squadron was commanded by then Air Chief BS Dhanoa during the [Kargil war](#) in 1999.

The squadron was disbanded after the IAF started gradual phasing out of Russian-origin MiG-21 jets.

The 17 Squadron was formed on October 1, 1951, under the command of Flight Lieutenant D L Springett and was then equipped with Harvard-II B aircraft. By November 1955, the squadron converted fully to De Havilland Vampire and by 1957, Hawker Hunter aircraft were flown by the 'Golden Arrows'. The squadron converted to the MiG-21 M in 1975.

The squadron actively participated in Goa Liberation Campaign in December 1961 and in 1965 operations as a reserve force. Under the command of Wing Commander N Chatrath, 17 Squadron took part in the Indo-Pak war of 1971 and flew close air support, counter air and fighter reconnaissance missions, getting numerous gallantry awards.

On November 1988, the Squadron was presented 'Colours' by the then President R Venkataraman. Under the command of the then Wing Commander B S Dhanoa, Golden Arrows participated actively in Operation 'Safed Sagar' in Kargil conflict in 1999.

Squadron leader Ajay Ahuja, who was killed in the Kargil conflict and was posthumously awarded Vir Chakra, was also part of the Flying Arrows. The officer's aircraft was hit by enemy's



Then Chief of Air Staff, Air Chief Marshal B S Dhanoa, had presided over the ceremony to resurrect the 'number plated' No. 17 Squadron.

shoulder-fired Surface-to-Air Missile (SAM) while he was trying to locate a downed pilot. Though Ahuja ejected safely, he was killed by the enemy in captivity.

<https://indianexpress.com/article/india/resurrected-golden-arrows-to-fly-rafale-6514573/>



Tue, 21 July 2020

लद्दाख में दिखेगा रफाल का दम, अंडमान में भारत-अमेरिकी नौसेना का अभ्यास

अंडमान में आज भारत और अमेरिका की नौसेना ने युद्धाभ्यास किया। इसके साथ ही अमेरिका का सबसे बड़ा विमानवाहक युद्धपोत निमित्ज अंडमान-निकोबार पहुंच गया है।

नई दिल्ली: भारत-चीन सीमा (India-China Border) पर मौजूदा विवाद के बाद भारतीय सेना अब और ज्यादा मुस्तैद होने जा रही है। लद्दाख में जल्द ही रफाल का दम दिखाई देने वाला है। सूत्रों के मुताबिक लद्दाख में रफाल को तैनात किया जा सकता है। इसको लेकर पूरी तैयारी की जा रही है। वहीं दूसरी ओर अंडमान में भारत और अमेरिकी नौसेना का आज युद्धाभ्यास है। यानी की चीन भारत और अमेरिकी का शक्ति का प्रदर्शन देखेगा।

अंडमान में आज भारत और अमेरिका की नौसेना ने युद्धाभ्यास किया। इसके साथ ही अमेरिका का सबसे बड़ा विमानवाहक युद्धपोत निमित्ज अंडमान-निकोबार पहुंच गया है। विमानवाहक युद्धपोत निमित्ज 90 फाइटर जेट के साथ अंडमान पहुंचा है।



गौरतलब है कि आए दिन चीन की तरफ से सीमा पर घुसपैठ को रोकने के लिए सेना कड़े कदम उठाने पर विचार कर रही है। भारतीय

वायुसेना (Indian Air Force) के शीर्ष कमांडर बुधवार से शुरू हो रहे तीन दिवसीय सम्मेलन में देश की वायु रक्षा प्रणाली की व्यापक समीक्षा करेंगे। इसमें चीन के साथ सीमा विवाद के मद्देनजर लद्दाख क्षेत्र में रफाल (Rafael) लड़ाकू विमानों के पहले बेड़े की संभावित तैनाती पर भी चर्चा की जाएगी। सैन्य सूत्रों ने यह जानकारी दी।

सूत्रों ने बताया कि कमांडरों के लद्दाख सेक्टर में अगले महीने की शुरुआत तक करीब छह रफाल विमानों के प्रथम बेड़े को तैनात करने पर विशेष रूप से चर्चा करने की भी उम्मीद है। ये विमान भारतीय वायुसेना के लड़ाकू बेड़े में जुलाई के अंत तक शामिल किए जाने वाले हैं। एक सूत्र ने कहा, ‘कमांडर क्षेत्र में उभरते सुरक्षा हालात की समीक्षा करेंगे और वायुसेना की लड़ाकू क्षमता बढ़ाने के तरीकों पर चर्चा करेंगे।’ सम्मेलन की अध्यक्षता वायुसेना प्रमुख एयर चीफ मार्शल आर के एस भदौरिया करेंगे। रक्षा मंत्री राजनाथ सिंह (Rajnath Singh) के भी वायुसेना कमांडरों को संबोधित करने की उम्मीद है।

वायुसेना पूर्वी लद्दाख क्षेत्र में पिछले कुछ हफ्तों से रात के समय में लड़ाकू हवाई गश्त कर रही है। इसका उद्देश्य संभवतः चीन को यह संदेश देना है कि वह इस पर्वतीय क्षेत्र में किसी भी अकस्मात स्थिति से निपटने के लिये बखूबी तैयार है। रक्षा मंत्री के क्षेत्र के दौर के दौरान शुक्रवार को पूर्वी लद्दाख के स्ताकना में एक सैन्य अभ्यास में वायुसेना की कई हथियार प्रणालियों ने भागीदारी की। इस अभ्यास में काफी ऊंचाई वाले क्षेत्र में जटिल सुरक्षा परिदृश्य से निपटने में थल सेना (Army) और वायुसेना की समन्वित लड़ाकू क्षमता का प्रदर्शन किया गया है।

<https://zeenews.india.com/hindi/india/zeenewsworldexclusive-indian-air-force-may-assign-rafael-in-ladakh-into-us-navy-exercises-in-andaman/714653>

A logistical battle awaits the Indian Army's troops in Ladakh

A Herculean task of storing supplies to feed, clothe, equip and arm the existing and additional troops in Ladakh for the summer and winter awaits the Indian army

By Amrit Pal Singh

Following the prime minister and defence minister's visits to Ladakh, and amidst announcements of a calibrated pullback of troops from the present flashpoints on the LAC, all indications point to the fact that the three Indian divisions that have moved into the area are likely to be there for a considerable period of time, if not permanently.

The very decision to hold the icy desert brings to mind Napoleon's quote: 'Amateurs discuss tactics: professionals discuss logistics'.

To an average citizen, the very consequences of the concept of maintaining an army at Ladakh are incomprehensible. The logistics comprise of building a habitat for troops, the storage of ammunition and warlike stores; bringing in food and supplies; ferrying and storing fuel for vehicles, generators and also for heating the habitat to a temperature suitable for troops; storage of special munitions like missiles and rockets.



Indian army soldiers walk past their parked trucks at a makeshift transit camp before heading to Ladakh, near Baltal, southeast of Srinagar, June 16, 2020. Photo: Reuters/Stringer

The largest winter stocking exercise in the world conducted by the Army, the Air force and a host of agencies unfolds every year from April to November to complete this task. Usually, approximately two lakh tonnes of stocks are transported and stored before the winter sets in, cutting off the region from the rest of the world. This year the logistical loads will increase at least two-fold, and yet, the time to accomplish the same remains the same.

The logistical load to be carried daily to feed, clothe, equip and arm the existing troops at Ladakh (approximately one lakh) has to cater for two days' sustenance each day – one for a summer day and one for a winter day – as there can be no movement of convoys in the winter (November to March) when heavy snowfall precludes the use of the Zojila and Rohtang axes and most of the roads are impassable and closed. This period is termed as the 'Road Closed' period.

Almost everything for the sustenance of troops, and the animals that support them, has to be brought into Ladakh from the outside. A cursory glance at the supply chain is in itself staggering. It starts from the source of the produce or equipment which is carried either by freight trains or roads and is collected at bulk storage or rail-road transfer areas where the freight trains are unloaded and items are loaded category wise into the Army's frontline transport vehicles or private hired trucks.

These vehicles and petroleum bowsers then start the arduous journey of hauling the loads from these locations through the two existing axes to get into the Ladakh-Zojila (Zulu) axis that traverses Srinagar onto the Zojila pass (11575 feet) and then to Kargil-Leh and the Rohtang (Romeo) axis that winds its way from Manali to Rohtang pass (13058 feet) and on to even more formidable passes such as Bara Lachla (16043 feet) and Taglangla (17480 feet) and Leh. The convoys carrying stores and supplies ply daily and move to and fro in a very meticulously planned and monitored manner carrying an approximate 300 tons a day.

