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# समाचार पत्रों से चयित अंश Newspapers Clippings

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

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# The Tribune

Thu, 21 May 2020

## Coronavirus: DRDO developing AI-based face recognition system for marking attendance

By Vijay Mohan

Chandigarh: With new norms on personal contact and handling gadgets being implemented in the wake of the COVID-19 pandemic, the Defence Research and Development Organisation (DRDO) is developing an artificial intelligence-based face recognition system for marking attendance of employees.

The system will do away with the need for physically marking attendance through biometric machines or on paper sheets, while also preventing people from crowding around attendance machines.

Sources said the DRDO's Defence Bio-engineering and Electro-medical Laboratory is developing the system and after successful trials and validation, it would be implemented across other DRDO laboratories. "The system could also be made available to other organisations and has a vast scope for commercialisation," a DRDO Scientist said.

A database of employees containing their photograph from multiple angles along with personal details would be prepared. A camera would capture the face image of a person walking in or out of an office complex, which would be marked with a time stamp and a specially developed software would then collate it with the database and prepare a record of entry and exit and link it with the organisation's internal computer network.

"We expect the laboratory to complete the project in a year's time," the scientist said. "Besides attendance of employees, the system will also be used for visitor management," he added.

Artificial intelligence-based face recognition systems are making increasing headway in the defence and security establishments for intelligence analysis as well as access control. Several projects are already under way in this field to develop new and faster tools to shift from manual processes and reduce human interface.

Face recognition is a very important aspect to distinguish between friend and foe. There is no automated face recognition system existing in Indian Army to recognise enemy face in real time. The Military Intelligence is developing an automated face recognition system to recognise and establish the identity of an enemy face from still photographs or video images in real time.

Last year, the Border Security Force initiated a pilot project to install face recognition-based access-control system at gates in the fence along the Indo-Pakistan border through which farmers move to till their land.

The Ministry of Home Affairs has also developed a facial recognition system to track criminals. It has been linked with the National Crime and Criminal Tracking System that contains a national database of all police and court cases across the country.

<https://www.tribuneindia.com/news/nation/coronavirus-drdo-developing-ai-based-face-recognition-system-for-marking-attendance-87420>

## UV tunnel to disinfect baggage?

By Sunitha Sekar

Chennai: The Airports Authority of India plans to install ultraviolet tunnels for disinfecting baggage at Chennai airport when flights resume.

Officials said that they had been considering the option and a number of firms had approached them recently. They added that the facility would be brought in only if a company managed to obtain certification from an authorised government lab, indicating that usage of the tunnel would kill viruses on the surface of baggage.

“There needs to be a validation from health authorities and a certification to this effect. Then we can use it. If we don’t find a firm that has the certification, then we have an alternate option as well. We are looking at ways to spray disinfectants on the baggage,” an official said.



A UV-based disinfection

Sources said that airline staff as well as CISF personnel had raised concerns over having to touch baggage. “Though they will wear gloves and will be provided with hand sanitisers, they are still apprehensive,” another official said.

Recently, Delhi and Kochi airports installed UV-based disinfection facilities.

Sameer Abdul Azeez, a scientist at DRDO’s Naval Physical Oceanographic Laboratory (NPOL), Kochi, said that they had developed and operationalised a UV baggage disinfector at the Kochi airport.

NPOL has been in the process of developing standalone equipment, the Automated Luggage Disinfector - Using UV Bath. After developing a prototype, the lab has been doing tests, along with the Government Medical College in Ernakulam, which will then be evaluated by the National Institute of Virology.

“Once medical validation comes by the month-end, the industry partner will commence commercial production so that they can be put to use at airports and other establishments,” he said.

<https://www.thehindu.com/news/national/tamil-nadu/uv-tunnel-to-disinfect-baggage/article31636368.ece>

SOCIALNEWS.XYZ  
The Millennial Media

Tue, 19 May 2020

## Interview with DRDO Chairman Dr. Satish Reddy | Atma Nirbhar Bharat | Idi Sangathi | 19th May 2020 (Video)

ఆత్మనిర్భర్ భారత్ లక్ష్యంలో భాగంగా... అనేక విప్లవాత్మక సంస్కరణల దిశగా అడుగులు వేసింది... కేంద్రప్రభుత్వం. కీలక, పూర్వోత్కృత రంగాల్లోను... ప్రైవేటు భాగస్వామ్యాలకు పచ్చ జెండా ఊపింది. అందులో రక్షణ, అంతరిక్ష విభాగాలు కూడా చేర్చారు. ఎంతో చర్చనీయాంశం అవుతున్న ఈ రెండింటి విషయంలో ప్రైవేటు, విదేశీ పెట్టుబడులను ఆహ్వానిస్తూ.. కేంద్రం తీసుకున్న నిర్ణయం స్వాగతించదగినదే అంటున్నారు.. భారత రక్షణ పరిశోధన అభివృద్ధి సంస్థ- DRDO చైర్మన్ డాక్టర్ జి సతీష్ రెడ్డి. వేలకోట్ల నిధులు ఆదా చేయడంతో పాటు..... దేశీయ పరిశోధనలకు ఇది ఎంతో మేలు చేస్తుందని ఆశాభావం వ్యక్తం చేస్తున్నారు. అసలు ఇప్పటివరకు దేశం రక్షణ పరిశోధనల్లో ఎక్కడ

ఉంది? దేశం ముందున్న కొత్తలక్కాలు, ఎదుర్కొంటున్న సవాళ్లు ఏంటి? ఈ విషయాలతో పాటు మరెన్నో వివరాలు డీఆర్డీవో అధిపతితో ముఖాముఖీలో తెలుసుకుందాం

<https://www.socialnews.xyz/2020/05/19/interview-with-drdo-chairman-dr-satish-reddy-atma-nirbhar-bharat-idi-sangathi-19th-may-2020-video/>

live**mint**

Thu, 21 May 2020

## India now manufactures 4.5 lakh PPE suits a day in the fight against Covid-19

By Sangeeta Ojha

- *Companies like Alok Industries, JCT Phagwara, Gokaldas Exports, and Aditya Birla are some of domestic PPE kits manufactures*
- *Over 600 companies in the country are certified to manufacture PPEs*

Union Minister Smriti Irani announced on Twitter that India is now producing over 4.5 lakh Personal Protective Equipment (PPE) suits daily and that now over 600 companies in the country are certified to manufacture PPEs. "PPE Update as on 18 th May — today we have crossed per day production of 4.5 lac PPE suits .. India now has over 600 companies who are lab certified to manufacture PPE." Smriti Irani had tweeted on Monday.

India started manufacturing PPE kits within two months of the coronavirus outbreak. Earlier, all PPE kits were being imported.

So, this is some piece of good news as some hospitals had reported shortage of the most crucial gear for healthcare professionals, the PPE kits, since the outbreak of coronavirus.

Addressing the nation, on 12 March at 8 pm, Prime Minister Narendra Modi announced that India was finally indigenously manufacturing about 2 lakh PPE kits and 2 lakh N-95 masks every day.



Medical Health officials wearing PPE suits going to conduct health checkups. (ANI)

### What is Personal Protection Equipment (PPE) Kit

According to World Health Organisation (WHO) the Protective equipment consists of garments placed to protect the health care workers or any other persons to get infected. These usually consist of standard precautions: gloves, mask, gown. If it is blood or airborne high infections, will include: Face protection, goggles and mask or faceshield, gloves, gown or coverall, head cover, rubber boots.

Companies like Alok Industries, JCT Phagwara, Gokaldas Exports, and Aditya Birla are some of domestic PPE kits manufactures.

Some government institutes like South India Textile Research Association (SITRA), Defence Research & Development Organization (DRDO) and Ordnance Factory Board are at the forefront of developing new technologies, materials, and testing facilities. DRDO has also developed new PU coated nylon/polyester for supply to domestic manufacturers.

<https://www.livemint.com/news/india/india-now-manufactures-4-5-lakh-ppe-suits-a-day-in-the-fight-against-covid-19-11589951566951.html>

## रेलवे ने PPE kit के उत्पादन में बनाया रिकॉर्ड, कोरोना से लड़ाई हो जाएगी आसान

**देश इस समय कोरोना वायरस (Coronavirus) महामारी covid 19 से लड़ रहा है। इस लड़ाई में भारतीय रेलवे भी महत्वपूर्ण योगदान दे रहा है। भारतीय रेलवे के Northern Railways जोन ने एक दिन में 3000 कवरऑल (PPE kit) बना कर नया रिकॉर्ड बनाया है।**

नई दिल्ली: देश इस समय कोरोना वायरस (Coronavirus) महामारी covid 19 से लड़ रहा है। इस लड़ाई में भारतीय रेलवे भी महत्वपूर्ण योगदान दे रहा है। भारतीय रेलवे के Northern Railways जोन ने एक दिन में 3000 कवरऑल (PPE kit) बना कर नया रिकॉर्ड बनाया है। रेल मंत्रालय ने उत्तर रेलवे को मई 2020 में 30 हजार PPE kit बनाने का लक्ष्य दिया था। इस लक्ष्य को उत्तर रेलवे के कारखानों ने 12 दिन पहले ही पूरा कर लिया। उत्तर रेलवे के CME अरुण अरोड़ा ने बताया कि उत्तर रेलवे के लिए ये बड़ी उपलब्धि है। उत्तर रेलवे अब तक 44 हजार से ज्यादा कवरऑल (PPE kit) तैयार कर चुका है। मई में 50 हजार किट और बनाने का लक्ष्य रखा गया है। रेलवे बाजार से लगभग आधे दामों पर ये किटें तैयार कर रहा है। इसके अलावा हैंड सेनेटाइजर और मास्क भी तैयार किए जा रहे हैं।

### DRDO ने दी मंजूरी

कोरोना वायरस (coronavirus outbreak in India) covid 19 के संक्रमण को रोकने के लिए देश के डॉक्टर हर संभव प्रयास कर रहे हैं। डॉक्टरों की मदद के लिए भारतीय रेलवे (Indian Railways) ने अपनी वर्कशॉप में बड़े पैमाने पर व्यक्तिगत सुरक्षा उपकरण (PPE) बनाने का फैसला लिया है। उत्तर रेलवे को रक्षा अनुसंधान एवं विकास संगठन (DRDO) से पीपीई को बनाने की मंजूरी मिल चुकी है।

### डॉक्टर और मेडिकल स्टॉफ को मिलेगी मदद

PPE रेलवे सहित अन्य अस्पतालों में कोरोना वायरस के इलाज में लगे रेलवे चिकित्सकों और अस्पताल के कर्मचारियों को आवश्यक सुरक्षा उपलब्ध करायेगा। रेलवे ने एक बयान में कहा, रेलवे के चिकित्सकों और पैरामेडिक्स के लिए हर रोज इस तरह के एक हजार सुरक्षा उपकरण बनाने के लिए रेलवे में आवश्यक प्रबंध किये जा रहे हैं।

