

2020

# 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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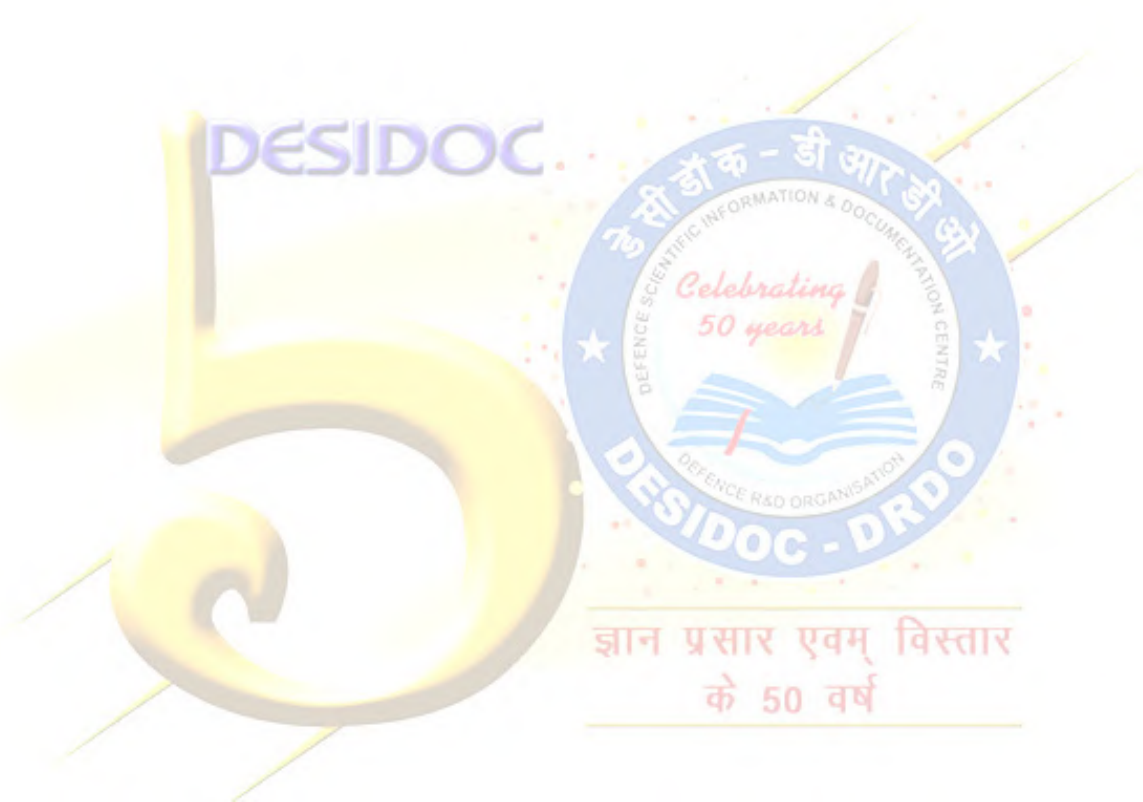


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# COVID-19: DRDO's Contribution



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Ministry of Defence

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## Raksha Mantri Shri Rajnath Singh inaugurates DRDO developed Mobile Laboratory to test COVID19 samples

Raksha Mantri Shri Rajnath Singh today unveiled via video conference a Mobile Virology Research and Diagnostics Laboratory (MVRDL) developed by DRDO in association with ESIC Hospital, Hyderabad and Private industry.

Speaking on this occasion, Raksha Mantri said the government under the leadership of Prime Minister Shri Narendra Modi has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

Shri Rajnath Singh appreciated the setting up of this Bio-Safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months time. He said this testing facility which can process more than 1,000 samples in a day will enhance country's capabilities in fighting COVID19.

He said our Armed Forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities, evacuating Indian Nationals from other countries etc - to fight COVID19 and these efforts will continue.

The function was also attended by Shri G Kishan Reddy Hon'ble Union Minister of State for Home Affairs, Shri Santosh Kumar Gangwar Hon'ble Union Minister of State for Labour & Employment, Shri KT Rama Rao Hon'ble Minister for IT Industries, Municipal Administration & Urban Development, Govt of Telangana, Shri Ch Malla Reddy Hon'ble Minister of Labour, Govt of Telangana and Dr G Satheesh Reddy Secretary DDR&D & Chairman DRDO.

The first of such Mobile Viral Research Lab (MVRL) that will speed up COVID-19 screening and related R&D activities was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of DRDO in consultation with ESIC Hospital, Hyderabad.



The Mobile Viral Research Lab is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines. The system has built in electrical controls, LAN, Telephone cabling, and CCTV.

The Mobile Lab will be helpful to carry out diagnosis of COVID-19 and also virus culturing for drug screening, Convalescent plasma derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to Indian population. The lab screens 1000-2000 samples per day. This lab can be positioned anywhere in the country, as per requirement.

DRDO acknowledged the contributions of M/s iCOMM for provision of containers, M/s iClean for design and build of the BSL2 and BSL3 labs in a time bound manner, and M/s Hi Tech Hydraulics for providing the base frame.

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रक्षा मंत्रालय

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## रक्षा मंत्री श्री राजनाथ सिंह ने कोविड-19 के नमूनों का परीक्षण करने के लिए डीआरडीओ द्वारा विकसित मोबाइल प्रयोगशाला का उद्घाटन किया

रक्षा मंत्री श्री राजनाथ सिंह ने आज वीडियो कॉन्फ्रेंस के माध्यम से मोबाइल वायरोलॉजी रिसर्च एंड डायग्नोस्टिक्स लेबोरेटरी (एमवीआरडीएल) का अनावरण किया, जिसे डीआरडीओ ने ईएसआईसी अस्पताल, हैदराबाद और निजी उद्योग के सहयोग से विकसित किया है।

इस अवसर पर रक्षा मंत्री ने कहा कि प्रधानमंत्री श्री नरेन्द्र मोदी के नेतृत्व में सरकार द्वारा सही समय पर कई फैसले लिए गए हैं, जिसके कारण देश में कोविड-19 का प्रसार कई अन्य देशों की तुलना में बहुत कम हुआ है।

श्री राजनाथ सिंह ने 15 दिनों के रिकॉर्ड समय में इस जैव-सुरक्षा स्तर (बीएसएल) 2 और स्तर 3 प्रयोगशालाओं की स्थापना की सराहना की, जिसके लिए सामान्य रूप से लगभग छह महीने का समय लगता है। उन्होंने कहा कि इस परीक्षण सुविधा से एक दिन में 1,000 से ज्यादा नमूनों का परीक्षण किया जा सकता है। इससे कोविड-19 के खिलाफ लड़ाई में देश की क्षमता बढ़ेगी।