Yet the journey of the stores and supplies doesn't end at the depots in the forward areas. The supplies have to be delivered to the troops at the forward posts in locations that are sometimes just perched on a razor's edge on a mountain range which can be reached only by a jeep track hewn

into the hillsides or a mule track just wide enough to allow one man or animal pass through. The skill and dedication of the drivers of vehicles and the animal handlers with their mules is a humbling lesson and an inspiration.

The construction of habitat in this area is another unique aspect of this icy desert. Anything that has to be constructed must be planned over two to three construction seasons. A season being the five or six summer months of a year which is the only time when brick and mortar work can progress. Once temperatures drop starting from September, the water freezes and crystallises into ice and a simple requirement like mixing cement and sand for construction is rendered impossible.

A miscalculation of building materials and accessories can lead to a delay of a year with attendant adverse consequences. There is no source of electricity and all lighting and heating requirements are met by the use of generators. Fuel for warming and lighting brings with it a staggering supply of fuel and lubricants that is to be brought in and stored. The herculean task which is executed by the engineers' regiments and the local labourers who build and replace bridges over rivulets with precision and construct a habitat for troops in harsh conditions at great risk is commendable.

During the road closed period, Ladakh is connected only by an air bridge operated by the Indian Air Force from its bases in the plains. Heavy and medium-lift aircraft fly loaded with immediate requirements, medical casualties and personnel in a phenomenal yearly exercise only paralleled by the Berlin Airlift – only this airlift flies over terrain averaging 20,000 feet in height and imposes all up weight restrictions on aircraft taking off from Leh or Thoise (in Nubra valley) due to the rarefied atmosphere and resultant lack of aerodynamic lift to the aircraft. Flight operations and ground load management is a fine balance between weather for the air force and priority of requirements for the ground forces.

The induction of additional troops has imposed a requirement for additional supplies to be stored and ferried, leading to an increased movement of road convoys. This year, given the absence of tourism traffic, some of the road space has been freed up for the movement of convoys. Critical to the stocking exercise is increased storage facilities including the underground storage of fuel at logistic nodes in Ladakh and making available adequate private trucks. The air bridge has to be kept open solely for the movement of troops and fresh supplies. Supplies to this place too will increase exponentially, especially in the winter.

The slump in the regular trade-based movement of transport will free up a readily available fleet for hiring by the defence forces. The commissioning of the Rohtang tunnel as a means of keeping the intervening passes on the Romeo axis needs to be expedited. This can ease the strain on stocking up supplies and will also allow for prioritisation of what moves in the first phase till the roads are closed and what can keep moving along Romeo axis in the winters too. A humungous logistical challenge is before the planners in Ladakh and smart logic bolstered by pragmatic solution finding will yield successful results.

(Major General Amrit Pal Singh (Retd) is the former divisional commander of an Army division in Northern command and was the chief of operational logistics in Ladakh between 2011 and 2013. He is the co-author of the book Maoist Insurgency and India's Internal Security Architecture.)

<https://thewire.in/security-security/ladakh-army-logistics>

Here's how Army is getting 30,000 additional troops winter-ready in Ladakh

With thousands of tonnes of rations & special winter clothing, Army is busy making preparations for the additional soldiers moved to the LAC amid tensions with China

By Amrita Nayak Dutta

New Delhi: The India-China disengagement along the Line of Actual Control (LAC) in Ladakh is proceeding at a slow pace and the Army is eyeing a long haul through the region's bitter icy winter for the 30,000 additional troops moved there amid recent border tensions.

With the onset of winter in Ladakh just months away (October), the Army is busy making preparations to equip the additional soldiers with the right gear and adequate rations to deal with the tough conditions ushered in by the six-month cold season.

As many as 6,000 ALS trucks — the olive green vehicles that serve as one of the Army's mainstays for transporting personnel and goods — are likely to be pressed into service to carry tonnes of rations and kerosene oil to Ladakh for winter stocking.



An Indian Army truck on a Kashmir highway leading to Ladakh | Representational image | ANI

The estimates so far suggest that, apart from the usual supplies for soldiers permanently posted in the area, the Army may need to transport an additional 20,000 tonnes of ration and at least 15,000 kilolitres of kerosene oil, approximately, for the 30,000 soldiers, sources told ThePrint.

Furthermore, the sources said, the Army is looking to arrange additional sets of extreme cold conditional (ECC) clothing, and temporary shelters and tents.

A detailed plan for the movement of troops for various contingencies, including leave, is also being chalked out, keeping in mind the current Covid-19 protocol, the sources added.

The 14 corps, which usually serves at the LAC in Ladakh, has approximately 70,000 troops who also oversee the world's highest battlefield at Siachen, among other areas.

"This year, with the induction of additional troops, even their administrative requirements need to be catered for, which puts an extra load on the existing infrastructure," a senior Army officer said.

The Army officer added that there is a large supply chain that underlies the transport of goods to the border. "This chain gets cut off during the winter due to heavy snowfall and extreme weather conditions, necessitating enhanced and advanced preparations during this period," the officer said.

Clothing and rations

Army sources said the harsh terrain and climatic conditions of Ladakh during the winter necessitate special clothing and shelters.

"Clothing similar to those issued to troops deployed at the Siachen glacier is being procured at a fast pace," the officer quoted above said.

According to the officer, they were looking to procure around 15,000 sets of such clothing.

Asked how the estimates were arrived at, sources said not all soldiers are posted in forward areas, adding that they are also making other arrangements.

Around 2,000 sets of previously worn serviceable (PWS) clothing — usable clothing of troops who have been de-inducted from Siachen, usually given to soldiers at slightly lower altitudes — are likely to be readily available and more will be reconditioned for use, a second source said.

All reserves of clothing and tents, which are held in various depots specifically to cater to supply-chain disruptions, are also being released for use by the additional troops, the sources added.

Additional Arctic tents are being ordered, and “operational works stores” — stores used to create habitat, protective defences and bunkers and security fences, among other things — have been reprioritised and reappropriated from other locations within the command, the sources said.

Preparations have also been made for the transport of additional rations and fuel to the border.

Every soldier is authorised approximately 2.5 kg of rations per day. For 30,000 soldiers over 180 days or the six winter months, this could translate to approximately 13,500 tonnes, sources said. Additional special rations are authorised for troops in high-altitude terrain, which could add up to another 6,500 tonnes. The Army has also estimated an additional requirement of approximately 15,000 kilolitres of kerosene oil.

All the reserve vehicles in the command have been diverted to carry additional stocks to the border, and shortfalls are being made up by hiring civil transport, the sources said.

The sources added that both road axes in Ladakh — through Zojila and Rohtang — are being utilised for the supplies, both of which remain snowed in during the winter months.

Additionally, the second source said, all units moved in from peace locations have been asked to carry their reserve stocks with them.

Troop management

Amid the Covid-19 environment, sources said, managing leave and other movement of troops pose additional challenges. Accordingly, quarantine facilities at various transit camps have been established, they added.

“Increased convoys and additional civil vehicles are being planned. Additional sorties of transport aircraft and increased number of charter flights are being pressed into service. Talks to negotiate additional charter flights are in progress,” the first officer said, discussing some of the additional measures.

“Optimisation of Leh, Thoise and Kargil airfields is being carried out to speed up the turnover of troops,” the officer added.

Amid the tensions with China, the Army has already been equipped with additional sets of riot-control equipment, particularly because the current rules of engagement at the LAC do not allow firing.

A special session of the Defence Acquisition Council (DAC) Wednesday empowered the armed forces to go ahead with Rs 300 crore worth of capital acquisitions to meet emergent operational requirements, even as the military has been on a shopping spree over the past few weeks.

Among other things, the Army is planning to place orders for Heron surveillance drones and Spike anti-tank guided missiles from Israel.

<https://theprint.in/defence/heres-how-army-is-getting-30000-additional-troops-winter-ready-in-ladakh/464301/>

Why Indian Army is cautious of China during Ladakh disengagement

In 1962, China had used deception to mount a full-frontal attack on India. However, some feel China can no longer catch India off-guard since Army has beefed up presence along LAC

By Snehesh Alex Philip

New Delhi: The Army is being cautious about the disengagement with China in Ladakh as it feels Beijing could drag the whole process through the winter and use the distraction to make mischief elsewhere, possibly in the Northeast, ThePrint has learnt.

This probable scenario is high on the mind of military and security planners in New Delhi as well as those of the Northern and the Eastern commands, sources said.

China, the sources added, appears to be “intentionally dragging” the disengagement dialogue.

“China has built up (troops) in large numbers. We, too, have brought in a large number of troops into the Ladakh sector. The talks are very protracted and it seems China is intentionally dragging them,” a source said.