### कोरोना में इलाज में लगे डॉक्टरों को रेलवे देगा PPE

रेलवे कोरोना के इलाज में लगे देश के अन्य डॉक्टरों को भी 50 प्रतिशत PPE कपड़ों की आपूर्ति करने पर विचार कर रहा है। इन सभी के लिए जगाधरी से सामग्री खरीदी जा रही है जो पंजाब में कई बड़े कपड़ा उद्योगों के करीब स्थित है। यमुनानगर स्थित विक्रेता से कच्चे माल का स्रोत तय करने का निर्णय लिया गया है और इसे कपड़ा मंत्रालय ने मंजूरी दे दी है। बयान में कहा गया है, “आने वाले दिनों में, उत्पादन सुविधाओं में और तेजी आ सकती है। कोरोना वायरस से निपटने में लगी अन्य सरकारी एजेंसियों द्वारा भारतीय रेलवे के इस कदम का स्वागत किया जा रहा है।

### रेलवे ने 2500 से अधिक कोचों को आइसोलेशन वार्ड में बदला

भारतीय रेलवे भी कोरोना वायरस के खिलाफ जंग में पूरी शिद्दत के साथ जुटी हुई है। रेलवे ने 2500 से ज्यादा कोचों को कोरोना वायरस संदिग्ध के लिए आइसोलेशन वार्ड में तब्दील कर दिया है। यानी इन 2500 कोचों में 40 हजार आइसोलेशन वार्ड बनाए गए हैं। वहीं रेलवे अभी 5000 कोचों को आइसोलेशन वार्ड में तब्दील करने में जुटा है, जिसमें अब तक 2500 कोचों को कोरोना संदिग्धों के लिए आइसोलेशन वार्ड में तब्दील कर दिया गया है। इस तरह भारतीय रेलवे एक दिन में औसतन 375 कोच को आइसोलेशन वार्ड में बदल रहा है।

<https://www.zeebiz.com/hindi/railways/indian-railways-ppe-kit-drdo-thumbs-up-northern-railways-workshops-fabricates-3000-coveralls-in-a-single-day-in-corona-fight-27289>

Thu, 21 May 2020

## IAF confirms: Routine test flight caused Bengaluru sonic boom

*A loud bang sparked confusion and intrigue in Bengaluru on Wednesday*

Eager for a chance to discuss something other than COVID-19, many Bengalureans took to social media on Wednesday after hearing a loud 'bang' that could be felt across the city.

Police sources ruled out an explosion, while an earthquake was also discounted. Now, the Ministry of Defence has confirmed that the sound was caused by a military aircraft going supersonic.

"It was a routine IAF Test Flight involving a supersonic profile which took off from Bluru Airport and flew in the allotted airspace well outside City limits. The aircraft was of Aircraft Systems and Testing Establishment (ASTE) whose Test Pilots & Flight Test Engineers routinely test out all aeroplanes," a tweet by the PRO Bengaluru, Ministry of Defence said.



Two IAF Su-30MKI jets flying during Garuda-VI in France | Twitter handle of Indian Air Force

"The sonic boom was probably heard while the aircraft was decelerating from supersonic to subsonic speed between 36,000 and 40000 feet altitude," the MoD added.

"The aircraft was far away from the city limits when this occurred. The sound of a sonic boom can be heard and felt by an observer even when the aircraft is flying as far away as 65 to 80 kilometres away from the person."

According to their profile, the ASTE "conducts flight testing of aircraft, airborne systems and weapon stores prior to their induction into the Indian Air Force (IAF). Additionally, ASTE undertakes flight testing of airborne systems designed and developed by agencies such as DRDO for IAF."

The MoD did not confirm which aircraft caused the sonic boom although media reports suggest that it was a SU-30MKI.

Among the IAF's arsenal are seven fighter jets capable of going supersonic: The Mig-21, Mig-29, Su-30MKI, the Mirage-2000, Dassault Rafale and SEPECAT Jaguar. Since ASTE conducts test of aircraft prior to being inducted, the plane is likely one that was either recently upgraded or purchased for the IAF.

Both the Su-30MKI and the Mirage-2000 are due upgrades, with the latter's upgrade process having begun. In addition, flight testing of the combat-capable LCA Tejas Mk-1A is estimated to continue until 2022.

<https://www.theweek.in/news/india/2020/05/20/iaf-confirms-routine-test-flight-caused-bengaluru-sonic-boom.html>

# दैनिक जागरण

Thu, 21 May 2020

## केवल घरेलू कंपनियों से ही खरीदे जाएंगे सेना के 26 उपकरण, आयातित हथियारों पर खत्म होगी निर्भरता

**प्रधानमंत्री नरेंद्र मोदी की पहल पर रक्षा मंत्रालय ने घातक रक्षा निर्माण को बढ़ावा देने के लिए**

**26 सैन्य उपकरणों को केवल घरेलू आपूर्तिकर्ताओं से ही हासिल करने का फैसला किया है।**

नई दिल्ली: रक्षा मंत्रालय ने घातक रक्षा निर्माण को बढ़ावा देने के लिए 26 सैन्य उपकरणों को केवल घरेलू आपूर्तिकर्ताओं से ही हासिल करने का फैसला किया है। यह वह देशी कंपनियां हैं जो सरकार को समय-समय पर इन उपकरणों की आपूर्ति करती रही हैं। रक्षा अधिकारियों ने बताया कि निर्मला सीतारमण के रक्षा क्षेत्र में घरेलू रक्षा उद्योग को बढ़ाने देने के सुधारवादी कदम का एलान करने के एक दिन बाद ही रक्षा मंत्रालय ने इस फैसले की घोषणा की है। सरकार की मंशा अब आयातित हथियारों और सैन्य मंचों पर निर्भरता खत्म करने की है।

सभी उपकरण जो घरेलू रक्षा निर्माण इकाइयों से हासिल किए जाएंगे उनकी पहचान कर ली गई है। यह सभी नौसैनिक जहाजों के निर्माण में प्रयुक्त होते हैं। अब तक रक्षा मंत्रालय ने 127 सामग्रियों को अधिसूचित किया है, जिन्हें देश की कंपनियों से खरीदा जाएगा। भविष्य में स्थानीय आपूर्तिकर्ताओं से ही उपकरण हासिल करने को बढ़ावा देने के लिए 127 में से 26 उपकरणों को अधिसूचित किया जा चुका है। यह अधिसूचना मेक इन इंडिया के तहत जारी की गई है। भारतीय सशस्त्र सेनाएं अगले पांच साल में 130 अरब डॉलर के हथियारों की खरीद करेंगी।



उल्लेखनीय है कि प्रधानमंत्री नरेंद्र मोदी ने स्वदेशीकरण पर जोर दिया है। बीते दिनों राष्ट्र के नाम संबोधन में पीएम मोदी ने आत्मनिर्भरता का मंत्र दिया था। प्रधानमंत्री की पहल को देखते हुए भारतीय वायु सेना भी आठ हजार करोड़ रुपये के तीन बड़े खरीद सौदे से हाथ खींच चुकी है। वायु सेना की स्विटजरलैंड से 38 पाइलटस बुनियादी प्रशिक्षण विमान, ब्रिटेन से 20 अतिरिक्त हॉक विमान खरीदने और अमेरिकी इंजन के साथ 80 उन्नत जगुआर लड़ाकू विमानों को अपग्रेड करने की योजना थी लेकिन इन सौदों को ठंडे बस्ते में डाला जा चुका है। वायु सेना प्रमुख आरकेएस भदौरिया का कहना है कि वायुसेना बुनियादी प्रशिक्षण विमान खरीदने के सौदे पर आगे नहीं बढ़ रही है।

प्रधानमंत्री नरेंद्र मोदी की पहल पर रक्षा मंत्रालय ने घातक रक्षा निर्माण को बढ़ावा देने के लिए 26 सैन्य उपकरणों को केवल घरेलू आपूर्तिकर्ताओं से ही हासिल करने का फैसला किया है।

<https://www.jagran.com/news/national-government-mandates-purchase-of-26-military-equipment-only-from-domestic-firms-20289987.html>



## Govt mandates purchase of 26 military equipment only from domestic firms

New Delhi: The defence ministry on Wednesday issued directives providing for procurement of 26 spares and equipment for military use only from domestic suppliers in sync with the government's focus on encouraging indigenous defence manufacturing, officials said.

The move came days after Finance Minister Nirmala Sitharaman unveiled a series of reform measures to promote the domestic defence industry and cut India's reliance on imported weapons and military platforms.

All the items identified for procurement from domestic defence manufacturers are used in shipbuilding.

So far, the defence ministry has notified 127 items where purchase preference is given to local suppliers.

"In order to further encourage procurement from local suppliers, 26 items out of 127 already notified, have now been notified under clause 3(a) of the Public Procurement (Preference to Make in India) Order 2017," the defence ministry said in a statement.

"Henceforth, procuring entities will procure these items only from local suppliers, irrespective of purchase value, provided that the local suppliers meet the minimum local content (MLC) as prescribed for each item," it said.

The local content prescribed for the 26 items is in the range of 40 per cent to 60 per cent.

The reform measures announced by Sitharaman included making separate budgetary outlay to procure Indian-made military hardware, increasing FDI limit from 49 per cent to 74 per cent under the automatic route and generating a year-wise negative list of weapons whose import will not be allowed.

India is one of the most lucrative markets for global defence giants as it figured among top three importers of military hardware in the world for the last eight years. According to estimates, the Indian armed forces are projected to spend around \$130 billion in capital procurement in the next five years.

Experts said increasing the existing Foreign Direct Investment (FDI) cap to 74 per cent will encourage global players like Lockheed Martin, Boeing, Airbus and Dassault Aviation to set up manufacturing hubs in India and bring niche technology without hesitation as the firms will have majority stakes in their Indian subsidiaries.

<https://timesofindia.indiatimes.com/india/govt-mandates-purchase-of-26-military-equipment-only-from-domestic-firms/articleshow/75852265.cms>





*Thu, 21 May 2020*

## **Is the Covid-19 financial crash the right time for India to cut 40% of military budget? It may be, if played right**

India ranks behind only the US and China for military spending. With massive budget cuts coming, it needs a model that gets it more for its money – like Russia's. Faced with an impending economic crisis, India is looking to review its military spending. Following indications by the Ministry of Defence that the military budget could be cut by up to 40 percent, India's first Chief of Defence Staff (CDS), General Bipin Rawat, has called upon the armed forces to reduce their dependence on arms imports, rein in further spending and focus on increasing locally produced arms.

"We are not expeditionary forces that have to deploy around the globe," he said, emphasising that Indian armed forces only need to "guard and fight" along the country's borders and dominate the Indian Ocean region.