श्री राजनाथ सिंह ने कहा कि सशस्त्र बल कोविड-19 के खिलाफ लड़ाई में कई प्रकार से योगदान कर रहे हैं - जैसे क्वारंटाइन केंद्र स्थापित करना, स्वास्थ्य सुविधाएं प्रदान करना, भारतीय नागरिकों को अन्य देशों से बाहर निकालना आदि - और ये प्रयास जारी रहेंगे।

इस समारोह में केन्द्रीय गृह राज्य मंत्री श्री जी. किशन रेड्डी, श्रम एवं रोजगार राज्य मंत्री श्री संतोष कुमार गंगवार, तेलंगाना सरकार में सूचना प्रौद्योगिकी उद्योग, नगरपालिका प्रशासन एवं शहरी विकास मंत्री श्री के. टी. रामा राव,

तेलंगाना सरकार में श्रम मंत्री श्री सी. एच. मल्ला रेड्डी और डीडीआरएंडडी को सचिव एवं डीआरडीओ के अध्यक्ष डॉ जी. सतेश रेड्डी मौजूद थे।

यह ऐसा पहला मोबाइल वायरल अनुसंधान प्रयोगशाला (एमवीआरएल) है, जिससे कोविड-19 की स्क्रीनिंग और इससे संबंधित अनुसंधान एवं विकास गतिविधियों में तेजी आएगी। इसे डीआरडीओ की हैदराबाद स्थित प्रयोगशाला रिसर्च सेंटर इमारात (आरटीआई) ने ईएसआईसी अस्पताल, हैदराबाद के साथ मिलकर तैयार किया है

मोबाइल वायरल रिसर्च प्रयोगशाला, एक बीएसएल 3 प्रयोगशाला और एक बीएसएल 2 प्रयोगशाला का संयोजन है जो क्रियाकलापों को पूरा करने के लिए आवश्यक है। इन प्रयोगशालाओं का निर्माण डब्ल्यूएचओ और आईसीएमआर जैव-सुरक्षा मानकों के अनुसार किया जा रहा है ताकि अंतरराष्ट्रीय दिशानिर्देशों का पालन हो सके। इस प्रणाली को विद्युत नियंत्रण, एलएएन, टेलीफोन केबलिंग और सीसीटीवी शामिल हैं।

यह प्रयोगशाला कोविड-19 की डायग्नोसिस और दवा स्क्रीनिंग के लिए वायरस कल्चरिंग, स्वास्थ्य लाभ से संबंधित प्लाज्मा व्युत्पन्न चिकित्सा, टीका के विकास के लिए कोविड-19 रोगियों की व्यापक प्रतिरक्षा प्रोफाइलिंग और भारतीय जनसंख्या के लिए प्रारंभिक नैदानिक परीक्षण में मददगार साबित होगी। प्रयोगशाला में प्रति दिन 1,000 -2,000 नमूनों की जांच की जाती है। इस प्रयोगशाला को आवश्यकता के अनुसार देश में कहीं भी तैनात किया जा सकता है।

डीआरडीओ ने मेसर्स आईकॉम के योगदान को कंटेनरों के व्यवस्थापन के लिए, मेसर्स आईक्लीन के योगदान को बीएसएल 2 और बीएसएल 3 प्रयोगशालाओं का समयबद्ध तरीके से डिजाइन और निर्माण के लिए और मेसर्स हाई टेक हाइड्रॉलिक्स के योगदान को आधारभूत ढांचा उपलब्ध कराने के लिए स्वीकार किया है।

एएम/एके- (Release ID: 1617586)

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## డీఆర్డీఓ అభివృద్ధి చేసిన మొబైల్ ను కోవిడ్-19 పరీక్షల

### ప్రయోగశాలను ప్రారంభించిన రక్షణ శాఖ మంత్రి శ్రీ రాజ్ నాథ్ సింగ్

డీఆర్డీఓ సంస్థ అభివృద్ధి చేసిన మొబైల్ వైరాలజీ రీసెర్చ్ అండ్ డయాగ్నోస్టిక్స్ లాబోరేటరీని (ఎంవీఆర్డీఎల్) కేంద్ర రక్షణ శాఖ మంత్రి శ్రీ రాజ్ నాథ్ సింగ్ గురువారం ఆవిష్కరించారు. ఈ రోజు వీడియో కాన్ఫరెన్స్ ద్వారా ఆయన ఎంవీఆర్డీఎల్ ను ఆవిష్కరించారు. హైదరాబాద్ లోని ఈఎస్ఐసీ ఆసుపత్రి, ప్రైవేట్ పరిశ్రమల వారి సహకారంతో దీనిని డీఆర్డీఓ అభివృద్ధి పరిచింది.

ఈ సందర్భంగా రక్షణ మంత్రి మాట్లాడుతూ ప్రధాన మంత్రి శ్రీ నరేంద్ర మోడీ నాయకత్వంలో ప్రభుత్వం అనేక సమయానుకూల నిర్ణయాలు తీసుకుందన్నారు, అందువల్లే ఇతర దేశాలతో పోలిస్తే మన దేశంలో కోవిడ్-19 వైరస్ వ్యాప్తి చాలా తక్కువగా ఉందని అన్నారు. బయో-సేఫ్టీ లెవల్ 2 మరియు లెవల్ 3 ల్యాబ్ ను డీఆర్డీఓ కేవలం 15

రోజుల రికార్డు సమయంలో తయారు చేయడాన్ని ఈ సందర్భంగా శ్రీ రాజనాథ్ సింగ్ ప్రశంసించారు. సాధారణంగా ఇలాంటి ల్యాబ్ల తయారీకి ఆరు దాదాపు నెలల సమయం పడుతుంది. రోజుకు 1,000 కంటే ఎక్కువ నమూనాలను ప్రాసెస్ చేయగల ఎంపీఆర్డీఎల్ వల్ల కోవిడ్-19 వైరస్ తో పోరాడటంలో మన దేశ సామర్థ్యాలను మెరుగుపరుస్తుందని అన్నారు.

తన వంతు సాయమందిస్తున్న సాయుధ దళాలు..