A second source added that “the fear is that, while China will force us to stay engaged in Ladakh, it might do something in another sector, possibly along Arunachal Pradesh”. “This could be coupled with pressure along the Line of Control by Pakistan,” the second source said.

The 1962 war, the sources added, is the biggest lesson in this regard, as the Chinese had then used deception and smokescreen to mount a full-frontal attack on India at multiple locations. Even so, one section in the security establishment believes China can no longer catch India by surprise since it has strengthened its defences on the border.

‘They may come back later’

The Indian military has already beefed up its presence along the Line of Actual Control (LAC), in the northern (Ladakh), central (Uttarakhand, Himachal Pradesh) and eastern (Sikkim, Arunachal Pradesh) sectors.

The military’s apprehensions about the disengagement process, which seeks to resolve tensions triggered by Chinese incursions since May, were also brought to light by none other than Defence Minister Rajnath Singh during his visit to Ladakh last week.

He said the ongoing talks between the countries should resolve the situation, but he could not “guarantee” to what extent there would be a resolution.

The second source said even though the disengagement process is on, “nothing stops the Chinese from coming back later”. “One never knows what is running in someone’s mind. Hence, the policy for disengagement is trust but verify,” the source added.

However, a third source said China would not be able to catch India off-guard now since the Army has already taken steps all along the LAC to ensure that Beijing is not able to do come in like it did in Ladakh.

“China no longer enjoys the surprise factor. They had the first-mover advantage in Ladakh initially but they have been countered there and everywhere now,” the source added.

The history factor

The 1962 experience lies at the heart of the apprehensions about Chinese intentions. In the war that took place that year, sources said, the Chinese had used deception.



An army convoy moving towards the Zojilla pass in Drass | Representational image | ANI

They transgressed at multiple places in Ladakh much prior to the actual beginning of the war on 20 October and their foray into the erstwhile North East Frontier Agency (NEFA, now Arunachal Pradesh).

Even in NEFA, it was not a direct attack. “The Chinese had first lit the fuse on 8 September 1962 by intruding into the Thagla Ridge area but this was not treated as a prelude to a full-scale invasion. It was dismissed as yet another minor border incident which could be ‘localised and dealt with firmly’,” Late Brig J.P. Dalvi noted in his book *Himalayan Blunder*.

Asked if they feared a repetition by the Chinese, a source said measures have been taken along the entire LAC to counter any Chinese move.

The Army is already basing its preparations at the LAC on the estimate that the disengagement process will continue through Ladakh’s long, icy winter. It has consequently been on a massive drive to ensure adequate supply of the right gear and adequate rations for the 30,000 additional troops deployed in multiple places along the LAC.

The Army has also been on a shopping spree to ensure that they don’t face any shortage of firepower or surveillance capability, among other things, in case the situation takes a turn for the worse.

<https://theprint.in/defence/why-indian-army-is-cautious-of-china-during-ladakh-disengagement/464645/>

hindustantimes

Tue, 21 July 2020

Indian, US navies conduct drills in Indian Ocean amid border row with China

The IAF has raised its guard along the northern border to deal with any military provocation by the Chinese forces and forward bases have been ordered to be on their highest state of alert

By Rahul Singh

New Delhi: A US Navy carrier strike group, led by USS Nimitz, on Monday conducted maritime drills with Indian warships in the Indian Ocean region (IOR), against the backdrop of the India-China border standoff in Ladakh, people familiar with developments said on Monday.

The passage exercise involved a total of eight Indian and US warships, said an official. The drills also came at a time when tensions have mounted over China’s activities in South China Sea, where the US Navy just conducted a major exercise that involved two carrier strike groups.

“The Nimitz Carrier Strike Group is transiting through IOR. During the passage, #IndianNavy units undertook Passage Exercise (PASSEX) with #USNavy. Indian Navy had also conducted similar PASSEXs with #JMSDF (Japan) and #FrenchNavy in recent past,” the Indian Navy tweeted.



The passage exercise involved a total of eight Indian and US warships, said an official. (@indiannavy/Twitter Screengrab)

The Eastern Fleet of the Indian Navy is currently carrying out manoeuvres near Andaman and Nicobar Islands and the warships that took part in the exercise were from that fleet, said a second official.

While operating together, the US and Indian naval forces conducted high-end exercises designed to maximize training and interoperability, including air defence, the US 7th Fleet said in a statement. It said the Nimitz carrier strike group’s operations were designed to provide security throughout the region while building partnerships with friends and allies.

The 7th Fleet is the largest of the US Navy's forward deployed fleets.

“Naval engagements such as these exercises improve the cooperation of US and Indian maritime forces and contribute to both sides' ability to counter threats at sea, from piracy to violent extremism. These engagements also present opportunities to build upon the pre-existing strong relationship between the US and India and allow both countries to learn from each other,” it added.

The Nimitz carrier strike group, consisting of flagship USS Nimitz, Ticonderoga-class guided missile cruiser USS Princeton and Arleigh Burke-class guided missile destroyers USS Sterett and USS Ralph Johnson took part in the drills. India was represented by INS Rana, INS Sahyadri, INS Shivalik and INS Kamorta.

“It was a privilege to operate with the Indian Navy,” said Rear Admiral Jim Kirk, commander of the Nimitz carrier strike group.

The Indian Air Force has deployed half a squadron (eight to 10) of its Jaguar fighters at the Car Nicobar air base, in a show of strength amidst the tense confrontation between Indian and China along the Line of Actual Control (LAC) in Ladakh, said a third official.

The IAF has raised its guard along the northern border to deal with any military provocation by the Chinese forces and forward bases have been ordered to be on their highest state of alert.

The Andaman and Nicobar Islands are more than 1,200 km from mainland India. A significant volume of China's oil imports passes through Malacca Strait, which is south-east of these islands.

The Nimitz carrier strike group entered the Indian Ocean from the Malacca Strait and is on its way to the Persian Gulf.

“A passage exercise is normally undertaken whenever an opportunity arises, in contrast to pre-planned maritime drills. While the Malabar exercise with the US will be conducted later this year, it is always good to exercise with like-minded navies and exchange best practices whenever there is a chance,” said naval affairs expert Captain DK Sharma (retd).

The navy has been on an operational alert in the Indian Ocean where scores of warships are ready for any task in the aftermath of the border row. It has positioned warships along critical sea lanes of communications and choke points under its mission-based deployment and the vessels could be diverted for any mission.

Indian warships are deployed from as far as the Persian Gulf to the Malacca Strait and northern Bay of Bengal to the southeast coast of Africa.

The nuclear-powered USS Nimitz, one of the largest warships on the planet, is returning from an operational deployment in South China Sea. A carrier strike group led by USS Ronald Reagan was part of the US drills in South China Sea.

The US deployment to South China Sea came after China's People's Liberation Army-Navy conducted drills in the contested waters, provoking a sharp reaction from neighbouring countries and Washington. The US Navy has said its operations in South China Sea are designed to support a “free and open” Indo-Pacific.

The stage is also set for Australia to be part of the next Malabar naval exercise conducted by India with the US and Japan, as reported by Hindustan Times on July 17. The next edition of Malabar, already delayed by the Covid-19 pandemic, is set to be held by the end of the year.

The formal invitation to Australia is expected to be extended after some time in view of delicate negotiations between India and China on disengagement and de-escalation to end their standoff along the LAC.

China has also been wary of the Quadrilateral security dialogue or Quad that was revived in late 2017 by India, the US, Australia and Japan, and these suspicions have increased since the four countries upgraded the forum to the ministerial level last year.

<https://www.hindustantimes.com/india-news/indian-us-navies-conduct-drills-in-indian-ocean-amid-border-row-with-china/story-SKUxjlWZ7i9jcEZ5LNKG7J.html>

Tue, 21 July 2020

China replicates US technology; develops black Hawk helicopters, Hellfire ATG missiles

Recently, China successfully test-fired an advanced air-to-ground (ATG) missile. The ATG missile, which is similar to the US Hellfire missile, was fired from a helicopter in Inner Mongolia region and crashed into its target, SCMP cited China Aviation News.

The Chinese ATG missile, whose name and specifications have not been revealed, is a stand-off weapon, meaning it can be launched from a distance sufficient to allow attacking personnel to circumvent defensive fire.

The Chinese ATG missile, as per the report, is a long-range missile with multiple guided systems and has the ability to evade jamming. It has been developed by the China Helicopter Research and Development Institute and despite the project being delayed due to coronavirus, it is now back on track, the report said.

Once fully operational, the new ATG missile could replace the AKD-9 and AKD-10 anti-tank missiles and YJ-9 anti-ship missiles already in service, the report said. Unlike the earlier versions, the new ATG missile is not limited to use with just one type of helicopter, making it similar to the US AGM-114 “Hellfire” series.