Over the past 15 years, India – with tacit support from the United States – has embarked on a defence modernisation programme to keep pace with military developments in China and maintain superiority over Pakistan.

As a result, India has emerged in recent years as the one of the world's largest arms buyers. According to the latest report on global military spending by the Stockholm International Peace Research Institute (SIPRI), India was ranked third in 2019 after the US and China, with a budget of \$71.1 billion. But in a post-Covid-19 economy, is this expenditure sustainable, and does India actually require such massive military capability?

### **Influenced by the US**

Some experts in India believe that the country has bought too much into the 'doctrine of interoperability' promoted by the Americans, particularly since 2016, when India was elevated to a 'Major Defense Partner' by the United States. Consequently, General Rawat believes that over the years the Indian military has misrepresented its operational requirements and sought to convince the country's politicians to buy unnecessary weaponry from abroad.

The CDS would like to see more "realistic" requirements for equipment from the military staff.

But there are many from the military who disagree. Lt Gen Harwant Singh, former Deputy Chief of the Indian Army, warned against any rethink, emphasising that historically the "outcome of battles was heavily tipped in favour of the quality of the weapon," and suggesting that India can ill-afford to downsize its military capability.

India's vastly expanded defence capability seems to have boosted the confidence of the military to undertake unprecedented bold actions across the border with Pakistan and stand off against China during the Doklam crisis in 2017.

The fact that cross-border terrorism from Pakistan has reduced drastically, and that Sino-India relations are now warming up, is testament to India's improved military standing and should not be mistaken as a sign of improved bilateral relations. In all likelihood, India will continue to face hostility from its neighbours in the foreseeable future, and so restricting arms imports at this stage could compromise the country's national security.

Defence technology requires huge investment and years of intensive research. As it stands, India's military industrial complex is still underdeveloped and has limited capacity to produce sophisticated weaponry. To address this, the country has imported technology from abroad. For

instance, with Russian support, India has achieved self-sufficiency in shipbuilding and missile tech. But, funding for research and development is still a small fraction of India's overall defence budget, and with less set to be spent, there simply won't be enough money to upgrade all weapons, let alone to invest in locally produced efforts.

### **Following the Russian model**

But what can't be denied is that there are areas where cuts can be made. Over half the budget, for example, is used to pay salaries and pensions, a figure that is the highest in the world.

In contrast, Russia, which is ranked fourth in budget spend after India by SIPRI, fields a military that's almost 900,000 strong, with a conventional and nuclear arsenal capable of taking on all major powers. While it is true that Russia does not buy expensive weapons from the West, this can also be attributed to the Russian military developing a coherent strategy, despite a steady reduction in spending from 2011 until 2018.

Over the years, Russia has successfully modernised vintage Soviet platforms by adding new components, making them almost as effective as new platforms at a fraction of the cost.

For instance, Russia's highly advanced air defence set-up is built upon the extensive Soviet system, but incorporates the latest electronic warfare capabilities that can counter perceived US advantages.

Another example is the strategy adopted by the legendary Admiral Sergey Gorshkov, an advocate of the approach "Better is the enemy of good enough." Based on this, Gorshkov revamped and expanded the early Soviet Navy into a major sea power, using a mix of old and new systems to maximum effect.

### **What India could do**

While India has used a similar approach reasonably successfully to integrate local platforms with Western and Russian systems, there is more military planners could do to rein in costs.

For instance, Admiral Arun Prakash, former chief of the Indian Navy, suggests that the air force could invest in more missiles if there isn't enough money to import new fighter planes. Similarly, General Rawat recommends that the navy could buy more submarines rather than a third aircraft carrier.

As one of the world's largest military spenders, India has significantly improved the capabilities of its armed forces. But now seems a good time to pause and take stock. In a post-Covid-19 world, where global military spending will be in decline, reviewing and restructuring the nation's military requirements in a cost-effective manner would seem to be a wholly sensible approach.

<https://idr.org/is-the-covid-19-financial-crash-the-right-time-for-india-to-cut-40-of-military-budget-it-may-be-if-played-right/#more-227742>

# ThePrint

Thu, 21 May 2020

## **Army reviewing policy to assign aides-de-camp to governors, cites shortage of young officers**

*An aide-de-camp in the armed forces primarily functions as a protocol officer, who looks after implementation of the protocols, and as an executive assistant*

*By Amrita Nayak Dutta*

New Delhi: The Army is reviewing its policy on providing aides-de-camp (ADC) to the governors of states as it faces an acute shortage of young officers, ThePrint has learnt.

In a letter earlier this month, the Army headquarters has asked military secretaries of all the commands across the country to review if ADC should continue to be posted on deputation with

the governors of states, keeping in view their functional utility and the current shortage of young officers in the Army.

The Army has also told the commands an ADC may be required in states having substantial army presence.

While states such as Punjab, Rajasthan, Assam, Arunachal Pradesh and Nagaland have a large Army presence, states like Odisha and Jharkhand, have comparatively fewer Army establishments.

### **What is ADC in armed forces?**

An aide-de-camp (official position) in the armed forces primarily functions as a protocol officer, who looks after implementation of the protocols, and as an executive assistant.

An ADC is also responsible for carrying out liaison with the local military authorities and looks after the professional requirements of the officer/governor he is attached to.

An ADC should have five to seven years of experience in the armed forces. He is selected on the basis of his professional performance and an interview.

Besides the governors of states, aides-de-camp are authorised to senior officers in the armed forces and the President of India.

### **President has five aides-de-camp**

The President of India has five aides-de-camp — three from the Army, and one each from the Navy and the Air Force.

Each state governor has two aides-de-camp — one comes from either the Army/Navy/Air Force, and the other one from the state's police force.

As many as 16 aides-de-camp are provided by the Army to the governors, while the rest come from the Navy and the Indian Air Force.

Earlier, Vice-Presidents were not assigned an ADC, but ever since Venkaiah Naidu took over as the Vice-President, he has been assigned two aides-de-camp from the military.

Over the last few years, several senior Army officers have been replacing their ADC with a staff officer, who has about 16-18 years of experience and is usually a “non-empanelled lieutenant colonel” because of a shortage of young officers in the Army, a senior Army officer told ThePrint.

### **Doing away with ADC system will be ‘worst decision’**

The Army's move to review the policy has evoked a mixed reaction. While some felt it would help address the redundancy of the job associated with the position, others said it is a legacy that should not be done away with.

A second senior Army officer told ThePrint the system of ADC to governors has “its roots in our legacy”.

“The service to the governor is the first point of military contact available to the state and one of the best selected officers is sent for the job. Continuing this is not only the interest of civil-military relationship, but also critical as the Army's participation in democracy,” the officer said.

“Doing away with this out of narrow, perceptual gains will be the worst decision we can take, as it gives an exposure to the officers in military administration,” the officer added.

A third Army officer, however, said it is not yet a policy and at a preliminary stage. “Only views have been sought as of now on the idea,” the officer said.

### **Just a vestige of the past: Ex-Himachal governor**

Some former governors were largely supportive of the idea to do away with the legacy of ADC.

Former governor of Mizoram Lt Gen. Madan Mohan Lakhera (Retd) told ThePrint: “There are so many times that the officer (police or military) ensures a smooth tour programme for the government (among other tasks). However, if the Army feels that there is a shortage of officers, military ADC can be withdrawn as the governor deals with mostly the civil population.”

V.S. Kokje, former governor of Himachal Pradesh, said the Army has initiated a good move.

“I feel it is just a vestige of the past. The roles performed by a military ADC attached to a governor can also be performed by others and they can contribute much more in their core jobs,” he said

<https://theprint.in/defence/army-reviewing-policy-to-assign-aides-de-camp-to-governors-cites-shortage-of-young-officers/426029/>



Thu, 21 May 2020

## Military training in the times of social distancing

*It would seem worth the effort for the Indian military to invest well — in a sustained manner, over the coming decade — in high-end simulators*

*By B S Dhanoa*

Military training, especially tactical level training for any of the services, is an amalgam of individual skills, close knit teamwork while understanding each other's tasks and being able to function in a closed space as crew of complex weapons platforms, where sensory inputs come in fast and thick and you have to react instinctively, with one's reflexive training coming in. All this cannot happen without months (in some cases years) of repetitive and progressive training, which involves close contact between service members, instructors and training aids, or the weapons platforms themselves. The arrival of a virus pandemic that transmits through close human contact and uses fomites (surfaces that aid transmission) to proliferate has posed a severe challenge to the Army, Navy and the Air Force. How do they ensure that the high level of training skills needed by their multifarious crewmen and women are not degraded by social distancing and precautionary measures, and training can progress as hitherto fore, or as near to what it was before?

With the threat of the coronavirus (COVID-19) not going away anytime soon, this article focuses on ways and means that services can continue to train with the use of technology and available gaming tools, as also to use this opportunity to bring in an increased focus on the exploitation of high-end simulators, using a virtual training environment, for larger force tactical training without going out in the field each time such training is mandatory. Such simulation-based military training is already gaining popularity abroad amongst defence organisations as it offers the dual benefit of boosting operational effectiveness while reducing costs. The examples and suggestions that follow are mainly for the Army, but they can be suitably modified and used in the other services' training as well.

**There will have to be serious thought given to increasing the availability of later generation simulators.**

Simulators (1<sup>st</sup> and 2<sup>nd</sup> gen) have been around in the Indian Army since the mid '90s onward. Various types of individual and crew-based simulators have been developed and fielded by the organisation itself and through purchases off the shelf, or from manufacturers of original equipment that have supplied simulators for basic orientation of crew with different weapons platforms. However, these simulators are inadequate in number and capabilities to completely replace outdoor training in these times of social distancing.

There will have to be serious thought given to increasing the availability of later generation simulators either through the existing defence production ecosystem (a near non-starter given the cumbersome and laborious defence procurement procedure), or go in for off the shelf purchases of gaming tools and commercial equipment which may partly alleviate the need for waiting endlessly for new equipment to arrive. The financial powers vested in the Vice Chiefs for emergency procurement during the COVID-19 pandemic ought to be, with MoD's permission, also used for purchasing essential virtual training aids that help soldiers hone their hand-eye coordination and tactical skills.