కోవిడ్-19 మహమ్మారితో పోరాడటానికి మన సాయుధ దళాలు తమ వంతు సహకారాన్ని అందిస్తున్నాయని మంత్రి తెలిపారు. క్వారంటైన్ కేంద్రాలను ఏర్పాటు చేయడం, ఆరోగ్య సంరక్షణ సౌకర్యాలు కల్పించడం, ఇతర దేశాల్లోని భారతీయ పౌరులను తరలించడం వంటి కార్యక్రమాలతో సహకరిస్తున్నాయని అన్నారు. కోవిడ్-19 తో పోరులో భాగంగా ఇలాంటి ప్రయత్నాలు ఇకపై కూడా కొనసాగుతాయని ఆయన అన్నారు. ఈ కార్యక్రమంలో కేంద్ర హోం శాఖ సహాయ మంత్రి జి.కిషన్ రెడ్డి, కార్మిక ఉపాధి శాఖ మంత్రి శ్రీ సంతోష్ కుమార్ గంగ్వార్తో పాటు తెలంగాణ రాష్ట్ర ఐటీ, పరిశ్రమలు, మున్సిపల్ పరిపాలన మరియు పట్టణ అభివృద్ధిశాఖ మంత్రి శ్రీ కె. తారక రామారావు, తెలంగాణ కార్మిక శాఖ మంత్రి శ్రీ సి.హెచ్. మల్లారెడ్డి, డీఆర్డీఓ చైర్మన్ మరియు డీడీఆర్ అండ్ డీ కార్యదర్శి డాక్టర్ జి.సతీష్ రెడ్డి తదితరులు పాల్గొన్నారు.

అంతర్జాతీయ ప్రమాణాలతో..

కోవిడ్ వైరస్ స్క్రీనింగ్ మరియు సంబంధిత ఆర్అండ్డీ కార్యకలాపాలను వేగవంతం చేసేందుకు ఉపయోగపడేలా డీఆర్డీఓకు చెందిన హైదరాబాద్ లోని రీసెర్చ్ సెంటర్ ఇమారత్ లో (ఆర్సీఐ) దీనిని అభివృద్ధి చేశారు. హైదరాబాద్ లోని ఈఎస్ఐవీ వారి సౌజన్యంతో దీనిని తయారు చేశారు.

బీఎస్ఎల్ 3 ల్యాబ్, బీఎస్ఎల్ 2 ల్యాబ్ కలయికగా నమూనాలను పరీక్షించేలా దీనిని డీఆర్డీఓ తయారు చేసింది. ప్రపంచ ఆరోగ్య సంస్థ, ఐసీఎంఆర్ నిర్దేశించిన బయో-సేఫ్టీ ప్రమాణాల ప్రకారం అంతర్జాతీయ మార్గదర్శకాలకు అనుగుణంగా ఈ ప్రయోగశాలను తీర్చిదిద్దారు. అంతర్ నిర్మిత విద్యుత్తు నియంత్రణ వ్యవస్థ, లాస్, టెలిఫోన్ కేబులింగ్, సీసీటీవీ పర్యవేక్షణ వంటి అమరికలతో దీనిని నిర్మించారు. కోవిడ్-19 నిర్ధారణతో పాటు ఔషధ పరీక్షలకు అవసరమైన వైరస్ కల్చర్, కన్వలెసెంట్ ఫ్లాస్మా డెరైవ్ థెరపీ, టీకా అభివృద్ధికి గాను కోవిడ్-19 రోగుల సమగ్ర రోగనిరోధక ప్రొఫైలింగ్ తో పాటు భారతీయ జనాభాకు ప్రత్యేకమైన ప్రారంభ క్లినికల్ ట్రయల్స్ కు అనుగుణంగా ఉండేందుకు వీలుగా ఈ మొబైల్ ల్యాబ్ సహాయపడుతుంది.

దేశంలో ఎక్కడికైనా తీసుకుపోయే వేసులుబాటు..

ఈ ల్యాబ్ ద్వారా రోజుకు 1000-2000 నమూనాలను పరీక్షించేందుకు వీలుంటుంది. ఈ ల్యాబ్ ను దేశంలో ఎక్కడైనా అవసరానికి అనుగుణంగా తీసుకుపోయి అక్కడ పరీక్షలు నిర్వహించేందుకు ఆస్కారం ఉంటుంది. ఈ ల్యాబ్ అభివృద్ధికి అవసరమైన కంటైనర్ల సదుపాయాలను మెస్సర్స్ ఐకామ్, నిర్ణీత కాలంలో బీఎస్ఎల్ -2 మరియు బీఎస్ఎల్-3 ప్రమాణాలతో ల్యాబ్ ఏర్పాట్ల రూపకల్పనకు తోడ్పాటు అందించిన మెస్సర్స్ ఐక్లీన్ బీస్ ప్రీమ్లను అందించినందుకు మెస్సర్స్ హైటెక్ హైడ్రాలిక్స్ సంస్థల సహకారాన్ని డీఆర్డీఓ ఈ సందర్భంగా ప్రస్తుతించింది.

<https://pib.gov.in/PressReleaseDetail.aspx?PRID=1617590>

## Coronavirus | DRDO develops mobile virology research lab

*The MVRL is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines*

Defence Minister Rajnath Singh on Thursday inaugurated through videoconference a mobile virology research and diagnostics laboratory (MVRDL). It has been developed by the Defence Research and Development Organisation (DRDO), together with ESIC Hospital, Hyderabad, and the private industry.

“The mobile lab will be helpful in carrying out diagnosis of COVID-19 and in virus-culturing for drug screening, convalescent plasma-derived therapy, comprehensive immune profiling of patients towards vaccine development and early clinical trials specific to Indian population,” the Defence Ministry said in a statement.

The MVRDL is the combination of a bio-safety level (BSL)-3 lab and a BSL-2 lab and was set up in a record time of 15 days. It can process 1,000-2,000 samples a day, the statement said.

The laboratories comply with the biosafety standards of the World Health Organisation (WHO) and the Indian Council of Medical Research (ICMR) so as to meet international guidelines.

The first such MVRDL was developed by the Research Centre Imarat (RCI), Hyderabad, in consultation with ESIC Hospital. It can be positioned anywhere in the country, the statement said.

<https://www.thehindu.com/news/national/drdo-develops-mobile-virology-research-lab/article31417752.ece>



On the go: The mobile lab developed by the DRDO and ESIC Hospital, Hyderabad

The Indian EXPRESS

## DRDO-developed mobile virology lab launched in Hyderabad, to help speed up Covid-19 screening

*The MVRL is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines*

Hyderabad: A first of its kind mobile viral research lab (MVRL) that would help speed up COVID-19 screening and related research and development activities was launched in Hyderabad Thursday. The MVRL was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of DRDO, in consultation with the ESIC Hospital at Erragadda in the city. The facility which is a Bio-Safety Level 2 and Level 3 lab was built in a record time of 15 days and can process more than 1,000 samples in a day.