Song Zhongping, a military expert said that having a single missile capable of striking fixed ground positions, bulletproof, armoured vehicles and even naval vessels, would make it much easier and faster to prepare and maintain the helicopters, rather than having to consider multiple armament options.

“An all-purpose munition could speed up the response and also largely improve its overall combat capability,” he said.

Chinese PLA already had the indigenous TY-90 air-to-air missile. A combination of the new weapon and the TY-90 – which was the first of its kind in the world – plus rocket bombs would boost the attack power of the PLA Ground Force’s aviation units, Song said.

The force has several attack helicopters, including the home-grown Z-10 and Z-20, and the Z-19 which was modified from the Z-9, which in turn was based on the French “Dolphin”.

Chinese state media – The Global Times called the Z-20 helicopters as a medium-lift helicopter that “can adapt to all kinds of terrain and weather and can be used on missions including personnel and cargo transport, search and rescue and reconnaissance”.

GT cited a defence expert saying, “The Z-20 can operate in oxygen-depleted plateaus (a reference to Ladakh where Indian and Chinese soldiers are at loggerheads) thanks to its powerful homemade engine.”

Experts believe that the Z-20 was derived from the US designed UH-60 Black Hawk family of helicopters. In the 1980s, the US had sold China a civilian version of the Black Hawk for operations in Tibet. China has also developed a naval version of the Z-20, images of which emerged last year.

<https://www.defencenews.in/article/China-Replicates-US-Technology;-Develops-Black-Hawk-Helicopters,-Hellfire-ATG-Missiles-881742>



Tue, 21 July 2020

Pakistan Navy inducts first Yarmook-class corvette built by Dutch shipyard Damen

According to a Tweet released by the Pakistan Navy, the first Yarmook-class corvette was inducted on July 13, 2020, during an official ceremony at PN (Pakistan Navy) Dockyard, KHI. The Chief Guest, CNS Adm Zafar Mahmood Abbasi termed the induction as an imp milestone for PN & said that PNS YARMOOK will act as a force multiplier to safeguard maritime interests of Pakistan.

Dutch shipyard Damen signed the contract with the Ministry of Defence Production for two multipurpose OPVs for the Pakistan Navy on 30th June, 2017, following a tender process.

The Yarmool-class corvette is based on the design of offshore patrol vessels (OPV) developed by the Dutch Shipyard Damen. The ship was delivered in February 2020.



Damen will deliver the Second vessel PNS TABUK (Designate) in May this year. PNS YARMOOK is capable of performing a variety of maritime operations and can transport both a helicopter and a UAV. The ship can launch two high-speed RHIBs of 11.5 meters and 6.5 meters simultaneously and also has the capability to accommodate two TEUs for special mission based operations.

According to information released by the Pakistan Navy, the ship will be equipped with a remote weapon station armed with automatic cannon located at the front deck. She is also armed with 2x4 launchers for anti-ship missiles.

The Yarmook-class also has a landing pad and hangar for a helicopter. In addition, it can carry two RHIB (rigid-hulled inflatable boats), specifically one 11.5 m and one 6.5 m RHIB.

<https://www.defencenews.in/article/Pakistan-Navy-inducts-first-Yarmook-class-corvette-built-by-Dutch-shipyard-Damen-881731>

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Tue, 21 July 2020

Next-Gen solar tech with the stability and efficiency to transform the solar energy industry

Solar modules made from perovskite material gain power to transform the solar tech industry

Researchers from the Okinawa Institute of Science and Technology Graduate University (OIST) have created next-generation solar modules with high efficiency and good stability. Made using a type of material called perovskites, these solar modules can maintain a high performance for over 2000 hours. Their findings, reported today (July 20, 2020) in leading journal, *Nature Energy*, have brightened prospects of commercialization.

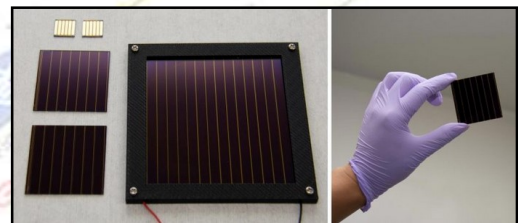
Perovskites have the potential to revolutionize the solar technology industry. Flexible and lightweight, they promise more versatility than the heavy and rigid silicon-based cells currently dominating the market. But scientists must overcome some major hurdles before perovskites can be commercialized.

“There are three conditions that perovskites must meet: they must be cheap to produce, highly efficient and have a long lifespan,” said Professor Yabing Qi, head of the OIST Energy Materials and Surface Sciences Unit, who led this study.

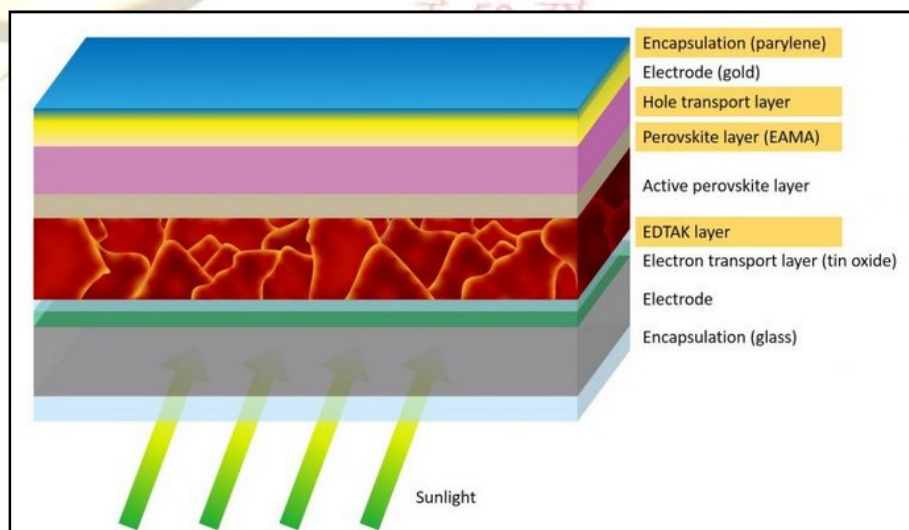
The cost of making perovskite solar cells is low, as the cheap raw materials require little energy to process. And in just over a decade, scientists have made huge strides in improving how effectively perovskite solar cells convert sunlight to electricity, with efficiency levels now comparable to those of silicon-based cells.

However, once scaled up from tiny solar cells to larger solar modules, the efficiency levels of perovskites plummet. This is problematic as commercial solar technology needs to remain efficient at the size of solar panels, several feet in length.

“Scaling-up is very demanding; any defects in the material become more pronounced so you need high-quality materials and better fabrication techniques,” explained Dr. Luis Ono, a co-author of this study.



(Left) The OIST Energy Materials and Surface Sciences Unit works with solar cells and modules of varying size. (Right) In this study, the scientists worked with 5 cm x 5 cm solar modules. Credit: OIST



Perovskite solar cells and modules consist of many layers, each of which has a specific function. The scientists added or modified the layers highlighted in orange. Credit: OIST

The instability of perovskites is another key issue under intense investigation. Commercial solar cells need to be able to withstand years of operation but currently perovskite solar cells degrade fast.

Building up the layers

Professor Qi's team, supported by the OIST Technology Development and Innovation Center's Proof-of-Concept Program, addressed these stability and efficiency issues using a new approach. Perovskite solar devices are made up of multiple layers — each with a specific function. Instead of focusing on just one layer, they looked at the overall performance of the device and how the layers interact with one another.

The active perovskite layer, which absorbs sunlight, lies in the center of the device, sandwiched between the other layers. When photons of light strike the perovskite layer, negatively-charged electrons harness this energy and “jump” to a higher energy level, leaving behind positively-charged “holes” where the electrons used to be. These charges are then diverted in opposite directions into electron and hole transport layers above and below the active layer. This creates a flow of charge — or electricity — that can leave the solar device via electrodes. The device is also encapsulated by a protective layer that reduces degradation and prevents toxic chemicals from leaking into the environment.

In the study, the scientists worked with solar modules that were 22.4 cm².

The scientists first improved the interface between the perovskite active layer and the electron transport layer, by adding a chemical called EDTAK between the two layers. They found that EDTAK prevented the tin oxide electron transport layer from reacting with the perovskite active layer, increasing the stability of the solar module.

The EDTAK also improved the efficiency of the perovskite solar module in two different ways. Firstly, potassium in the EDTAK moved into the active perovskite layer and “healed” tiny defects on the perovskite surface. This prevented these defects from trapping the moving electrons and holes, allowing more electricity to be generated. The EDTAK also increased performance by enhancing the conductive properties of the tin oxide electron transport layer, making it easier to collect electrons from the perovskite layer.