**Rather than sit morosely in the barracks waiting for restrictions to lift, use of this time to hone firing or movement skills in games such as Call of Duty and Sniper Elite would be better than doing nothing at all.**

Today's generation of new soldiers is savvy in handling their smartphones and can deftly use the device for tasks that the older generation find difficult to do or manipulate on the virtual keyboards these devices have. So we already have a neurological advantage (to loosely use this phrase) with the next-gen of soldiers and crew, who are comfortable handling the keyboards, and even game controllers for online games amongst a few of them (this is an assumption based on presumed likelihood of some urban youth having played online games in parlours, etc.). There are endless digital games for personal computers and handheld devices available online or as software purchases. Xbox and PlayStation 4 are just two examples of gaming consoles that offer controls and software to introduce and train soldiers to the novelty of doing their actual tasks first online in a gaming world and then progress to the physical one. We should look to authorise a minimum of one such console for each sub-unit, adding it to the list of legal purchases from the training grant at unit level. Critics would say that the virtual world is very different from the actual one. No doubt this is so, especially for military personnel. And yet, rather than sit morosely in barracks waiting for restrictions to lift, use of this time to hone firing or movement skills in games such as Call of Duty and Sniper Elite would be better than doing nothing at all. Even driving skills can be honed online through such games ForzaHorizon4 or AsphaltLegends9 (which is a free software). In fact, US Army soldiers from the 3rd Armored Brigade Combat Team, 1st Cavalry Division are currently using an online tank simulator, War Thunder, to stay sharp and ready despite the limitations on training posed by the pandemic.

The above is just one such rudimentary solution to the challenge of training soldiers who are confined to barracks and unable to handle their actual weapon systems. Numerous such ways and means can be found if robust and realistic simulators are looked upon as the primary means of introducing all military personnel to their complex tasks and the geographical variations of terrain over which they would have to traverse and perform. As the following statement observes:

“Simulated systems are particularly effective for training scenarios that have a high degree of difficulty (that is, involving a large number of complex procedural steps or interactions), have a high level of importance (for example, involving mission or safety critical equipment or operations), or are conducted infrequently which means there is an increased risk of skills fade over time.”

Therefore, one can infer that even for larger and more complex training, combat tactical trainers need to proliferate army wide, in adequate numbers, and should be used extensively in bringing crew and sub units into training for scenarios that are difficult to replicate in the real world but can be done easily in the virtual. Another good example, again from the US Army, is their use of an “Integrated Visual Augmentation System (IVAS) based on Microsoft’s HoloLens technology to ‘rapidly assess’ the temperature of hundreds of soldiers daily in the base’s training pipelines, including basic training and Ranger School.”

**It may be beneficial eventually to start investing heavily in simulators now with an eventual payoff in training and costs in the long-term.**

Thus, it is a given that we need a better understanding of what the virtual and synthetic training construct that high-end computers, wirelessly connected weapons and crew (through the use of Bluetooth, Nfc, RFID, 5G, etc.) and combat controllers bring to the training environment in terms of their capabilities, effectiveness and limitations. Today, such advanced simulators are only in developmental stages in the Indian military. Cost maybe an inhibiting factor initially, however, we have to realise that with dwindling training areas, increased awareness of the local populace, where ranges exist, of the long-term environmental impact of explosive shells and corrosive munitions, it may be beneficial eventually to start investing heavily in simulators now with an eventual payoff in training and costs in the long-term. A 2019 RAND Corporation study titled, Collective Simulation-Based Training in the US Army – User Interface Fidelity, Costs, and Training Effectiveness, is

quite detailed in emphasising the overall assimilation, simulation fidelity and acceptance among troops of the US Army of the benefits of such virtual training in gauging performance on the field.

Therefore, it would seem worth the effort for the Indian military also to invest well and in a sustained manner over the coming decade in high-end simulators, developing multiple simulation nodes across the country for the effective training (and eventual cost reduction in training) as the capability of such simulation scenarios improves to give a 360 degree immersive experience of operating, executing and even taking casualties on the virtual battlefield. The possibilities are endless and the COVID-19 experience can become a harbinger for this journey into the virtual military world, which can offer endless opportunities to commit mistakes, learn from them and come out victorious in the real one when the time comes.

<https://www.orfonline.org/expert-speak/military-training-times-social-distancing-66424/>

## Business Standard

Thu, 21 May 2020

### Covid-19 delays indigenous aircraft carrier by six months more, possibly to 2023

By Ajai Shukla

The long wait for India's first indigenous aircraft carrier, INS Vikrant, is set to be even longer. Senior naval sources say the Covid-19 pandemic has set back the start of trials by at least six months – perhaps more if the lockdown and travel restrictions continue.

The first phase of the warship's trials – termed basin trials – was initially scheduled to begin on March 12 at Cochin Shipyard Ltd (CSL), where INS Vikrant has been constructed. However, construction delays caused that to be moved back to April. Then, with the Covid-19 pandemic locking down facilities and travel, the navy says trials are unlikely to begin before September/October.

An example of the delay is the difficulty faced by marine engine specialists from Hindustan Aeronautics Ltd (HAL) in travelling to Kochi for the trials. These HAL representatives are essential for the trials because the General Electric (GE) gas turbines that power INS Vikrant have been built and supplied by HAL's collaborative venture with GE in Bengaluru. However, the HAL representatives are reluctant to travel to Kochi, where they would face 14 days of quarantine on arrival in Kerala and another 14 days quarantine on return to Bengaluru.

Similarly, there are about 40-50 vendor representatives, including 10 from abroad, who cannot come to Kochi for basin trials without facing the deterring prospect of mandatory quarantine.

“The navy has even offered to organise the vendors' quarantine and to pay the expenses that are incurred. Given how much this delay in trials is escalating the cost of INS Vikrant, we would pay less for the quarantine and related expenditure. But the Kerala government is not agreeing to this,” says a navy admiral on condition of anonymity.

“We were optimistic about finding a solution because Kochi and Ernakulam are green zones. But when we request to the Kerala government, they say:

‘Yes, we are in a green zone but we don't want to convert it back to a red zone’,” he said.



INS Vikrant (pictured above at its launch) will be delayed by another six months due to Covid-19 travel restrictions

In his Navy Day press meeting last December, the navy chief, Admiral Karambir Singh, had said the navy would have a fully operational INS Vikrant before the end of 2022. The Covid-19 pandemic has already pushed that back to 2023 and further delays are possible.

Karambir Singh stated it was operationally essential for the navy to operate three aircraft carriers. It now appears that, for about three more years, it will have to make do with its lone carrier – the Russia-built INS Vikramaditya.

<http://ajaishukla.blogspot.com/2020/05/covid-19-delays-indigenous-aircraft.html>



Thu, 21 May 2020

## HAL needs to prove ALH-Dhruv for Maritime Operations

*By Tushkar Shirodkar*

State-owned HAL Entering Naval Utility Helicopters Competition has come as a shocker for many in the Indian Navy under which 111 helicopters could be procured by Navy to meet requirements for ship-borne operations for search and rescue (SAR), special heliborne operations, armed patrol, sniper operations, and VVIP travel.

HAL is proposing to offer a navalised variant of the 5.5t ALH Dhruv MkIII helicopter, with both a folding rotor and tail boom but Indian Navy's inventory already has 8 Dhruvs which are mostly based on land-based Naval air base and in past failed to be qualified for operations from the Naval warships due to technical challenges which HAL has failed to resolve since 2003.



One of the main issues with Naval ALH Dhruv has been automatic foldable blades system without weight penalties while HAL in past demonstrated manual Segmented blades folding system but Navy wanted an automatic foldable blades system. The second major issue with older Naval ALH Dhruv was that due inherent design characteristics of the ALH, storage in small space was also a constraint due to which Naval ALH Dhruv order never went beyond 8 and were limited to operations from Land-based Naval facilities.

In 2018, Hindustan Aeronautics Ltd (HAL) said it has found a solution to the problem faced by the Navy, Due to hangar space constraints, it was difficult for the Navy to accommodate Advanced Light Helicopter (ALH) Dhruvs, which aid in the search and rescue missions. HAL has addressed the issue by developing a folding section for the tail rotor so that it doesn't take much space.

HAL has claimed that with a folding section for the tail rotor and automatic foldable blades system for the main rotor it is ready to meet Navy's requirements for the 111 Helicopters but issues raised by the Navy has been that this system promised are only in the drawing boards and HAL has not developed any prototype with folding section for the tail rotor and automatic foldable blades system for the main rotor yet and one showcased at much fanfare at the defense exhibition was on a non-flying airframe.

Navy believes that demonstration of both of these key technologies might take up years and its Helicopter fleet will only shrink in future due to retirements of older Helicopter fleets hitting its operational readiness. HAL had promised and failed to deliver in past and Navy has the right to have doubts about HAL claims this time too unless HAL demonstrates this technology and make them available for trials in a short span of time to be seen as a serious contender in the competition.



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<https://idrw.org/hal-needs-to-prove-alh-dhruv-for-maritime-operations/#more-227717>



Thu, 21 May 2020

## Why India should exit the Moon agreement

By M Ramesh

Chennai: ‘Space’ has taken centre-stage once again; a spot that it had occupied during the days of Chandrayaan-2, with the Finance Minister Nirmala Sitaraman opening the doors for private sector participation in all space activities.

While that is quite epochal, something else happened in the United States (US) relating to space, far away from media glare.

In April 2020, in the thick of the Covid-19 crisis, the US President signed an executive order, which in effect said the US would oppose any objections to mine minerals from the Moon.

Why would (or could) anybody object to any country mining anything from the Moon, or elsewhere in space, such as asteroids?

The answer to this lies in the so-called ‘Moon Agreement’ of 1979, brought in the United Nations Office for Outer Space Affairs (UNOOSA). India signed this ‘Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, but never ratified it. Now, after the US have shown the way, there is a call for India to formally exit it.

On the face of it, the Moon Agreement is benign—it seeks to “promote rule of law in this human endeavor”, and says that human activities on the Moon should be peaceful, never hostile and in accordance with international law. This means, no military bases on the Moon, no “disruption of the existing balance of its (Moon’s) environment”, share information etc.

But deeper hidden meanings in the provisions have been found to be problematic. As such, only 18 countries signed the agreement, including India and France, but not including the US, Russia and China.

Now, in the order signed by Donald Trump, there is a curious sentence, “Uncertainty regarding the right to recover and use space resources, including the extension of the right to commercial recovery and use of lunar resources, however, has discouraged some commercial entities from participating in this enterprise.”

The order further notes that “questions as to whether the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the “Moon Agreement”) establishes the legal framework for nation states concerning the recovery and use of space resources have deepened this uncertainty.”

India must formally exit this agreement, says Dr Chaitanya Giri, a Gateway House Fellow of Space and Ocean Studies Programme, who was earlier affiliated to the Earth-Life Science Institute at Tokyo Institute of Technology and the Geophysical Laboratory at Carnegie Institution for Science.

The problem with the Moon Agreement, Dr Giri told *BusinessLine*, lies in the Article 4.1, which says that “the exploration and use of the Moon shall be the province of all mankind and shall be

carried out for the benefit and in the interests of all countries, irrespective of their degree of economic and scientific development.”

This can be interpreted to mean that if you are a signatory to the agreement, you shall share the fruits of your efforts on the Moon with everybody, whereas if you are not a signatory you won't have to do so.