The MVRL is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines. The system has built-in electrical controls, LAN, Telephone cabling, and CCTV, said a press release.

The Mobile Lab will be helpful to carry out the diagnosis of COVID-19 and also virus culturing for drug screening, convalescent plasma-derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to the Indian population. The lab screens 1000-2000 samples per day. This lab can be positioned anywhere in the country, as per requirement, it added.



The DRDO has also acknowledged the contributions of M/s iCOMM for the provision of containers, M/s iClean for design, and build of the BSL2 and BSL3 labs in a time-bound manner, and M/s Hi-Tech Hydraulics for providing the base frame.

Inaugurating the facility via video conference Defence Minister Rajnath Singh appreciated the setting up of this Bio-Safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months. He said this testing facility which can process more than 1,000 samples in a day will enhance the country's capabilities in fighting COVID19.

MoS Home G Kishan Reddy, MoS Labour and Employment Santosh Kumar Gangwar, Telangana Minister for IT, MAUD, and Industries KT Rama Rao, Telangana Minister for Labour Ch Malla Reddy, and Dr. G Satheesh Reddy Secretary DDR&D & Chairman DRDO participated via video conferencing.

<https://indianexpress.com/article/cities/hyderabad/drdo-developed-mobile-virology-lab-launched-in-hyderabad-to-help-speed-up-covid-19-screening-6376317/>

THE ECONOMIC TIMES

Fri, 24 April 2020

## War against Covid-19: Meil firm iCOMM Tele teams up with DRDO to develop mobile virology lab

*The mobile lab is built as per the bio-safety standards of the World Health Organisation and the Indian Council of Medical Research, said a Defence Ministry statement*

*By CR Sukumar*

Hyderabad: Megha Engineering and Infrastructures (Meil) group firm iCOMM Tele, which is into defence electronics and communications technologies, has teamed up with the Defence Research and Development Organisation (DRDO), ESIC Hospital, iClean, and Hi Tech Hydraulics to develop mobile virology research and diagnostics laboratory to test Covid-19 samples.

The country's first mobile virology lab that the defence minister Rajnath Singh has unveiled through a video conference on Thursday is expected to speed up Covid-19 screening and related research and development activities.

The mobile lab is built as per the bio-safety standards of the World Health Organisation and the Indian Council of Medical Research, said a Defence Ministry statement.

The lab can carry out virus culturing for drug screening, convalescent plasma derived therapy, comprehensive immune profiling of Covid-19 patients towards vaccine development and early clinical trials specific to the Indian population. The mobile lab can screen upto 2,000 samples a day and can be positioned anywhere in the country based on requirement, said the ministry.

Appreciating the efforts of public and private sector partners in setting up of the bio-safety level 2 and level 3 lab in a record time of 15 days, minister Rajnath Singh said it helped enhance the country's capabilities in fighting Covid-19 pandemic.

Apart from defence electronics and communications technologies, iCOMM Tele is also into power transmission and distribution, solar, and oil and gas sectors. It supplies advanced communication radios, jammer amplifiers, and containers to missile programs like Brahmos, Akash, PGAD, Pralay, MRSAM, and electronic warfare systems. The company had also developed 'wind profile radars' to the Indian Air Force. As an engineering, procurement, and construction (EPC) firm, it has executed over 750MW of solar projects spread across Andhra Pradesh, Telangana, Punjab and Tamil Nadu.

<https://economictimes.indiatimes.com/news/politics-and-nation/war-against-covid-19-meil-firm-icomm-tele-teams-up-with-drdo-to-develop-mobile-virology-lab/articleshow/75328113.cms>

The Siasat Daily

Fri, 24 April 2020

## कोविड-19 टेस्टिंग के लिए DRDO ने मोबाइल लेबोरेट्री विकसित किया!

- **रक्षा मंत्री, राजनाथ सिंह ने गुरुवार को वीडियो कॉन्फ्रेंस के जरिए ESIC अस्पताल, हैदराबाद और निजी उद्योग के सहयोग से DRDO द्वारा विकसित मोबाइल वायरोलॉजी रिसर्च एंड डायग्नोस्टिक्स लेबोरेट्री (MVRDL) का अनावरण किया।**

इस अवसर पर बोलते हुए, मंत्री ने कहा कि प्रधान मंत्री नरेंद्र मोदी के नेतृत्व में सरकार ने कई सामयिक निर्णय लिए हैं, जिसके कारण देश में COVID-19 का प्रसार कई अन्य देशों की तुलना में बहुत कम है।

राजनाथ सिंह ने 15 दिनों के रिकॉर्ड समय में इस बायो-सेफ्टी लेवल 2 और लेवल 3 लैब की स्थापना की सराहना की, जिसमें आमतौर पर लगभग छह महीने का समय लगता है। उन्होंने कहा कि यह परीक्षण सुविधा जो एक दिन में 1,000 से अधिक नमूनों को संसाधित कर सकती है, COVID19 से लड़ने में देश की क्षमताओं को बढ़ाएगी।

उन्होंने कहा कि हमारे सशस्त्र बल कई तरह से योगदान दे रहे हैं – जैसे संगरोध केंद्रों की स्थापना, स्वास्थ्य सुविधाएं प्रदान करना, भारतीय नागरिकों को अन्य देशों से बाहर निकालना आदि – COVID19 से लड़ने के लिए और ये प्रयास जारी रहेंगे।

समारोह में जी किशन रेड्डी केंद्रीय गृह राज्य मंत्री, संतोष कुमार गंगवार केंद्रीय श्रम और रोजगार राज्य मंत्री, के टी रामा राव, आईटी उद्योग, नगरपालिका प्रशासन और शहरी विकास मंत्री, च मल्ल रेड्डी श्रम मंत्री भी उपस्थित थे और डॉ। जी सत्येश रेड्डी सचिव डीडीआर और डीएंडआर के अध्यक्ष डीआरडीओ।



ऐसी पहली मोबाइल वायरल रिसर्च लैब (MVRL) जो COVID-19 स्क्रीनिंग को गति प्रदान करेगी और संबंधित अनुसंधान एवं विकास गतिविधियों को अनुसंधान केंद्र इमरत (RCI) द्वारा विकसित किया गया था, जो ESIC हॉस्पिटल, हैदराबाद के परामर्श से DRDO की हैदराबाद स्थित प्रयोगशाला है।