The scientists made similar improvements to the interface between the perovskite active layer and the hole transport layer. This time, they added a type of perovskite called EAMA between the layers, which enhanced the ability for the hole transport layer to receive holes.

The EAMA-treated device also showed better stability under humidity and temperature tests. This was due to how the EAMA interacted with the surface of the perovskite active layer, which is a mosaic of crystal grains. In solar devices without EAMA, the scientists saw that cracks formed on the surface of the active layer, which originated from the boundaries between these grains. When the scientists added EAMA, they observed that the additional perovskite material filled the grain boundaries and stopped moisture from entering, preventing these cracks from forming.

The team also modified the hole transport layer itself, by mixing in a small amount of polymer called PH3T. This polymer boosted moisture resistance by providing the layer with water-repellant properties.

The polymer also solved a major issue that has previously hampered improvements to long-term stability. The electrode on top of the perovskite solar module is formed from thin strips of gold. But over time, tiny gold particles migrate from the electrode, through the hole transport layer and into the active perovskite layer. This irreversibly impairs performance of the device.

When the researchers incorporated PH3T, they found that the gold particles migrated into the device more slowly which significantly increased the module's lifespan.

For their final improvement, the scientists added a thin layer of the polymer, parylene, in addition to glass, to provide a protective coating to the solar module. With this added protection, the solar modules maintained about 86% of their initial performance, even after 2000 hours of constant illumination.

In collaboration with Dr. Said Kazaoui at National Institute of Advanced Industrial Science and Technology (AIST), the OIST team tested the improved solar modules and obtained an efficiency of 16.6% — a very high efficiency for a solar module of that size. The researchers now aim to carry out these modifications on larger solar modules, leading the way towards the development of large-scale, commercial solar technology in the future.

Reference: 20 July 2020, *Nature Energy*.

DOI: [10.1038/s41560-020-0653-2](https://doi.org/10.1038/s41560-020-0653-2)

<https://scitechdaily.com/next-gen-solar-tech-with-the-stability-and-efficiency-to-transform-the-solar-energy-industry/>

ScienceDaily®

Tue, 21 July 2020

Battery breakthrough gives boost to electric flight and long-range electric cars

Summary:

Researchers have developed a new battery material that could enable long-range electric vehicles that can drive for hundreds of miles on a single charge, and electric planes called eVTOLs for fast, environmentally friendly commutes.

In the pursuit of a rechargeable battery that can power electric vehicles (EVs) for hundreds of miles on a single charge, scientists have endeavored to replace the graphite anodes currently used in EV batteries with lithium metal anodes.

But while lithium metal extends an EV's driving range by 30-50%, it also shortens the battery's useful life due to lithium dendrites, tiny treelike defects that form on the lithium anode over the course of many charge and discharge cycles. What's worse, dendrites short-circuit the cells in the battery if they make contact with the cathode.

For decades, researchers assumed that hard, solid electrolytes, such as those made from ceramics, would work best to prevent dendrites from working their way through the cell. But the problem with that approach, many found, is that it didn't stop dendrites from forming or "nucleating" in the first place, like tiny cracks in a car windshield that eventually spread.

Now, researchers at the Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Lab), in collaboration with Carnegie Mellon University, have reported in the journal *Nature Materials* a new class of soft, solid electrolytes -- made from both polymers and ceramics -- that suppress dendrites in that early nucleation stage, before they can propagate and cause the battery to fail.

The technology is an example of Berkeley Lab's multidisciplinary collaborations across its user facilities to develop new ideas to assemble, characterize, and develop materials and devices for solid state batteries.

Solid-state energy storage technologies such as solid-state lithium metal batteries, which use a solid electrode and a solid electrolyte, can provide high energy density combined with excellent safety, but the technology must overcome diverse materials and processing challenges.

"Our dendrite-suppressing technology has exciting implications for the battery industry," said co-author Brett Helms, a staff scientist in Berkeley Lab's Molecular Foundry. "With it, battery manufacturers can produce safer lithium metal batteries with both high energy density and a long cycle life."

Helms added that lithium metal batteries manufactured with the new electrolyte could also be used to power electric aircraft.

A soft approach to dendrite suppression

Key to the design of these new soft, solid-electrolytes was the use of soft polymers of intrinsic microporosity, or PIMs, whose pores were filled with nanosized ceramic particles. Because the electrolyte remains a flexible, soft, solid material, battery manufacturers will be able to manufacture rolls of lithium foils with the electrolyte as a laminate between the anode and the battery separator. These lithium-electrode sub-assemblies, or LESAs, are attractive drop-in replacements for the conventional graphite anode, allowing battery manufacturers to use their existing assembly lines, Helms said.

To demonstrate the dendrite-suppressing features of the new PIM composite electrolyte, the Helms team used X-rays at Berkeley Lab's Advanced Light Source to create 3D images of the interface between lithium metal and the electrolyte, and to visualize lithium plating and stripping for up to 16 hours at high current. Continuously smooth growth of lithium was observed when the new PIM composite electrolyte was present, while in its absence the interface showed telltale signs of the early stages of dendritic growth.

These and other data confirmed predictions from a new physical model for electrodeposition of lithium metal, which takes into account both chemical and mechanical characteristics of the solid electrolytes.

"In 2017, when the conventional wisdom was that you need a hard electrolyte, we proposed that a new dendrite suppression mechanism is possible with a soft solid electrolyte," said co-author Venkat Viswanathan, an associate professor of mechanical engineering and faculty fellow at Scott Institute for Energy Innovation at Carnegie Mellon University who led the theoretical studies for the work. "It is amazing to find a material realization of this approach with PIM composites."

An awardee under the Advanced Research Projects Agency-Energy's (ARPA-E) IONICS program, 24M Technologies, has integrated these materials into larger format batteries for both EVs and eVTOL (electric vertical takeoff and landing) aircraft.

"While there are unique power requirements for EVs and eVTOLs, the PIM composite solid electrolyte technology appears to be versatile and enabling at high power," said Helms.

Story Source:

[Materials](#) provided by [DOE/Lawrence Berkeley National Laboratory](#). *Note: Content may be edited for style and length.*

Journal Reference:

1. Chengyin Fu, Victor Venturi, Jinsoo Kim, Zeeshan Ahmad, Andrew W. Ells, Venkatasubramanian Viswanathan, Brett A. Helms. **Universal chemomechanical design rules for solid-ion conductors to prevent dendrite formation in lithium metal batteries.** *Nature Materials*, 2020; 19 (7): 758 DOI: [10.1038/s41563-020-0655-2](https://doi.org/10.1038/s41563-020-0655-2)
<https://www.sciencedaily.com/releases/2020/07/200720102044.htm>

KIST team develops technology for mass-production of lignin-bio-aviation fuels

A Korean research team has developed a technology that can be used to mass-produce aviation-grade fuels from wood wastes. The ability to produce aviation-grade fuel from oil derived from wood waste—which up until now has been difficult due to the high viscosity of the oil—could help international aviation companies comply with new emissions regulations scheduled to go into effect in 2027.

Lignin constitutes 20 to 40 percent of lignocellulose. Large volumes of lignin are generated as waste in the pulping processes that are used to produce paper. The pyrolysis of lignin produces an oil which has little industrial utility due to its high viscosity. For this reason, lignin waste is typically used by paper mills as a low-grade boiler fuel, rather than as a high-grade fuel or as a raw material for chemical products.

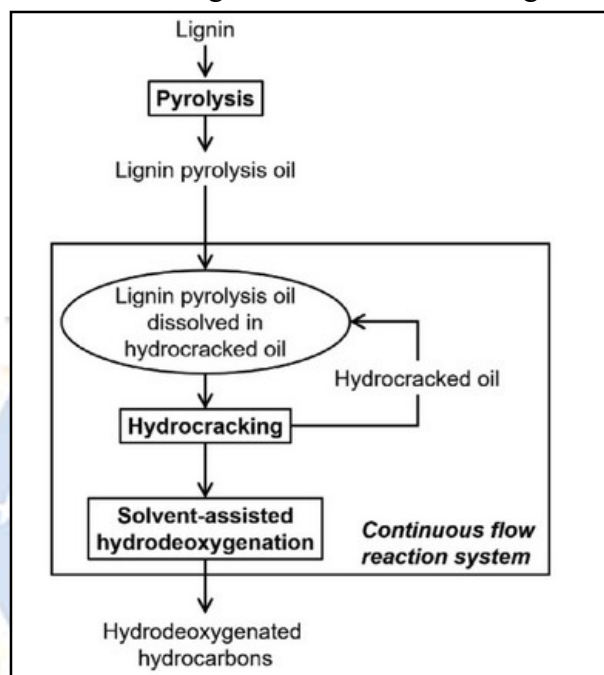
The research team, led by Dr. Jeong-Myeong Ha of the KIST, used hydrocracking to prepare hydrocracked lignin oil, which was mixed at a ratio of 7:3 with raw lignin oil to reduce substantially the viscosity of the oil to 1/7 (from 750 cp to 110 cp; e.g. the viscosity of water is 1 cp, and the viscosity of cooking oil is 80 cp), allowing it to be used for industrial purposes.