“The wording is inherently proscriptive and restrictive,” observes Keith Cowing, a former employee of the US space agency, NASA, and the editor of the American space programme blog, NASA Watch.

There is a fear that China, which is aggressively pursuing the Moon, might create problems invoking the treaty. This was hinted in the US order where it says “the Secretary of State shall object to any attempt by any other state or international organization to treat the Moon Agreement as reflecting or otherwise expressing customary international law.”

China has its own ambitious Moon programme. It recently tested the Flexible Inflatable Cargo Re-entry Vehicle (FICRV), a deep-space capsule, designed to carry Chinese taikonauts to the Moon. “It is an important constituent of China's plans for an Earth-Moon Special Economic Zone,” says Giri. China expects the zone to generate an astonishing \$10 trillion dollars through space-based services and manufacturing, and extraction of extra-terrestrial natural resources, he says.

US, through NASA, has proposed its own international protocols, called Artemis Accords “to establish common set of principles to govern the civil exploration and use of outer space”, which is open for international space agencies to sign on.

“Given these developments, it is time for India to immediately announce its withdrawal from the redundant Moon Agreement,” says Giri. Rather than be a signatory to a treat that most space-faring nations have not signed on, India must make “pragmatic collaborations.”

When *Business Line* contacted Dr K Sivan, Chairman of the Indian space agency, ISRO and the Secretary of the Department of Space, he said he would first like to understand all the implications of the issue before commenting. A predecessor of Sivan's, Dr K Radhakrishnan, also refused to comment, as did another top serving ISRO official.

<https://www.thehindubusinessline.com/news/science/why-india-should-exit-the-moon-agreement/article31634373.ece#>

TIMESNOWNEWS.COM

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Thu, 21 May 2020

## **Anti-terrorism Day: Armed forces ' kin say ' we're taught to be strong; life teaches us to respect, protect'**

*Anti-terrorism Day aims at honouring the sacrifices of thousands  
of soldiers who have, over the years, fought against terrorism*

*By Ria Kapoor*

New Delhi: Anti-terrorism day is celebrated in India on May 21 - which is also the death anniversary of India's former Prime Minister Rajiv Gandhi. The aim of this day is to promote and send out the message of global peace and non-violence.

It also aims at honouring the sacrifices of thousands of soldiers who have, over the years, fought against terrorism. The anti-terrorism day is dedicated to our armed forces who fight the evil relentlessly, despite risking their lives and to those who have lost their lives in terrorist attacks over time.

As a common man, to think of terrorism means to think of 'danger' or 'terror' at the borders. However, to people who live lives dedicated to the country and more so, to family members of people in armed forces, it's much more than just that.

To them, it's a personal connection, a knot that often poses hurdles in the lives of their loved ones - sometimes leading to disruptions in their own lives. They, despite not fighting at the borders themselves, often register the situations involving terrorism with alertness.

### **'Brave soldiers put so much at stake..'**

"As a defence kid I do see terrorism as one of the biggest evils in the world that need to be urgently taken care of," said Arushi Dayal (23), whose father is in the Air Force and mother is in the Army. She added, "...It does cost the lives of brave soldiers who put almost everything they hold dear to themselves at stake.."

Dayal said, "We have emotions too so we can't avoid being worried or scared in case of a serious situation but yes, what does set us apart in that regard is that our lifestyle, since the time we are born, has trained our minds to be mentally and emotionally strong. We're prepared for the worst."

"The biggest fear or apprehension is simply the fact that we might just lose our parents, however mentally in our defence household, we're not trained any different from an actual soldier standing at the border. We know that come what may, you just got to keep marching forward. And in reality, it's one of the biggest privileges we get as defence kids," she further said.

### **'It's a constant fear..'**

While talking about the fears and apprehensions that come with being related to somebody in the armed forces, Deeksha Shyam Sundar (23), whose dad serves in the Indian Navy, said, "My father doesn't tell us things that are happening, so it's a constant worry when you hear about incidents. You're always thinking, was he there? Does he know? Was he caught in the fire? Because he hasn't told you anything."

While speaking about the evil that terrorism is, Deeksha said, "Stopping terrorism globally is paramount. We must put up a united front against terrorism as a single global team. Any and every support for terror must be stopped."

Ishita Seth (24), whose father served in the Indian Army for 24 years, said, "When you grow up as an Army kid, the unit is your immediate family, and when someone doesn't come back, it hurts."

### **'Fauji-fauji, bhai-bhai'**

"As an Army kid, I am emotionally attached to the organisation and what it stands for, the news of any defence officer's demise still brings tears to our eyes, even if we did not know them personally. Fauji-fauji, bhai-bhai," Seth added.

Talking about how terrorism is not location- or time-bound, she further said, "Terrorism exists in small homes, and big training camps.." She added: "After all, these men and women leave their families for years, not knowing when and if they will return."

Speaking about how being a part of a family that has person(s) in the armed forces can groom lives, Shyna Agarwal (name changed on request) said, "Growing up as a child of a defence personnel, you learn the value of two very important skills: how to respect and how to protect."

On being asked how she emotionally copes with being a part of such a family, Agarwal said, "There's wasn't much of a choice. This was the life we lived. We were proud to be the children of a community that did the people of our nation such a great service and though we feared for our mothers or fathers who were serving whenever they would be dispatched or set sail or leave for their temporary duties (or Ty duties as they are called), we knew it was a part of the whole deal and there was no changing that."

Rahel P, whose father works with the Indian Navy, said that while the exposure to the world of terror has been limited for them, there still have been instances where fear has managed to creep in.

"We were in Bombay when 26/11 happened and that was extremely stressful for us as a family especially since my dad was at work for three days straight. He didn't come home. It's scary when things like that happen.." Rahel said.

Mehr Kahlon, whose father works with the Indian Army, also opened about the deep-instilled feeling that comes along with being an armed forces' child. She said, "There's always a sinking feeling when you read about officers and jawans dying in terrorist encounters. My father is posted in J&K where encounters are not uncommon but even then when you get some news there's always an inherent fear with regard to their safety."

Terrorism has therefore been a big part of lives - lives that have been exhausted and lives that still continue to inspire every day and that is why something that destroys so much on such a massive level should be eradicated at all costs.

<https://www.timesnownews.com/india/article/anti-terrorism-day-armed-forces-kin-say-were-taught-to-be-strong-life-teaches-us-to-respect-protect/594911>

## Science & Technology News

hindustantimes

Thu, 21 May 2020

### Made in India 'moon soil': ISRO gets patent

*On May 18, the Indian Patent Office granted patent to ISRO for an invention as to the method of manufacturing highland lunar soil stimulant*

*By Harshita Singh*

Chennai: The Indian space agency has got the patent for its method of manufacturing highland lunar soil simulant or simply lunar/moon soil.

As a part of its Moon landing mission Chandrayaan-2, the Indian Space Research Organisation (ISRO) had to prepare an artificial moon surface so that the Vikram lander and Pragyaan rover could be tested.

On May 18, the Indian Patent Office granted patent to ISRO for an invention as to the method of manufacturing highland lunar soil simulant.

The patent is valid for 20 years from the date of filing the application, i.e., May 15, 2014. The inventors are: I. Venugopal, S.A. Kannan, Shamrao, V. Chandra Babu (all from ISRO), S. Anbazhagan, S. Arivazhagan, C.R. Paramasivam, M. Chinnamuthu (all from the Department of Geology, Periyar University, Salem, Tamil Nadu) and K. Muthukkumaran from the National Institute of Technology, Tiruchirappalli, Tamil Nadu.

"The surface of the earth and that of the moon are entirely different. So we had to create an artificial moon surface and test our rover and lander," M. Annadurai, who retired as Director, U.R. Rao Satellite Centre (URSC), formerly ISRO Satellite Centre, had told IANS.

Importing lunar soil like substance from the US was a costly affair and ISRO looked for a local solution as its need was about 60/70 tonnes of soil.

Many geologists had told ISRO that near Salem in Tamil Nadu, there were "anorthosite" rocks that would be similar to the features of moon soil or regolith.



The patent is valid for 20 years from the date of filing the application, i.e, May 15, 2014. (Reuters )

The ISRO finalised to take the “anorthosite” rocks from Sithampoondi and Kunnamalai villages in Tamil Nadu for moon soil.

Annadurai said the rocks were crushed to the required size and moved to Bengaluru where its Lunar Terrain Test Facility was located and the test bed was created.

As per the patent papers filed, the invention relates to a lunar simulant prepared from a terrestrial analogue and a method for producing and manufacturing it.

The simulant is almost equivalent to the regolith of the lunar highland region and comparable with Apollo 16 return samples.

The lunar soil simulant can be used for scientific studies of lunar terrain relating to mobility/trafficability of rover for scientific explorations or for the study of geo-technical/mechanical properties of lunar soil for understanding the engineering behaviour of lunar regolith or to carry out fundamental research work (theoretical and experimental) to postulate a broad design philosophy for realising civil engineering structures on the Moon surface, and to make a pathway to lunar locomotive engineering.

Lunar exploration requires a full understanding of the physical and chemical properties of lunar surface soil as most of the building materials have to be produced out of the regolith for human settlement on the Moon.

As per the papers filed by ISRO, compositionally, the lunar soils fall into two broad groups: The highland soils, which are developed on anorthositic bedrock, and mare soils, which are developed on basaltic bedrock. Mare soils can be further sub-classified as to high or low titanium content soils.

Highland soils are relatively enriched in aluminium and calcium, while mare soils are relatively enriched in iron, magnesium and titanium. The use of lunar simulants is focused on physical characteristics of the lunar regolith for undertaking landing and transportation activities.

“There are more than 30 lunar simulants that have been produced to date, some of which have been exhausted,” ISRO said.

Most of the countries produced simulants representing the lunar mare region.

The lunar highland crust occupies 83 per cent of the lunar surface. However, only limited number of simulants represent the regolith of the lunar highland region, ISRO said.

According to the Indian space agency, most of the future missions propose for soft landing on the lunar highland region. Hence, there is an urgent need for a bulk quantity of lunar soil simulant, which represents the highland lunar crust.

The lunar soil simulant of the present invention is exclusively manufactured to represent the lunar highland region. The regolith of the lunar highland region is mainly derived from anorthositic rock formation.

The present simulant produced and manufactured in bulk quantity exactly from similar rock samples identified and picked out from the Sittampundi Anorthosite Complex, India.

Moreover, the invention satisfied all aspects, including mineralogy, bulk chemistry, grain size distribution and geo-mechanical properties.

As the mission to land the Vikram moon lander safely failed earlier, India is planning a similar mission going forward.