मोबाइल वायरल रिसर्च लैब एक बीएसएल 3 लैब और बीएसएल 2 लैब का संयोजन है जो गतिविधियों को पूरा करने के लिए आवश्यक है। अंतरराष्ट्रीय दिशानिर्देशों को पूरा करने के लिए WHO और ICMR जैव-सुरक्षा मानकों के अनुसार प्रयोगशालाओं का निर्माण किया जाता है। सिस्टम में बिल्ट-इन इलेक्ट्रिकल कंट्रोल, LAN, टेलीफोन केबलिंग और CCTV हैं।

मोबाइल लैब COVID -19 के निदान के लिए सहायक होगी और ड्रग स्क्रीनिंग के लिए संस्कारित वायरस, कंवलसेंट प्लाज्मा-व्युत्पन्न थेरेपी, COVID -19 रोगियों की व्यापक प्रतिरक्षा प्रोफाइलिंग, जो टीकाकरण के लिए भारतीय जनसंख्या के लिए विशिष्ट क्लिनिकल परीक्षण है। प्रयोगशाला प्रति दिन 1000-2000 नमूनों की जांच करती है। इस लैब को आवश्यकता के अनुसार देश में कहीं भी तैनात किया जा सकता है।

DRDO ने कंटेनरों की व्यवस्था के लिए M / s iCOMM के योगदान को स्वीकार किया, समय-सीमा में BSL2 और BSL3 प्रयोगशालाओं के डिजाइन और निर्माण के लिए M / s iClean, और आधार फ्रेम प्रदान करने के लिए M / s i-Tech हाइड्रोलिक्स।

<https://hindi.siasat.com/news/drdo-develops-mobile-laboratory-test-covid-19-samples-1193988/>

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## DRDO develops India's first Covid-19 sample collection mobile lab

*Approved by the Indian Council of Medical Research (ICMR), the lab was launched on Thursday by defence minister Rajnath Singh. Speaking on the occasion, minister Singh appreciated the efforts of DRDO and ESIC in setting up of this bio-safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months time*

*By Yogima Seth Sharma*

The Defence Research and Development Organization (DRDO) in collaboration with labour ministry governed ESIC medical college & hospital, Sanathnagar (Hyderabad) has developed India's first COVID-19 sample collection mobile lab named "Mobile BSL-3 VRDL Lab"

Approved by the Indian Council of Medical Research (ICMR), the lab was launched on Thursday by defence minister Rajnath Singh.

Speaking on the occasion, minister Singh appreciated the efforts of DRDO and ESIC in setting up of this bio-safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months time.

This testing facility can process more than 1,000 samples in a day and will enhance country's capabilities in fighting COVID-19.

Labour minister Santosh Kumar Gangwar complemented DRDO and ESIC for developing the mobile testing lab in a very short time saying it will be very important in our fight against CORONA virus.

The design of mobile BSL-3 VRDL Lab has been developed by DRDO scientists whereas specification of the lab has been given by ESIC medical college & hospital, Sanathnagar, Hyderabad.

The project has been executed and constructed by three industry partners of DRDO. Other innovative technologies developed by DRDO and shared with ESIC medical college & hospital, Sanathnagar, Hyderabad comprise of COVSACK unit for sample collection, aerosol boxes and aerosolized sanitizer dispenser, snorkel face masks and face shields as reusable PPE N-95 equivalent, UV-C disinfection chamber in the fight against Covid-19 for use by the hospital.

<https://economictimes.indiatimes.com/news/politics-and-nation/drdo-with-help-of-labour-ministry-develops-indias-first-covid-19-sample-collection-mobile-lab/articleshow/75326472.cms>



*Fri, 24 April 2020*

## **DRDO unveils mobile lab that will enhance fight against Covid-19**

New Delhi: In order to hasten the process of testing patients for coronavirus, the Defence Research and Development Organisation (DRDO) has successfully manufactured mobile virology research and diagnostics laboratory (MVRDL). It can process more than 1,000 samples thereby enhancing the overall capability of the national effort to fight the pandemic. The DRDO is already manufacturing and supplying sanitisers and masks to various agencies engaged in tackling the disease.

Unveiling the mobile laboratory through video-conference here on Thursday, Defence Minister Rajnath Singh while lauding the efforts of the DRDO said the setting up of this bio-safety level two and level three laboratory came about in 15 to 20 days as against the normal time of six months.

The first of such Mobile Viral Research Lab (MVRL) that will speed up COVID-19 screening and related R&D activities, was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of DRDO in consultation with ESIC Hospital, Hyderabad and private firms, officials said here.

The Mobile Viral Research Laboratory is the combination of a level three and level two laboratory essential to carry out the activities. The laboratories are built as per World Health Organisation (WHO) and the Indian Council of Medical Research (ICMR) bio-safety standards to meet international guidelines. The system has built in electrical controls, LAN, Telephone cabling, and CCTV.

The Mobile Laboratory will be helpful to carry out diagnosis of COVID-19 and also virus culturing for drug screening, convalescent plasma derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to Indian population. The laboratory screens 1000-2000 samples per day. This laboratory can be positioned anywhere in the country, as per requirement.

Speaking on the occasion, the defence minister said the government has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

He said our Armed Forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities and evacuating Indian nationals from other countries to fight COVID19 and these efforts will continue.

The function was also attended by Minister of State for Home Affairs G Kishan Reddy, Minister of State for Labour and Employment Santosh Kumar Gangwar, KT Rama Rao Minister for IT Industries K T Rama Rao and Minister of Labour Ch Malla Reddy (both from Telangana government) and Dr G Satheesh Reddy, Chief of DRDO.

<https://www.dailypioneer.com/2020/india/drdo-unveils-mobile-lab-that-will-enhance-fight-against-covid-19.html>

## Def Min Rajnath Singh unveils mobile virology lab to test Covid-19 samples

*Defence Minister Rajnath Singh today unveiled via video conference a Mobile Virology Research and Diagnostics Laboratory (MVRDL) developed by DRDO*

Mumbai: Defence Minister Rajnath Singh today unveiled via video conference a Mobile Virology Research and Diagnostics Laboratory (MVRDL) developed by DRDO in association with ESIC Hospital, Hyderabad and Private industry.

Speaking on this occasion, Defence Minister said the government under the leadership of PM Modi has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

“Rajnath Singh appreciated the setting up of this Bio-Safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months time. He said this testing facility which can process more than 1,000 samples in a day will enhance the country’s capabilities in fighting COVID19.”