In this study, lignin pyrolysis oil was prepared from Kraft lignin using bench-scale fixed-bed batch pyrolysis and then hydrocracked to produce less-viscous liquid products. Oligomers were degraded into smaller molecules via reactions involving hydrogen (hydrocracking) using CoMo/H β and CoMo/Al $_2$ O $_3$ as catalysts. A low viscosity of 21 cP, a liquid yield of 76.6%, and a low coke yield of 1.6% were successfully attained using a reaction temperature of 400 °C, a reaction time of 60 min, and the CoMo/H β catalyst.

Thus, these conditions were selected to achieve the highest liquid yield with sufficient fluidity, although the lowest viscosity of 3.2 cP was achieved after 240 min. When 30 wt% of the resulting hydrocracked oil was used, it dissolved sticky raw lignin pyrolysis oil, significantly reducing its viscosity from 751 cP to 111 cP, which is sufficient to ensure flow in a typical petroleum pipeline. Using the hydrocracked/raw lignin pyrolysis oil mixture, the proposed continuous-flow hydrodeoxygenation successfully produced petroleum-replacing deoxygenated fuels. —Kim et al.

The mixed oil prepared in this manner can be recycled to hydrocracking processes for the mass-production of bio-aviation fuels. Further, the final fuel product, similar to the contents of jet fuel, has a low freezing point compared to gasoline and diesel, and has a high energy density, being suitable to bio-aviation fuels.

Despite the digital revolution, a sharp increase in global parcel volumes supports the global paper production. Conventional chemical reaction methods were unable to convert the large volumes of lignin wastes from paper mills into high quality fuels, but our research has opened up the potential for the mass-production of jet fuels from the otherwise useless lignin wastes. This



Suggested continuous-flow HDO of lignin pyrolysis oil dissolved in its HCK oil. Kim et al.

achievement will allow Korea to proactively meet jet fuel greenhouse emissions regulations, which will go into effect starting from 2027.

—Dr. Jeong-Myeong Ha

The research, backed by the Ministry of Science and ICT (MSIT), was conducted as an Institutional Research Program of the Korea Institute of Science and Technology (KIST) and as part of the Technology Development Program to Solve Climate Changes of the National Research Foundation (NRF) of Korea funded by the Ministry of Science and ICT. The results of the study were published in the latest issue of *Energy Conversion and Management*.

Resources

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COVID-19 Research News



THE NEW
INDIAN EXPRESS

Tue, 21 July 2020

Here's how India's vaccine candidates under development are progressing

TNIE's vaccine tracker chronicles the progress of Covid-19 candidates under development. It also lists those entering phase 1-3 trials and those in pre-clinical stages

SARS-CoV-2, the virus causing the COVID-19 pandemic, has pushed several pharmaceutical companies into action. Globally, there are 23 vaccine candidates undergoing human trials as on July 15. Of these, two, namely China's Sinovac and University of Oxford-AstraZeneca, have just entered the final leg initiating phase 3 trials.

Phase 3 trials could take at least 12 months, which means the earliest a Covid-19 vaccine can hit pharmacies is July, 2021. As per the US FDA guidelines effective June 30, successful candidates must provide data from placebo-controlled trials indicating their vaccine is at least 50 per cent effective in order to be authorised for use.



For representational purposes

India's Bharat Biotech and Cadila Healthcare Ltd are just beginning phase 1/2 trials. Besides, there are 140 other vaccine candidates, including those by Indian companies like Sun Pharmaceuticals, Aurobindo Pharmaceuticals, Biocon and Indian Immunologicals Ltd, which are undergoing preclinical testing.

Stages of development

The pre-clinical stage includes vaccine testing in laboratories (in vitro tests) and studies conducted in animals (in vivo tests) to evaluate the potential of the vaccine. The next stage includes clinical trials done on humans in three phases. Phase I is done on less than 100 healthy volunteers followed by phase II on several hundred volunteers. Phase III is done on a much larger scale involving up to several thousand people.

Vaccines under development by 10 Indian companies

- **Biocon in collaboration with Equilium** - Itolizumab, anti-CD6 IGG1 monoclonal antibody
- **Agastiya Biotech** - AB001
- **Sun Pharma ACCH** - Plant-derived (phytopharmaceutical) drug, Phase II trial started in June, results expected by October
- **Zydus Cadila Healthcare** - DNA Plasmid (Zycov-D), Phase 1/2 trials in July
- **Zydus Cadila** - Replicating viral vector; measles vector
- **Bharat Biotech** - Whole-virion inactivated (Covaxin) Phase 1/2 trials in July
- **Bharat Biotech in collaboration with Thomas Jefferson University** - Recombinant deactivated rabies virus containing S1
- **Indian Immunologicals in collaboration with Griffith University** - Codon deoptimised live attenuated virus
- **Codagenix in collaboration with Serum Institute of India** - Codon deoptimised live attenuated virus
- **Serum Institute in collaboration with multiple companies** - Protein Subunit; full-length recombinant Sars Cov-2 glycoprotein nanoparticle vaccine adjuvanted with Matrix M (NVX-Vov2373)
- **Biological E Ltd** - Protein Subunit; adjuvanted protein subunit (RBD)
- **Aurobindo Pharmaceuticals** - VSV-S, N/A

Bharat Biotech

The Hyderabad-based vaccine maker is the first Indian company to enter clinical trials for its indigenously developed vaccine candidate. As per data furnished with the CTRI, the company has begun a seamless Phase 1 trial which will be followed by a randomised, double-blind, multi-centre Phase 2 study to evaluate the safety, reactogenicity, tolerability and immunogenicity of the whole-virion inactivated Sars-Cov-2 vaccine (BBV152) named Covaxin, in healthy volunteers.

These clinical trials are being conducted across 12 cities including AIMS, Patna and New Delhi, in Nagpur, Jajapur, Belgaum, Visakhapatnam, Hyderabad, and others. The Phase 1 trial includes 375 volunteers aged between 18 and 55, while Phase 2 will take 750 volunteers aged 12 to 65. Three groups of healthy volunteers will receive two intramuscular doses of BBV152 vaccine formulations. The estimated duration of the trial is three months, i.e., it is expected to end in October.

Vaccine Types

Live attenuated virus

Vaccines introduce antigens, which are simply foreign proteins into patients. When one gets infected with the virus, the foreign protein recognises the virus, protects the patient from developing the disease and destroys the virus. One such treatment includes infecting people with a live but weakened (“attenuated”) virus that can make copies of itself and activate a strong immune response without making people sick.

Inactivated virus

Here the disease-causing virus has been killed with heat or chemicals, so it won't make you sick. This is used in patients who are averse to live attenuated virus vaccine. Inactivated virus vaccines are considered safer, but aren't deemed as strong as live attenuated virus vaccines, so additional doses are given to strengthen the immune response.

Protein Subunit

These are similar to inactivated virus vaccines. Only, they don't contain live viruses. Instead, protein fragments of a destroyed virus are introduced into the vaccinated person to trigger an immune response in their body to take on the virus.

Virus-like particles

Here too, vaccines don't contain live viruses, but resemble the virus just enough to mimic the outer shell of the virus to trigger an immune response without causing disease

Nucleic-acid or gene-based

This approach uses genetic engineering to deliver nucleic acids (DNA or RNA) that carry instructions to produce viral proteins rather than delivering the proteins themselves into human cells to trigger the immune response. Because they consist only of nucleic acids (DNA or RNA) and no other viral parts, they are safer, easier and quicker to make. DNA-based vaccines inject a genetically engineered blueprint of viral gene(s) into small DNA molecules called plasmids, which instruct cells to build viral proteins. RNA-based vaccines work similarly, but instead of using plasmids to get into cells, they use fatty molecules called lipids, which then instruct cells to build viral proteins to trigger an immune response.