<https://www.hindustantimes.com/science/made-in-india-moon-soil-isro-gets-patent/story-ZKouDlyvIzQwgEVAXewlIO.html>

## A deep-learning-enhanced e-skin that can decode complex human motions

By Ingrid Fadelli

Researchers at Seoul National University and Korea Advanced Institute of Science and Technology (KAIST) have recently developed a sensor that can act as an electronic skin and integrated it with a deep neural network. This deep learning-enhanced e-skin system, presented in a paper published in *Nature Communications*, can capture human dynamic motions, such as rapid finger movements, from a distance.

The new system stems from an interdisciplinary collaboration that involves experts in the fields of mechanical engineering and computer science. The two researchers who led the recent study are Seung Hwan Ko, a professor of mechanical engineering at Seoul National University and Sungho Jo, a computing professor at KAIST.

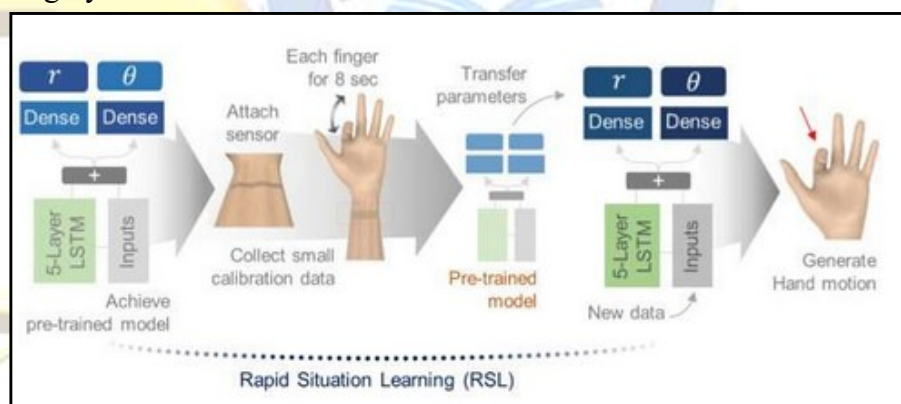
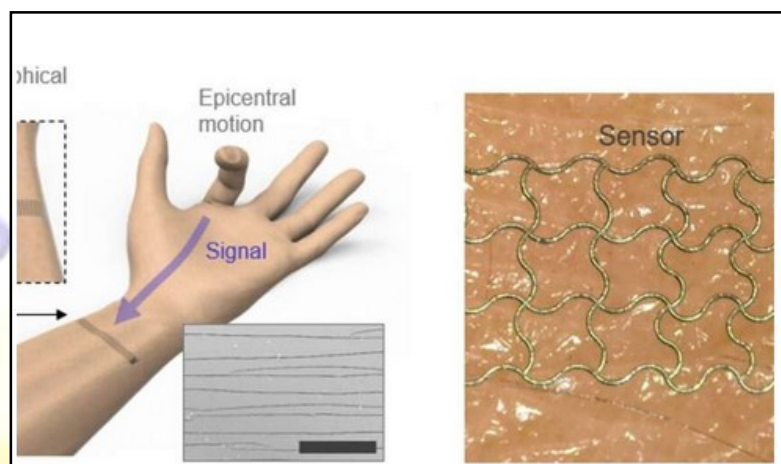
For several years, Prof. Ko had been trying to develop highly sensitive strain sensors by generating cracks in metal nanoparticle films using laser technology. The resulting sensor arrays were then applied to a virtual reality (VR) glove designed to detect the movements of people's fingers.

"My lab typically used at least five to 10 strain

sensors to predict the accurate hand motion (at least one to two sensors for each finger), because the required number of strain sensors increases as the complexity of the target system increases," Prof. Ko said. "A few years ago, I started asking myself the following question: Can we accurately predict hand motion with only one single strain sensor instead of using many sensors? Initially, this appeared to be a dumb question, because it was almost impossible to tell what finger the signal from a strain sensor came from."

While Prof. Ko was trying to develop a single strain sensor capable of accurately predicting people's hand motions, Prof. Jo was investigating strategies to integrate machine learning techniques with state-of-the-art sensors. Prof. Jo believed that sequential sensor patterns generated by people's finger motion could be analyzed using machine learning, even if these signals were detected by a single sensor.

"We realized that if we were able to utilize these patterns using machine learning, we could clearly decouple multiple different behaviors observed by a single sensor," Prof. Jo said. "After



close collaboration, we were able to develop a single deep-learned sensor that can predict complex hand motions. "

When mounted on a user's wrist, the sensor developed by Prof. Ko, Prof. Jo and their colleagues can detect electrical signals produced by his/her hand movements, while also identifying what finger these signals are coming from. In contrast with more conventional e-skin systems, which require at least one sensor for each finger to accurately predict a person's hand motions, the new deep learning-powered sensor also works well when used in isolation.

"Conventional e-skins needs at least five to 10 strain sensors to accurately predict hand motions, with the required number of strain sensors increasing as the complexity of a target system increases," Prof. Ko told TechXplore. "The deep learned electronic skin sensor we developed, on the other hand, can achieve this job with only a single sensor."

Rather than simply fitting the signals detected by the sensor using more conventional approaches, the researchers used a deep learning model to analyze signal patterns over time and ultimately uncover the finger motions underlying the collected data. Essentially, Prof. Ko, Prof. Jo and their colleagues proved that when combined with deep learning techniques, a single sensor could achieve results comparable to those of several sensors.

"Our results imply that we can achieve complex detection with a lower number of sensors," Prof. Jo said. "This will dramatically simplify the systems needing sensors for complex detection. We also anticipate that the new approach will facilitate the indirect remote measurement of human motions, which is applicable to wearable VR/AR systems."

In initial evaluations, the e-skin system developed by this team of researchers achieved highly promising results, successfully detecting and decoding complex finger motions in real-time, while also operating consistently well regardless of its position on a user's wrist. In the future, the sensor could have a number of interesting applications, both in the development of robots and wearable devices, such as fitness trackers. Interestingly, when placed on a user's pelvis, the same system can also decode gait motions (i.e., walking styles), thus it could be used to create small and efficient motion tracking devices.

"In this research, we used the machine learned sensor to decode hand motions," Prof. Ko said. "In the near future, however, we plan to build on this research to achieve more complex body motion prediction, such as that of legs, arms and perhaps even the entire body."

<https://techxplore.com/news/2020-05-deep-learning-enhanced-e-skin-decode-complex-human.html>



PHYS ORG

Thu, 21 May 2020

## Scientists show a promising solid electrolyte is hydrophobic

Skoltech researchers and their colleagues have shown that LATP, a solid electrolytes considered for use in next-generation energy storage, is highly sensitive to water, which has direct implications for potential battery performance and lifetime. The paper was published in the journal *Chemistry of Materials*.

Although renewable energy sources attract much interest all over the world due to green technologies and high conversion efficiency, their integration remains a challenge as renewables are inherently cyclic and inconsistent. As night follows day and calm follows wind, the idle mode follows power generation. Such an unpredictably intermittent power supply can't meet consumer expectations, but there is a solution that can overcome this obstacle: energy storage grids. These systems are expected to collect spontaneously generated energy and distribute it on demand, providing stable and flexible power delivery.

Among the wide range of energy storage systems, redox-flow batteries seem to be the most appropriate due to easy scalability, operation, and controllable output power. A redox flow battery is, in a way, a conventional battery turned inside out: The electrodes are liquids (anolyte and catholyte) while the ion-conductive electrolyte is a solid membrane. The properties of this membrane determine final performance and lifetime of the battery, so scientists are considering various materials, both inorganic and polymeric, that would be suitable for this purpose.

One of these compounds is  $\text{Li}_{1.3}\text{Al}_{0.3}\text{Ti}_{1.7}(\text{PO}_4)_3$ , or LATP. It is a well-known lithium conductive material belonging to the NASICON-family (named after the first well-described sodium-conductive representatives—Na Super Ionic CONductor). This family is defined by a similar crystal structure that determines its high ionic conductivity.

LATP conductivity and structural features are described quite thoroughly, yet its stability in ordinary environmental factors such as air and water remains poorly understood. So Mariam Pogosova of the Skoltech Center for Energy Science and Technology and her colleagues decided to find out whether pure water influences LATP properties.

"LATP triggered our scientific curiosity. A well-known superionic conductor, LATP has a high potential for further chemical and technological improvement. We knew its limitations, such as poor mechanical properties (brittleness) and instability toward metallic lithium. However, these limitations were quite acceptable as we planned to compensate them through the creation of composite material. So we started our experiments," Pogosova explains.

Earlier studies by the group showed that LATP ceramics were losing conductivity rather drastically when stored for several days in both ambient air and argon. The researchers hypothesized that humidity might play a key role in this degradation and set out to explore LATP exposure to water.

First, the scientists synthesized LATP through the original two-stage solid-state reaction. They then put their samples in deionized water for different periods of time up to 12 hours and conducted subsequent electrochemical, structural, chemical and morphological analyses supported by theoretical modeling.

The experiments showed that LATP ceramics degrade significantly in contact with the water, losing up to 64% in total ionic conductivity after approximately two hours of exposure. The scientists also observed other evidence of degradation: microcracking, grain shape distortion, formation of nanoparticles, chemical composition shifts, unit cell shrinkage, intrastructural polyhedra and strain changes. All of this led them to conclude that LATP ceramics are highly sensitive to water and probably unsuitable for use in aqueous redox flow batteries.

"Evidently, the impact of water is a concern for pure LATPs and their suitability for redox-flow systems, especially aqueous ones. I want to stress that the deionized water/LATP system analyzed in this study doesn't represent the real redox-flow battery conditions, as the anolyte/catholyte solutions are more complex. Therefore, at this point, I wouldn't try to predict the future of LATP. Nevertheless, I believe the fundamental knowledge obtained is already valuable and applicable: Any kind of water is now clearly a reason to be on the alert. For example, now, we can preserve the initial performance of LATP ceramics through a simple drying-and-vacuum treatment," Mariam Pogosova says.

She also notes that, surprisingly, their research is the first thorough and versatile study of water impact on LATP. "So we are planning more studies in order to refine LATP behavior in other media to reveal whether it is going to perform well under redox-flow conditions," Pogosova says.

<https://phys.org/news/2020-05-scientists-solid-electrolyte-hydrophobic.html>



## A new artificial eye mimics and may outperform human eyes

*The high-tech device boasts a field of view and reaction time similar to that of real eyes*

*By Maria Temming*

Scientists can't yet rebuild someone with bionic body parts. They don't have the technology. But a new artificial eye brings cyborgs one step closer to reality.

This device, which mimics the human eye's structure, is about as sensitive to light and has a faster reaction time than a real eyeball. It may not come with the telescopic or night vision capabilities that Steve Austin had in *The Six Million Dollar Man* television show, but this electronic eyepiece does have the potential for sharper vision than human eyes, researchers report in the May 21 *Nature*.