Armed Forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities, evacuating Indian Nationals from other countries etc - to fight COVID19 and these efforts will continue, he added.

The function was also attended by G Kishan Reddy Union Minister of State for Home Affairs, Santosh Kumar Gangwar, Union Minister of State for Labour & Employment, KT Rama Rao, Minister for IT Industries, Municipal Administration & Urban Development, Govt of Telangana, Ch Malla Reddy Minister of Labour, Govt of Telangana and Dr G Satheesh Reddy Secretary DDR&D & Chairman DRDO.

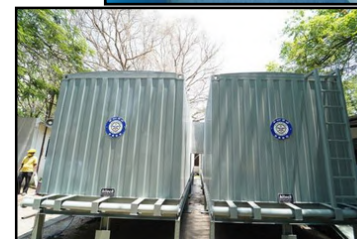
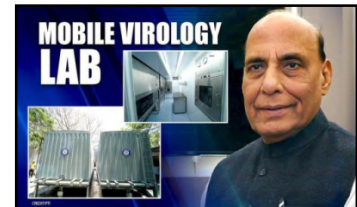
The Mobile Viral Research Lab is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines. The system has built-in electrical controls, LAN, Telephone cabling, and CCTV. The first of such Mobile Viral Research Lab (MVRL) that will speed up COVID-

19 screening and related R&D activities was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of DRDO in consultation with ESIC Hospital, Hyderabad.

The Mobile Lab will be helpful to carry out the diagnosis of COVID-19 and also virus culturing for drug screening, Convalescent plasma-derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to the Indian population. The lab screens 1000-2000 samples per day. This lab can be positioned anywhere in the country, as per requirement.

DRDO acknowledged the contributions of M/s iCOMM for provision of containers, M/s iClean for design and build of the BSL2 and BSL3 labs in a time-bound manner, and M/s Hi-Tech Hydraulics for providing the base frame.

<https://www.republicworld.com/india-news/general-news/def-min-rajnath-singh-unveils-mobile-virology-lab-to-test-covid-19-sam.html>



## **Rajnath Singh unveils DRDO developed mobile laboratory to test Covid-19 samples**

Defence Minister Rajnath Singh on Thursday unveiled via video conference a Mobile Virology Research and Diagnostics Laboratory (MVRDL) developed by DRDO in association with ESIC Hospital, Hyderabad and Private industry.

Speaking on this occasion, Singh said the government under the leadership of Prime Minister Narendra Modi has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

He appreciated the setting up of this Bio-Safety Level 2 and Level 3 lab in a record time of 15 days which usually takes about six months' time. Singh said this testing facility which can process more than 1,000 samples in a day will enhance country's capabilities in fighting COVID19.

He said our Armed Forces are contributing in many ways – such as setting up of quarantine centres, providing healthcare facilities, evacuating Indian Nationals from other countries etc – to fight COVID19 and these efforts will continue.

The first of such Mobile Viral Research Lab (MVRL) that will speed up COVID-19 screening and related R&D activities was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of DRDO in consultation with ESIC Hospital, Hyderabad, according to official release.

The Mobile Viral Research Lab is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per WHO and ICMR Bio-safety standards to meet international guidelines. The system has built in electrical controls, LAN, Telephone cabling, and CCTV, it said.

The Mobile Lab will be helpful to carry out diagnosis of COVID-19 and also virus culturing for drug screening, Convalescent plasma derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to Indian population. The lab screens 1000-2000 samples per day. This lab can be positioned anywhere in the country, as per requirement, the statement said.

DRDO acknowledged the contributions of M/s iCOMM for provision of containers, M/s iClean for design and build of the BSL2 and BSL3 labs in a time bound manner, and M/s Hi Tech Hydraulics for providing the base frame.

<http://tehelka.com/rajnath-singh-unveils-drdo-developed-mobile-laboratory-to-test-covid19-samples/>



## DRDO's mobile viral research lab to speed up Covid-19 screening

New Delhi: To speed up COVID-19 screening and related research and development activities, a mobile viral research laboratory (MVRL) has been developed by the Defence Research and Development Organisation (DRDO) in Hyderabad.

The laboratory was developed in association with the Employees' State Insurance Corporation (ESIC) Hospital and private industry.

Unveiling the laboratory through video conference, Defence Minister Rajnath Singh appreciated the setting up of this bio-safety Level 2 and Level 3 lab in a record time of 15 days, which usually takes about six months time.

He said this testing facility which can process more than 1,000 samples in a day will enhance the country's capabilities in fighting COVID-19.

The minister said that the government has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

He said the armed forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities, evacuating Indian nationals from other countries etc.

It is the first such laboratory and has been developed by Research Centre Imarat (RCI), the Hyderabad based lab of the DRDO in consultation with ESIC Hospital, Hyderabad.

"The laboratory is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per World Health Organisation and Indian Council of Medical Research Bio-safety standards to meet international guidelines," the ministry said in a statement.

The mobile lab will be helpful in carrying out diagnosis of COVID-19 and also virus culturing for drug screening, convalescent plasma derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to the Indian population.

The lab screens 1000-2000 samples per day. It can be positioned anywhere in the country, as per requirement.

The DRDO also took the help of private players like iCOMM for provision of containers, iClean for design and building of the BSL2 and BSL3 labs in a time bound manner, and Hi Tech Hydraulics for providing the base frame.

<http://morungexpress.com/drdo-mobile-viral-research-lab-speed-covid-19-screening>



Fri, 24 April 2020

## DRDO unveils mobile lab in Hyderabad capable of screening 1000 coronavirus samples everyday

*DRDO today developed a mobile laboratory in Hyderabad capable of screening over 1000 samples of Coronavirus on an everyday basis*

DRDO, premier agency of the Government of India responsible for military research and development, today launched a mobile laboratory named Mobile Virology Research and Diagnostics Laboratory (MVRDL) in Hyderabad. The first-of-its-kind laboratory aims at speeding up Coronavirus screening and research and development activities.

The laboratory was conceptualized 6 April and all activities have been completed record time of 15 days which is by 20 April said the Defence Research and Development Organisation. "I congratulate team DRDO for developing this mobile lab in Hyderabad. The Ministry of Defence and the Armed Forces are working tirelessly to strengthen India's capacity and capability in winning the war against the menace of COVID-19," tweeted Rajnath Singh, Defence Minister of India.

DRDO, after discussions with ESIC Medical College, Hyderabad, came up with a combination of two mobile laboratories, which can be positioned anywhere in the country in a very short period of time. The labs have been built as per WHO and ICMR bio-safety standards to meet the international guidelines.