Viral vector

Unlike DNA or RNA-based vaccines that use plasmids or lipids, viral vector vaccines use weakened viruses called vectors to transport the blueprint of viral genes. Replicating viral vector vaccine uses a live but weakened vector that replicates within cells and produces viral proteins and strengthen the immune response. Non-replicating viral vector vaccine uses a killed viral vector, but doesn't deliver long-lasting immunity. Therefore, booster shots may be needed to provide ongoing protection against the virus

Treatment Product Categories

Antibodies

The immune system comprises antibodies, which are part of our natural defence systems, to detect bacteria or viruses and target them for destruction. Some of the treatments include convalescent plasma, where scientists either use antibodies from blood from recovered patients

Antivirals

Typically, viruses carry only nucleic acid — DNA or RNA — with a protective shell around them. But it multiplies only when attached to animal or human cells. Antivirals stop viruses from making more copies of themselves by blocking one or more steps in the replication process

Cell-Based Therapies

Cell-based therapies transfer live cells into patients to treat the disease. How are they made? Scientists take cells either from patients or donors and transfer them with or without alteration. Cell sources include those from fat tissue or bone marrow, from placenta and others

Devices

Then there are devices such as those for blood purification to treat the disease. The machines filter patients' blood to remove excess proteins or toxins that are causing problems, else they could eventually lead to respiratory or organ failure in coronavirus patients

RNA-Based Treatments

In this type of Covid-19 treatments, molecules act as messengers, literally. Their sole job is to carry either of the two instructions to human cells: build useful proteins that can strengthen immune system or block harmful proteins collapsing the immune system

Others

Potential treatment lines being explored/under use include steroids, malarial drugs, drugs treating high blood pressure, drugs treating over-reaction of the immune system (known as a cytokine storm), drugs treating autoimmune diseases, and drugs preventing blood clots

Text: *Sunitha Natti*

Source: *WHO, CTRI, Milken Institute*

<https://www.newindianexpress.com/specials/2020/jul/20/heres-how-indias-vaccine-candidates-under-development-are-progressing--2172150.html>

Coronavirus vaccine development in India: Here's a list of all vaccines being locally made and developed

01/9 Here's a list of all vaccines being locally made and developed in India

With COVID-19 showing no signs of slowing down, India is the second-worst affected country struck by the pandemic, with over 1.12 million cases registered till now.

While a lot of companies and independent medical groups are involved in the development of a COVID-19 vaccine, the past month has seen a lot of developments and announcements take place regarding the production of a homegrown vaccine. Globally, India is renowned to be a leading vaccine producer and has manufactured several vaccines in the past, which experts believe gives India an edge over its competitors.



02/9 How many vaccines are being developed in the country?

30 different Indian companies are trying to produce a vaccine to fight the infection, out of which WHO has given approvals to seven vaccine candidates, which are in different stages of testing and clinical studies now.

We take you through the status:

03/9 COVAXIN

COVAXIN, developed by Hyderabad-based Bharat Biotech International Limited (BBIL), in collaboration with ICMR and NIV, Pune was the first vaccine to get regulatory approvals for clinical trials. The vaccine makes use of an inactive version of a virus to spike up production of antibodies in the host body and just recently initiated phase I and II of testing. Over 385 people have been recruited so far and top hospitals across the country have been selected for conducting the trials.

While ICMR declared August 15 as the ambitious launch date of the vaccine, there is a lot more research needed in the testing phase.

04/9 Zydus Cadila's ZyCoV-D

Ahmedabad-based pharma giant, Zydus Cadila announced the start of phase I of its testing process of its novel vaccine candidate earmarked ZyCoV-D last week. Extensive research for the same was done in coordination with medical laboratories in the USA and Europe for the same.

The company is testing two versions of its vaccine, one which makes use of molecular DNA to elicit an immune response, while the other uses a live measles viral strain to provide protection. Development of the vaccine was accelerated after authorities saw a positive response in pre-clinical research and animal studies.

While human clinical trials are currently going on, Zydus CEO Pankaj Patel said that the company is hopeful of completing phase I/II study in the next few months and is trying to make it ready for use by March next year. However, he also said that they could ramp up production if emergency needs arise.

05/9 Indian Immunologicals Limited

Another prime vaccine maker based out of India, Indian Immunologicals Limited (IIL) is overseeing the development of a vaccine in partnership with Griffith University, Australia. The vaccine model, though still in its nascent stage makes use of an innovative codon-deoptimization

technology which directly targets the cells infected by SARS-COV-2. Pre-clinical trials and studies are still going on for the same.

06/9 Mynvax

Bengaluru-based medical pharmaceutical startup, Mynvax made news months back when it announced work on a COVID vaccine which uses a very different approach involving a protein-based vaccine. The same has been done in collaboration with the Indian Institute of Science (Bengaluru). While scientists are still conducting pre-clinical trials, the company has applied for a Rs 15 crore grant for further research from the Biotechnology Industry Research Assistance Council (BIRAC).

07/9 AstraZeneca-Serum Institute of India (SII)

British-Swedish pharma major AstraZeneca is currently involved in the development of the much talked about adenovirus vector vaccine with the University of Oxford. The vaccine prototype is currently in phase III of testing. The company has tied up with Pune based Serum Institute of India (SII) to mass-produce the vaccine once the company gets required approvals and licensing from medical boards. AstraZeneca is also hopeful of starting human trials of its vaccine in India, starting August.

The vaccine, which has so far been found to be safe and effective is expected to be made available for the masses by the end of 2020.

08/9 Panacea Biotech

Delhi-based biotechnology company, Panacea Biotech Limited has signed a partnership with a US-based pharma company, Refana Inc to develop, manufacture and distribute an experimental COVID-19 vaccine which is currently in works. An agreement has also been signed up with a firm in Ireland regarding the same. The vaccine prototype, which will make use of an inactivated virus strain has shown effective results in the pre-clinical trials conducted in the US. Toxicology studies and animal trials will be conducted in labs across Delhi and Punjab, following which, the company aims to proceed to human trials in the month of October.

09/9 Biological E

The most recent entrant in the vaccine race, Hyderabad-based Biological E is working on developing a novel COVID-19 preventing vaccine which is still in its pre-clinical level. Further updates regarding the same are still awaited.

<https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-vaccine-development-in-india-heres-a-list-of-all-vaccines-being-locally-made-and-developed/photostory/77064624.cms?picid=77064698>

Awaiting trials success, UK seals early access to 3 Covid-19 vaccine candidates

The three vaccine classes that the Boris Johnson government has secured through partnerships are: adenoviral vaccines (University of Oxford/AstraZeneca); mRNA vaccines (BioNTech/Pfizer, Imperial College London) and the inactivated whole virus vaccines (Valneva)

By Prasun Sonwalkar

London: Britain's business secretary Alok Sharma on Monday announced that the UK would get early access to 90 million doses of three promising Covid-19 vaccine candidates, including the one developed at the University of Oxford, whose initial results are due to be released later.

The three vaccine classes that the Boris Johnson government has secured through partnerships are: adenoviral vaccines (University of Oxford/AstraZeneca); mRNA vaccines (BioNTech/Pfizer, Imperial College London) and the inactivated whole virus vaccines (Valneva).

The United Kingdom is the worst affected country in Europe, with at least 45,300 deaths and nearly 3 lakh cases.

Sharma said: "The hunt to find a vaccine is a truly global endeavour and we are doing everything we can to ensure the British public get access to a safe and effective coronavirus vaccine as soon as possible".

"This new partnership with some of the world's foremost pharmaceutical and vaccine companies will ensure the UK has the best chance possible of securing a vaccine that protects those most at risk", he added.

Monday's announcement follows an existing global licensing agreement signed with AstraZeneca and the University of Oxford to research, develop and manufacture a Covid-19 vaccine for the UK public. AstraZeneca will work to produce 100 million doses for the UK in total.

As part of a wider £131 million investment by the government, support has also been given to Imperial College London to develop their vaccine candidate, which started human studies in June.

Officials said the UK government has committed £250 million to the Coalition for Epidemic Preparedness Innovations – the biggest investment of any country - to support equitable and affordable access to new coronavirus vaccines and treatments around the world.

The government on Monday also launched the NHS Covid-19 vaccine research registry to enlist volunteers for future vaccine studies. To enable large-scale vaccine studies to take place across the UK, the aim is to get 500,000 people signed up by October.

Health secretary Matt Hancock said: "A safe and effective vaccine is our best hope of defeating coronavirus and returning to life as normal".

"We have some of our best scientists and researchers working on this, but members of the public have a vital role to play too. So I urge everyone who can to back the national effort and sign up to the NHS Covid-19 vaccine research registry to help find a vaccine as soon as possible".

<https://www.hindustantimes.com/world-news/awaiting-trials-success-uk-seals-early-access-to-3-vaccine-candidates/story-gPXLhSjBu3aZut9Wdh08jM.html>



There is an existing global licensing agreement signed with AstraZeneca and the University of Oxford to research, develop and manufacture a Covid-19 vaccine for the UK public. (AFP File Photo)

Scientists identify dominant strain of coronavirus in Bangladesh

Bangladeshi researchers have identified the dominant genetic variation of SARS-CoV-2, or the novel coronavirus, in the country

Scientists at the Bangladesh Council of Scientific and Industrial Research or BCSIR came up with the findings at a press conference in Dhaka on Sunday.