"In the future, we can use this for better vision prostheses and humanoid robotics," says engineer and materials scientist Zhiyong Fan of the Hong Kong University of Science and Technology.

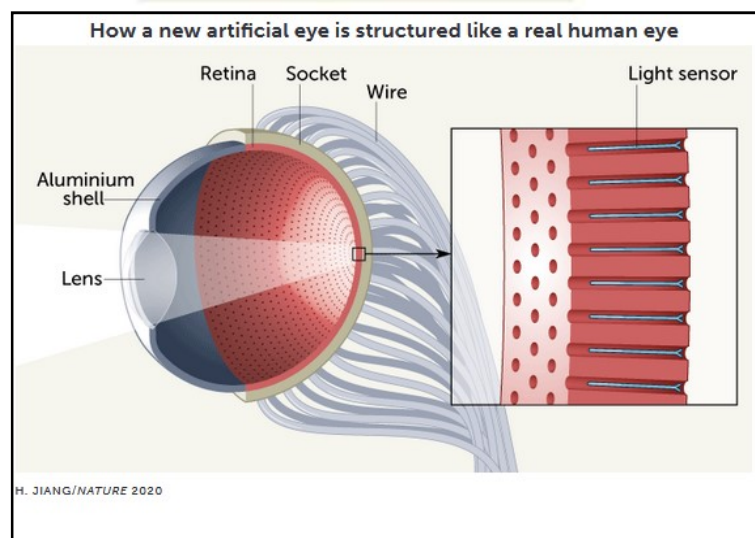
The human eye owes its wide field of view and high-resolution eyesight to the dome-shaped retina — an area at the back of the eyeball covered in light-detecting cells. Fan and colleagues used a curved aluminum oxide membrane, studded with nanosize sensors made of a light-sensitive material called a perovskite (*SN*: 7/26/17), to mimic that architecture in their synthetic eyeball. Wires attached to the artificial retina send readouts from those sensors to external circuitry for processing, just as nerve fibers relay signals from a real eyeball to the brain.

The artificial eyeball registers changes in lighting faster than human eyes can — within about 30 to 40 milliseconds, rather than 40 to 150 milliseconds. The device can also see dim light about as well as the human eye. Although its 100-degree field of view isn't as broad as the 150 degrees a human eye can take in, it's better than the 70 degrees visible to ordinary flat imaging sensors.

In theory, this synthetic eye could perceive a much higher resolution than the human eye, because the artificial retina contains about 460 million light sensors per square centimeter. A real retina has about 10 million light-detecting cells per square centimeter. But that would require separate readings from each sensor. In the current setup, each wire plugged into the synthetic retina is about one millimeter thick, so big that it touches many sensors at once. Only 100 such wires fit across the back of the retina, creating images that have 100 pixels.

### Eye spy

The design for a new artificial eye (illustrated) is based on the structure of the human eye. At the back of the eyeball, a synthetic retina is embedded with nanoscale light sensors. Those sensors measure light that passes through the lens at the front of the eye. Wires attached to the back of the retina ferry signals from those sensors to external circuitry for processing, similar to the way nerve fibers connect the eyeball to the brain.



To show that thinner wires could be connected to the artificial eyeball for higher resolution, Fan's team used a magnetic field to attach a small array of metal needles, each 20 to 100 micrometers thick, to nanosensors on the synthetic retina one by one. "It's like a surgical operation," Fan says.

The researchers' current method of creating individual ultrasmall pixels is impractical, says Hongrui Jiang, an electrical engineer at the University of Wisconsin–Madison whose commentary on the study appears in the same issue of *Nature*. "For a few hundred nanowires, okay, fine, but how about millions?" Engineers will need a much more efficient way to manufacture vast arrays of tiny wires on the back of the artificial eyeball to give it superhuman sight, he says.

<https://www.sciencenews.org/article/new-artificial-eye-mimics-may-outperform-human-eyes>

## COVID-19 Research News

The Indian EXPRESS

Thu, 21 May 2020

### New Research: Two antibodies from SARS survivors, and how they react to new coronavirus

*One antibody, called S309, taken from a SARS survivor from 2003, has been shown in the lab to neutralise SARS-CoV-2. The results were reported in Nature this week.*

*by Kabir Firaque*

New Delhi: In the continuing hunt for antibodies that could fight the novel coronavirus SARS-CoV-2, researchers have mostly looked at people who have already contracted Covid-19. There have been at least two exceptions, both of which have looked at antibodies developed by survivors of another outbreak, SARS, 17 years ago.

One antibody, called S309, taken from a SARS survivor from 2003, has been shown in the lab to neutralise SARS-CoV-2. The results were reported in Nature this week.

The other antibody, called CR3022, was first isolated in 2006, again from a SARS survivor of the early 2000s. CR3022 may hold clues to the vulnerability of SARS-CoV-2, researchers reported in Science last month.



**S309:** The newer of the two studies has reported the more definite findings, although more research is still required. An international team of scientists isolated antibodies from a SARS survivor's "memory B cells" Memory B cells form after an infectious illness, and usually remember the pathogen (or a similar one) that it had fought it back earlier. If a new infection happens, these cells launch an antibody counterattack again.

From the SARS survivor's memory B cells, the scientists identified a number of monoclonal antibodies. Several of these antibodies target a protein structure on coronaviruses (SARS and Covid-19 are caused by different but related coronaviruses). This protein structure is located in the spikes in the crown — the "corona" of the virus. The spike is a crucial tool in infection; this is what attaches to human cells.

Among the antibodies, S309 was found to be particularly potent at targeting and disabling the spike protein. It was able to neutralise SARS CoV-2 by engaging with a section of the spike protein near the site where it attaches to the host cell, the researchers said.

**Miles to go:** It is important to note that the action of S309 has only been demonstrated in the lab. “We still need to show that this antibody is protective in living systems, which has not yet been done,” biochemist David Veessler, one of the senior authors of the study, said in a statement released by the University of Washington School of Medicine.

The scientists noted, however, that they hope these initial results will pave the way for using S309, alone or in a mixture, as a preventive measure for people at high-risk of exposure to SARS-CoV-2 or as post-exposure therapy. The antibody is now on a fast-track development and testing path at the company Vir Biotechnology in the next step toward possible clinical trials, the University said.

**CR3022:** The action of this antibody from a SARS survivor was described by Chinese scientists earlier this year, indicating that it cross-reacts against SARS-CoV-2, too. Citing this report, the Scripps Institute in the US said in April that its researchers have now done structural mapping to determine how the antibody binds to SARS-CoV-2.

The antibody’s binding site was found highly similar between the two coronaviruses. However, the antibody binds much less tightly to SARS-CoV-2 than it does to the SARS virus. And CR0322 cannot neutralise SARS-CoV-2 in lab as it does SARS-CoV.

The takeaway is that the binding site, as identified, is a site of vulnerability for SARS-CoV-2. Other antibodies binding it more tightly would plausibly succeed in neutralising the virus, the Scripps Institute said.

<https://indianexpress.com/article/explained/two-antibodies-from-sars-survivors-and-how-they-react-to-new-coronavirus-6419947/>

The Indian EXPRESS

Thu, 21 May 2020

## TB vaccine as anti-Covid candidate: what ICMR will study in BCG trial

*India, like many other Asian, African, and Latin American countries,  
has a current national BCG vaccination policy for all at birth.*

*by Karishma Mehrotra*

New Delhi: In a growing list of global trials on the efficacy of tuberculosis vaccines in preventing Covid-19, one is an upcoming 10-month trial being conducted by the Indian Council of Medical Research (ICMR) on the **BCG vaccine**.

### What is the BCG vaccine?

Short for Bacillus Calmette-Guérin, BCG is a vaccine that uses a live attenuated strain (potency of the pathogen artificially disabled, but identifying characters retained) derived from an isolate of Mycobacterium Bovis. It has been used across the world, including in India for decades, against tuberculosis.

India, like many other Asian, African, and Latin American countries, has a current national BCG vaccination policy for all at birth. Countries that have terminated their



**EXPLAINED**  
by The Indian Express

policies or only recommend the vaccine for specific groups are mostly in Europe and North America.

In India, 91.9 per cent of children between the ages of 12 and 23 months have received the vaccine, according to the National Family Health Survey. Outside of some Northeastern states, almost all states have above a 90% BCG vaccination rate. According to the National Health Profile, India has a production capacity of 2,800 lakh BCG vaccine doses.

#### **What will ICMR's upcoming study on BCG vaccine look at?**

It will focus on the vaccine's potential in reducing the chance of Covid-19 death among those who are above age 60. With new finalised details of this study, results could be seen as early as March 2021, said lead ICMR scientist Suman Kanungo.

The study will cover 1,450 elderly people in six red and orange zones: King Edward Memorial (KEM) Hospital, Mumbai; All India Institute of Medical Sciences (AIIMS), New Delhi; National Institute for Research in Tuberculosis (NIRT), Chennai; National Institute of Occupational Health (NIOH), Ahmedabad; National Institute in Environmental Health (NIREH), Bhopal; and National Institute for Implementation Research on Non-Communicable Diseases (NIIRNCD), Jodhpur.

With paperwork in process, the recruitment should take four months while the follow-up results will take six months after that, said Kanungo. The study will be conducted in conjunction with NIRT.

In mid-April, ICMR's head of epidemiology R R Gangakhedkar had said ICMR would not recommend the BCG vaccine until "definitive results" from a study showed possible anti-Covid immunity. Kanungo said "the study will initiate as the paperwork is on. We should have results in 10 months". Outside of ICMR's studies, institutional-level trials in Rohtak, Pune, Visakhapatnam, and Bhubaneswar are also assessing the potential.

#### **What is known about this vaccine's action in Covid patients?**

The BCG vaccine has been studied in research on Covid around the world. A pre-print, population-level study by New York researchers on March 28 suggested that countries with lower vaccination and without universal BCG vaccination (such as Italy and US) saw higher Covid-19 fatalities. The study compared this pattern to countries such as South Korea and Japan, which have standing policies on the topic.

"While these data could indeed suggest a protective effect of BCG vaccination, such studies cannot provide definitive proof of causality, owing to several inherent biases," scientists wrote in an article in Nature on April 27. "Notwithstanding these issues, the link to BCG and COVID-19 from these studies is intriguing... A possible explanation is that children who have been vaccinated with BCG are less susceptible to infection with SARS-CoV-2 and so there is less spread of the virus to older populations, although this would need to be demonstrated."

#### **Are other countries looking into this?**

Yes. The World Health Organization (WHO) has initiated trials to ascertain the potential vaccine, but has not recommended it for Covid-19 prevention. Studies are ongoing in Australia, the Netherlands, Germany, the US, and several other countries. An article in The Lancet on April 30, whose authors included the WHO Director General, stated: "BCG vaccine has been shown to reduce the severity of infections by other viruses with (a similar SARS-CoV-2) structure in controlled trials."