Apart from screening Coronavirus samples, the labs can also be used for drug screening, therapeutics, Coronavirus diagnostics, vaccine development, development of diagnostic kits, and so on. The laboratory, DRDO says, can enable the test services at remote places. Apart from that, the laboratory will also enable the researchers and medical practitioners to undertake research activities and develop diagnostics assays and therapeutics.

DRDO has been involved in various other activities as well to power India's fight against Coronavirus. Contactless sanitizer dispensers, seam sealing biosuits, five layered N-99 masks, PPE MkIII for protection of medical professionals and paramedics, face protection mask for health care professionals, COVID Sample Collection Kiosk (COVSACK), and other related products are some of the innovations DRDO is involved in.

<https://www.dgindia.com/drdo-unveils-mobile-lab-hyderabad-capable-screening-1000-coronavirus-samples-everyday/>



Fri, 24 April 2020

## DRDO's mobile viral research lab to speed up Covid-19 screening

New Delhi: To speed up COVID-19 screening and related research and development activities, a mobile viral research laboratory (MVRL) has been developed by the Defence Research and Development Organisation (DRDO) in Hyderabad.

The laboratory was developed in association with the Employees' State Insurance Corporation (ESIC) Hospital and private industry.

Unveiling the laboratory through video conference, Defence Minister Rajnath Singh appreciated the setting up of this bio-safety Level 2 and Level 3 lab in a record time of 15 days, which usually takes about six months time.



He said this testing facility which can process more than 1,000 samples in a day will enhance the country's capabilities in fighting COVID-19.

The minister said that the government has taken several timely decisions because of which the spread of COVID-19 in the country is far less compared to many other countries.

He said the armed forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities, evacuating Indian nationals from other countries etc.

It is the first such laboratory and has been developed by Research Centre Imarat (RCI), the Hyderabad based lab of the DRDO in consultation with ESIC Hospital, Hyderabad.

"The laboratory is the combination of a BSL 3 lab and a BSL 2 lab essential to carry out the activities. The labs are built as per World Health Organisation and Indian Council of Medical Research Bio-safety standards to meet international guidelines," the ministry said in a statement.

The mobile lab will be helpful in carrying out diagnosis of COVID-19 and also virus culturing for drug screening, convalescent plasma derived therapy, comprehensive immune profiling of COVID-19 patients towards vaccine development early clinical trials specific to the Indian population.

The lab screens 1000-2000 samples per day. It can be positioned anywhere in the country, as per requirement.

The DRDO also took the help of private players like iCOMM for provision of containers, iClean for design and building of the BSL2 and BSL3 labs in a time bound manner, and Hi Tech Hydraulics for providing the base frame.

<https://www.daijiworld.com/news/newsDisplay.aspx?newsID=700173>

## నమస్తే తెలంగాణ

Fri, 24 April 2020

### Mobile Virology Lab

# మొబైల్ వైరాలజీ ల్యాబ్

దేశంలోనే మొదటిసారి హైదరాబాద్లో..

- వీడియోకాన్ఫరెన్స్ ద్వారా ప్రారంభించిన కేంద్ర రక్షణశాఖ మంత్రి రాజ్ నాథ్ సింగ్
- కరోనా కట్టడికి గట్టి ప్రణాళిక
- సీఎం నేతృత్వంలో అన్ని చర్యలు
- నియంత్రణకు త్రిముఖ వ్యూహం
- ప్రారంభ కార్యక్రమంలో ఐటీమంత్రి కేటీఆర్

హైదరాబాద్, నమస్తే తెలంగాణ: కరోనా వైరస్ నిర్ధారణ పరీక్షలను వేగంగా చేపట్టేందుకు ఈఎస్ఐ దవాఖాన సహకారంతో హైదరాబాద్ డిజిఆర్ఐవో దేశంలోనే మొదటిసారిగా మొబైల్ వైరాలజీ రిసెర్చ్ అండ్ డయాగ్నోస్టిక్ ల్యాబ్ను రూపొందించింది. దీని తయారీకి ఆరునెలలు సమయం పట్టనుండగా.. కేవలం రెండువారాల్లోనే సిద్ధం చేసి అద్భుతం చేసింది. అంతర్జాతీయ ప్రమాణాలతో, అధునాతన సాంకేతికతతో ఈ ల్యాబ్ను తయారుచేసింది. కరోనాతోపాటు ఇతర వైరస్ నిర్ధారణ పరీక్షలకు, పరిశోధనలకు ఇది ఉపయోగపడుతుంది. హైదరాబాద్

➤మిగతా 4వ పేజీలో



సీఎంఆర్ఎఫ్ కు రూ.5 కోట్ల చెక్కును గురువారం ప్రగతి భవన్ లో మంత్రి కేటీఆర్ కు అందజేస్తున్న డీమాండ్ కు చెందిన రాధాకిషన్ ధమని (టైట్ స్టార్ ఇన్వెస్ట్ మెంట్)

# మొబైల్ వైరాలజీ ల్యాబ్



గురువారం వీడియో కాన్ఫరెన్స్ లో పాల్గొన్న రక్షణశాఖ మంత్రి రాజ్ నాథ్ సింగ్, రాష్ట్ర ఐటీ మంత్రి కేటీఆర్

## డీఆర్ డీవో కృషి ఫేస్

వైరాలజీ ల్యాబ్ ఏర్పాటుకు కృషిచేసిన డీఆర్ డీవో, ఈఎస్ఐ దవాఖాన సిబ్బందిని మంత్రి కేటీఆర్ అభినందించారు. ప్రభుత్వం తరపున ధన్యవాదాలు తెలిపారు. అత్యుత్తమ ప్రమాణాలున్న ల్యాబ్ దేశంలో ఇదొక్కటేనని చెప్పారు. సుమారు ఆరునెలల్లో తయారుచేసే ల్యాబ్ ను రెండువారాల్లోనే సిద్ధంచేసిన డీఆర్ డీవో, సహకరించిన ఇతర కంపెనీలను ప్రశంసించారు. ఈ ల్యాబ్ ద్వారా కరోనా మాత్రమే కాకుండా ప్రమాదకరమైన ఇతర అంటువ్యాధులను త్వరితగతిన గుర్తించేందుకు వీలు కలుగుతుందని చెప్పారు.

మొదటిపేజీ తరువాయి...