They submitted had data from 171 coronavirus genome sequencing to the National Center for Biotechnology Information of the US and the Global Initiative on Sharing All Influenza Data.

Scientists across the globe began genome sequencing of the novel coronavirus after the pandemic to help find out treatment and vaccine for the COVID-19 disease caused by the virus.

Out of the 1,274 proteins in the coronavirus, those numbered between 212 and 523 are significant 'Spike' proteins, but the dominant strain detected in Bangladesh does not have these proteins, the researcher said.

Selim Khan, the head of Genomic Research Lab at BCSIR's Designated Reference Institute for Chemical Measurements, said they found the 614-G strain in 95 percent of the coronavirus genes sequenced in Bangladesh.

The variant in question, D614G, makes a small but effective change in the virus's 'Spike' protein, which the virus uses to enter human cells. It is causing infections in India, Brazil and Iran after it was first detected in Europe in early February.

In Bangladesh, 590 changes were detected at genomic level and 273 at protein level of the novel coronavirus, Selim said. The number of unique mutations in Bangladesh was found to be eight.

"The virus can mutate while spreading throughout the country. It will be easier to spot the epicentre of the outbreak during a second wave if we know the genome sequences of the strains found in particular zones," the researcher said. "When scientists will develop a medicine or vaccine, they will keep in mind all the mutations," he added.

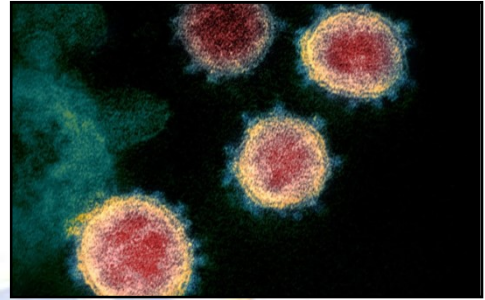
The number of confirmed coronavirus infections in Bangladesh has crossed 200,000 with more than 2,600 deaths.

"The coronavirus in Bangladesh is close to the one in Italy," said Science and Technology Minister Yeafesh Osman. The first cases confirmed in Bangladesh in March had arrived from Italy.

Selim said the BCSIR scientists researched other pathogens in COVID-19 patients' bodies to find out links between severe illness from the novel coronavirus infection and other diseases.

The samples carried multidrug-resistant genes as well, he said.

<https://bdnews24.com/bangladesh/2020/07/20/scientists-identify-dominant-strain-of-coronavirus-in-bangladesh>



UK signs deal for 90 million Covid-19 vaccine doses

London: The UK government has signed deals for access to around 90 million doses of promising coronavirus vaccines under development, Business Secretary Alok Sharma announced here on Monday.

The senior Indian-origin Cabinet minister said the government has agreed significant partnerships with leading pharmaceutical and vaccine companies BioNTech/Pfizer and Valneva that are developing vaccines to protect people against the deadly coronavirus.

"The hunt to find a vaccine is a truly global endeavour and we are doing everything we can to ensure the British public get access to a safe and effective coronavirus vaccine as soon as possible," Sharma said.

"This new partnership with some of the world's foremost pharmaceutical and vaccine companies will ensure the UK has the best chance possible of securing a vaccine that protects those most at risk," he said.

The minister called on the British public to play their part in vaccine research through the new National Health Service (NHS) vaccine research register.

"By signing up and participating in important clinical studies, together we can speed up the search for a vaccine and end the pandemic sooner," he said.

As part of a number of pacts, the UK government says it has now secured access to three different types of COVID-19 vaccines that are being developed here and around the world, giving Britain the most likely chance of getting access to a safe and effective vaccine at the "quickest speed".

It has also secured access to treatments containing COVID-19 neutralising antibodies from AstraZeneca to protect those who cannot receive vaccines, such as cancer and immunocompromised patients.

As a result of these partnerships, England, Scotland, Wales and Northern Ireland could have access to enough doses to vaccinate and protect priority groups identified, such as frontline health and social care workers and those at increased health risk, the Department for Business, Energy and Industrial Strategy (BEIS) said.

Alongside, the new vaccine registry website will allow members of the public to register their interest and be contacted to participate in clinical studies. To enable large-scale vaccine studies to take place across the UK, the aim is to get 500,000 people signed up by October, which is considered vital in the fight against coronavirus.

Clinical studies with hundreds of thousands of volunteers will help scientists and researchers better understand the effectiveness of each vaccine candidate and will considerably speed up efforts to discover a safe and workable vaccine, BEIS said.

The UK government is also working with ZOE, the health science company using data driven research and behind the popular symptom study app and site, to look at collaborating around vaccine studies and to help their volunteers hear about how to sign up to the NHS registry.

"A safe and effective vaccine is our best hope of defeating coronavirus and returning to life as normal," UK Health Secretary Matt Hancock said.

"We have some of our best scientists and researchers working on this, but members of the public have a vital role to play too. So I urge everyone who can to back the national effort and sign



up to the NHS COVID-19 vaccine research registry to help find a vaccine as soon as possible,” he said.

The latest set of pacts follow an existing global licensing agreement signed with AstraZeneca and the University of Oxford to research, develop and manufacture a COVID-19 vaccine for the UK.

AstraZeneca will work to produce 100 million doses for the UK in total for the vaccine which has shown some promising results in human trials.

Through its new partnership with Valneva, which has a factory in Livingston, Scotland, the UK government is expected to contribute to UK clinical studies costs and is negotiating funding to expand Valneva's Scottish facility. This increased manufacturing capacity could potentially supply up to 100 million vaccine doses to the UK and internationally.

Kate Bingham, Chair of the UK's Vaccine Taskforce said: “The Vaccine Taskforce is investing in a diverse portfolio of vaccine candidates to maximise the chances of finding a vaccine quickly that meets the UK's rigorous regulatory and safety standards.

“The fact that we have so many promising candidates already shows the unprecedented pace at which we are moving. But I urge against being complacent or over optimistic. The fact remains we may never get a vaccine and if we do get one, we have to be prepared that it may not be a vaccine which prevents getting the virus, but rather one that reduces symptoms.”

“Now that there are several promising vaccines on the horizon, we need to call again on the generosity of the public to help find out which potential vaccines are the most effective,” added Professor Chris Whitty, the UK government's Chief Medical Officer.

As part of a wider 131 million pound investment by the government, support has been given to the Oxford University's vaccine project as well as one by Imperial College London, which started human studies in June.

The three different vaccine classes that the UK government has secured to date include adenoviral vaccines (Oxford University and AstraZeneca), mRNA vaccines (Imperial College London and BioNTech/Pfizer) and inactivated whole virus vaccines (Valneva).

<https://timesofindia.indiatimes.com/world/uk/uk-signs-deal-for-90-million-covid-19-vaccine-doses/articleshow/77067319.cms>



ज्ञान प्रसार एवम् विस्तार
के 50 वर्ष

Oxford COVID-19 vaccine shows promise in early testing: Study

The vaccine did not prompt any serious side effects and elicited antibody and T-cell immune responses, according to trial results published in The Lancet medical journal

London: An experimental COVID-19 vaccine, being developed by the University of Oxford, was safe and produced an immune response in early-stage clinical trials in healthy volunteers, data showed on Monday.

The vaccine, called AZD1222 and being developed by pharmaceutical company AstraZeneca and scientists at Britain's University of Oxford, did not prompt any serious side effects and elicited antibody and T-cell immune responses, according to trial results published in The Lancet medical journal.

"We hope this means the immune system will remember the virus, so that our vaccine will protect people for an extended period," study lead author Andrew Pollard of the University of Oxford said.

"However, we need more research before we can confirm the vaccine effectively protects against SARS-CoV-2 (COVID-19) infection, and for how long any protection lasts," he said.

AstraZeneca's is among the leading vaccine candidates against a pandemic that has claimed more than 600,000 lives, alongside others in mid and late-stage trials.

These include shots being developed by China's Sinovac Biotech, another from state-owned Chinese firm Sinopharm, and one from the U.S. biotech firm Moderna.

AstraZeneca has signed agreements with governments around the world to supply the vaccine should it prove effective and gain regulatory approval. The company has said it will not seek to profit from the vaccine during the pandemic.

Researchers said the vaccine caused minor side effects more frequently than a control group, but some of these could be reduced by taking paracetamol, with no serious adverse events from the vaccine.

<https://www.ndtv.com/world-news/first-human-trial-of-astrazeneca-oxford-covid-vaccine-shows-promise-2265954>