A recent study in the Journal of American Medical Association found no effectiveness of BCG vaccines in Israel, which used to have a universal policy and then shifted in 1982 to only vaccinate immigrants.

#### **What other ICMR studies are ongoing?**

One study seeks to assess the incidence of Covid-19 amongst healthcare workers who were taking the antimalarial drug **hydroxychloroquine** (HCQ) as well as any side effects from the drug's use. Results will be available by the end of July, said Kanungo. Also, ICMR has been

accepting applications nationwide to study the effectiveness of plasma therapy, which injects antibodies from a recovered patient into a severely ill patient.

In the HCQ study, researchers are looking at 1,200 to 1,500 healthcare workers who do not have Covid-19 to find out how many who have taken the drug develop Covid-19, compared to those who have not. Begun this month, the study has taken place in five sites: AIIMS Bhubaneswar, AIIMS Jodhpur, AIIMS Patna, Apollo Hospital in Chennai, Maulana Azad Medical College in Delhi, and Sir Ganga Ram Hospital in Delhi. Kanungo said ICMR intends to recruit at least two more hospitals.

On March 23, the Covid-19 National Taskforce had recommended the use of HCQ as a prophylaxis (protective and preventative) against Covid-19 infection for asymptomatic healthcare workers and asymptomatic household contacts of positive cases.

<https://indianexpress.com/article/explained/tb-vaccine-as-anti-covid-candidate-what-icmr-will-study-in-bcg-trial-6418161/>



Thu, 21 May 2020

## देश में हाइड्रोक्सीक्लोरोक्वीन पर शोध से बढ़ी उम्मीद- ट्रायल में करीब 70% स्वास्थ्यकर्मी नेगेटिव निकले

नई दिल्ली, एएनआइ। कोरोना वायरस के इलाज में कारगर बताई जा रही मलेरिया की दवा हाइड्रोक्सीक्लोरोक्वीन को लेकर देश में एक शोध हुआ है। इस दवा को लेकर तेलंगाना सरकार ने कुछ स्वास्थ्य कर्मियों पर इसका शोध किया है। तेलंगाना सरकार द्वारा तैयार की गई एक अंतरिम रिपोर्ट में हाइड्रोक्सीक्लोरोक्वीन या HCQ के बीमारी से लड़ने को लेकर हुए शोध में काफी आशाजनक परिणाम सामने आए हैं। हाइड्रोक्सीक्लोरोक्वीन कोरोना वायरस से लड़ने में चिकित्साकर्मियों की मदद कर रहा है।

तेलंगाना सरकार द्वारा किए गए एक शोध में हाइड्रोक्सीक्लोरोक्वीन लेने के बाद 70% से अधिक स्वास्थ्यकर्मियों में कोरोना वायरस के कोई लक्षण नहीं दिखे हैं। तेलंगाना सरकार के अध्ययन में 70 प्रतिशत से अधिक स्वास्थ्यकर्मियों, जिन्हें कोविड-19 संक्रमण से बचाव के लिए परीक्षण के आधार पर मलेरिया की दवा (हाइड्रोक्सीक्लोरोक्वीन) दी गई थी, उनमें कोरोना वायरस (SARS-Cov-2 (COVID-19) से जुड़े कोई भी लक्षण दिखाई नहीं दिए।



एक जानकारी के मुताबिक 394 हेल्थकेयर वर्कर पर इस दवा का ट्रायल किया गया, जो संभवतः कोरोना वायरस के मरीजों के साथ संपर्क में रहे। हाइड्रोक्सीक्लोरोक्वीन दवा लेने के बाद कोरोनावायरस के खिलाफ मजबूर प्रतिक्रिया दी और वह कोरोना मरीजों में संपर्क में आने के बावजूद संक्रमित भी नहीं हुए। इसके अलावा, इन 394 फ्रंटलाइन हेल्थ केयर वर्करों में से 71% का अलग-अलग कोरोना टेस्ट भी किया गया और सभी के टेस्ट नेगेटिव पाए गए।

तेलंगाना सरकार द्वारा किए गए एक शोध में ट्रायल के तौर पर हाइड्रोक्सीक्लोरोक्वीन दवा लेने के बाद 70% से अधिक स्वास्थ्यकर्मियों में कोरोना वायरस के कोई लक्षण नहीं दिखे।

इस रिसर्च के दो उद्देश्य थे- पहला, हाइड्रोक्सीक्लोरोक्वीन दवा का कुछ प्रतिशत लोगों पर प्रभाव और व्यक्तिगत सुरक्षा उपकरण (पीपीई) की स्वास्थ्यकर्मियों को संक्रमित करने से रोकने की क्षमता।

स्वास्थ्यकर्मियों पर हुए हाइड्रोक्सीक्लोरोक्वीन दवा के शोध में 694 के मूल अध्ययन नमूनों में से 533 को दवा दी गई और प्रारंभिक खुराक के बाद हाइड्रोक्सीक्लोरोक्वीन के लगातार उपयोग के साथ 7 सप्ताह तक उनकी निगरानी की गई।

रिपोर्ट में सामने आया कि 533 लोगों में से 394 (73.9 प्रतिशत) का एक कोरोना वायरस मरीज के साथ हुआ है और सभी मरीजों के संपर्क में रहने पर पीपीई किट का इस्तेमाल कर रहे थे। हाइड्रोक्सीक्लोरोक्वीन लेने वाले इन सभी स्वास्थ्यकर्मियों में से किसी में बुखार, गले में खराश और खांसी जैसे कोई विशिष्ट कोरोना वायरस लक्षण नहीं देखे गए।

<https://www.jagran.com/news/national-hydroxychloroquine-research-conducted-bytelangana-government-shows-nearly-70-percent-people-tested-corona-negative-after-trial-20287367.html>



Thu, 21 May 2020

## खुशखबरी: पेट के कीड़े मारने की दवा से होगा कोरोना का खात्मा!

**कोरोना काल में एक बहुत बड़ी खुशखबरी साबित होने वाली जानकारी सामने आ रही है। दावा किया गया है कि पेट के कीड़े मारने की दवा जिसका नाम आईवरमैक्टीन है उससे कोरोना को 48 घंटे में मात दी जा सकती है।**

नई दिल्ली: क्या पेट के कीड़े मारने वाली दवा से कोरोना वायरस का इलाज किया जा सकता है? क्या ऐसी कोई दवा जानलेवा वायरस के खिलाफ सबसे असरदायक हथियार साबित हो सकती है? कोरोना वायरस पर की गई-नई रिसर्च इसी ओर इशारा कर रही है।

**कोरोना की कारगर दवा खोजने का दावा!**

डॉक्टरों की टीम ने कोरोना वायरस के इलाज के लिए एक ऐसी ही दवा का इस्तेमाल किया जिसके परिणाम बेहद चौंकाने वाले रहे। एक बड़ी राहत की बात ये भी है कि ये दवा भारत में भी आसानी से उपलब्ध है।

**आईवरमैक्टीन करेगी 'कोरोना के कहर' का अंत!**

कोरोना वायरस को लेकर दुनिया भर में रिसर्च जारी है, कई देशों के डॉक्टर और वैज्ञानिक इस जानलेवा बीमारी की दवा या वैक्सीन बनाने के काम में जी-जीन से जुटे हैं। इस बीच डॉक्टरों ने कोरोना वायरस के खिलाफ सबसे असरदायक दवा को खोजने का दावा किया है। आपको जानकर हैरानी होगी कि आईवरमैक्टीन (Ivermectin) नाम की इस दवा का इस्तेमाल पेट के कीड़े मारने के लिए किया जाता रहा है लेकिन कोरोना के इलाज में इस दवा के नतीजे दुनिया भर के लिए राहत की खबर लेकर आए हैं।



## कीड़े मारने की दवा से कोरोना का इलाज!

आस्ट्रेलिया के मोनाश यूनिवर्सिटी और विक्टोरियन इनफेक्शियस डिजीज रेफरेंस लैब (VIDRL) में एक लैब स्टडी की गई, जिसमें ये जानकारी सामने निकल कर आई कि इस दवा से 48 घंटे के भीतर वायरस को खात्म कर देने की क्षमता है।

इस लैब स्टडी में ये बात भी निकलकर सामने आई कि इस दवा यानी Ivermectin से कोरोनावायरस का RNA 93 पर्सेंट कमजोर पड़ जाता है। हालांकि इस बात की आधिकारिक पुष्टि इसलिए नहीं हो पाई है क्योंकि इस स्टडी में इंसानों पर आजमा कर दवा के इस असर की पुष्टि करने के लिए नहीं देखा गया है। लेकिन बांग्लादेश के एक प्राइवेट अस्पताल से जो जानकारी सामने आई वो किसी बड़ी खुशखबरी से कम नहीं है।

इस निजी अस्पताल के डॉक्टरों ने आईवरमैक्टीन की दवा के साथ एक एंटीबायोटिक दवा डॉक्सीसाइक्लिन देकर कोरोना वायरस से संक्रमित करीब 60 मरीजों को ठीक कर दिया। डॉक्टरों के दावे के अनुसार हुआ यूं कि मरीजों को इस दवा दिया गया, जिसके करीब 72 घंटे बाद सभी मरीजों का कोरोना टेस्ट कराया गया तो नतीजें नेगेटिव आ गए। कोरोना संक्रमित मरीजों पर इस दवा के नतीजे बड़ी राहत लेकर आए हैं।

कोरोना काल में आईवरमैक्टीन दवा ने उम्मीद की एक किरण जरूर दिखायी है। जिसके बाद हिन्दुस्तान के केरल, यूपी के कानपुर और दिल्ली के भी कई अस्पतालों में अब इस दवा Ivermectin का इस्तेमाल कोरोना मरीजों को देकर किया जा रहा है। खुशखबरी ये है कि इसके बेहतर परिणाम देखने को मिल रहे हैं। यानी ये अगर पूरी तरह कारगर साबित हो गई तो किसी चमत्कार से कम नहीं होगा।

दरअसल, ये दवा आईवरमैक्टीन (Ivermectin) इम्युनिटी बढ़ाने वाली माइक्रो बायल दवा के रूप में जानी जाती है। हालांकि इसके चमत्कारी दवा साबित होने के लिए निश्चित तौर पर एक बड़े ट्रायल की जरूरत होगी। खास बात तो ये है कि इस दवा से किसी खास तरह का साइड इफेक्ट भी नहीं है और ये बेहद सस्ती है। जो कोरोना काल में हर किसी के लिए उम्मीद की नई किरण है।

<https://zeenews.india.com/hindi/zee-hindustan/odd-news/good-news-corona-will-be-end-by-medicine-ivermectin-to-kill-stomach-worms/684188>

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