ఈఎస్ఐ వైద్యకళాశాల ఆవరణ నుంచి సేవలందించే ఈ ల్యాబ్ ను గురువారం కేంద్ర రక్షణశాఖ మంత్రి రాజ్ నాథ్ సింగ్ ఢిల్లీ నుంచి వీడియో కాన్ఫరెన్స్ ద్వారా ప్రారంభించారు. కార్యక్రమంలో ఢిల్లీ నుంచి కేంద్ర కార్యకలాప మంత్రి సంతోష్ గాంగూర్, ప్రగతిభవన్ నుంచి ఐటీ, పరిశ్రమల శాఖ మంత్రి కే తారకరామరావు, హైదరాబాద్ నుంచి కేంద్రహోంశాఖ సహాయమంత్రి జీ కిషన్ రెడ్డి, రాష్ట్ర కార్యకలాప మంత్రి మల్లారెడ్డి, డీఆర్ డీవో వైర్లెస్ సీటీఆర్ డి పాల్గొన్నారు. కరోనా కట్టడికి కేంద్రంతో కలిసి తెలంగాణ సర్కారు గట్టి ప్రణాళికలు చేపడుతున్నదని మంత్రి కేటీఆర్ చెప్పారు. ప్రజల్లో విశ్వాసాన్ని నింపుతూనే వైరస్ నియంత్రణకు ట్రాక్, టెస్ట్, ట్రీట్ విధానంతో త్రిముఖ వ్యూహాన్ని అవలంబిస్తున్నదని తెలిపారు. సీఎం కేసీఆర్ నాయకత్వంలో అన్నిరకాల చర్యలు తీసుకుంటున్నామని పేర్కొన్నారు. రాష్ట్రంలో మార్చి 22 నుంచి మే 7 వరకు లాక్ డౌన్ ప్రకటించి, కంట్రైన్ (కంట్రైన్మెంట్) అనే నినాదంతో పనిచేస్తున్నామని చెప్పారు. కరోనా పాజిటివ్ వ్యక్తి, ప్రైవేటు, సెకండరీ కాంటాక్టులను ఐసోలేట్, క్వారంటైన్ చేస్తున్నామని

తెలిపారు. కేంద్ర సహచరలు, సలహాలను పాటిస్తూ కలిసి కట్టుగా ముందుకు సాగుతున్నామని చెప్పారు. కరోనా పాజిటివ్ వస్తే ఐసోలేషన్ వార్డుల్లో పెట్టి చికిత్స అందిస్తున్నామని తెలిపారు. రాష్ట్రంలోని పేదలకు, ఇక్కడ పనిచేస్తున్న వలస కార్మికులందరికీ 12 కిలోల బియ్యం, రూ.1500 అందిస్తున్నామని, వైద్య సౌకర్యాలు కల్పిస్తున్నట్టు వివరించారు. కొవిడ్-19 సేవల కోసం రాష్ట్రంలో



గురువారం ప్రారంభమైన మొబైల్ వైరాలజీ ల్యాబ్ ను పరిశీలిస్తున్న కార్యకలాప మంత్రి మల్లారెడ్డి

ఎనిమిది దవాఖానలను ప్రత్యేకంగా ఉపయోగించడంతో పాటు రికార్డ్ సమయంలో 20 రోజుల్లోనే టీమ్ ను 1500 పడకల దవాఖానగా ఏర్పాటుచేశామని తెలిపారు. ఇవన్నీ చేసినా ప్రజల భాగస్వామ్యంతోనే వైరస్ ను ఎదుర్కోగలమని కేటీఆర్ చెప్పారు. లాక్ డౌన్ పట్టణ ప్రజల కన్నా పల్లె ప్రజలు బాగా సహకరిస్తున్నారని పేర్కొన్నారు.

## భారత్ లో తక్కువ ప్రభావం: రాజ్ నాథ్ సింగ్

ప్రపంచంలోని ఇతర దేశాలకంటే భారత్ లో కరోనా ప్రభావం తక్కువగా ఉన్నదని కేంద్రమంత్రి రాజ్ నాథ్ సింగ్ చెప్పారు. 15 రోజుల రికార్డు సమయంలో వైరల్ ల్యాబ్ ను తయారుచేశారని, దీనికోసం కృషిచేసినవారిని అభినందించారు. ఈ ల్యాబ్ ద్వారా రోజుకు వెయ్యి నుంచి 1500 వరకు టెస్టులు చేయవచ్చని చెప్పారు. ఈ సామర్థ్యాన్ని మరింత పెంచుకోనే ఆవశ్యం ఉన్నదని పేర్కొన్నారు. కరోనా ఎదుర్కోవడంలో త్రివిధ దశలు సహకారాన్ని అందిస్తున్నాయని తెలిపారు. మేకిన్ ఇండియాలో భాగంగా పీపీఈ కిట్లు, వెంటిలేటర్లు తయారుచేస్తున్నామని కేంద్ర హోంశాఖ సహాయమంత్రి కిషన్ రెడ్డి చెప్పారు.

## The new fight with mobile lab

# మొబైల్ ల్యాబ్ తో సరికొత్త పోరాటం

దేశంలో తొలి మొబైల్ వైరాలజీ ల్యాబ్ రోటరీ టెలిఫోన్ హైదరాబాద్ లో శ్రీకారం  
వీడియో కాన్ఫరెన్స్ ద్వారా ప్రారంభించిన రక్షణ మంత్రి రాజ్ నాథ్ సింగ్  
కేవలం 15 రోజుల్లో సుపాద్యం చేసిన డీఆర్ డీవో, ఈఎన్ఐసీ సిబ్బంది  
కేంద్రంతో కలిసి కరోనా వైరస్ పై పోరాటం: మంత్రి కేటీఆర్

2



సచివాలయ కమిషన్ ఆఫీస్ లో ఏర్పాటు చేసిన తొలి మొబైల్ వైరాలజీ రోటరీ టెలిఫోన్ కేంద్ర రక్షణ మంత్రి ఆన్ లైన్ ద్వారా ప్రారంభించగా, హోలైట్ మంత్రి కేటీఆర్

## మొబైల్ ల్యాబ్ తో సరికొత్త పోరాటం

- కరోనాపై పోరులో ప్రపంచ దేశాలకన్నా ముందున్నాం
- దేశంలో తొలి మొబైల్ వైరాలజీ ల్యాబ్ కు హైదరాబాద్ లో శ్రీకారం
- వీడియో కాన్ఫరెన్స్ ద్వారా ప్రారంభించిన రక్షణ మంత్రి రాజ్ నాథ్ సింగ్
- కేంద్రంతో కలిసి కరోనాపై పోరాటం : మంత్రి కేటీఆర్

**హైదరాబాద్ (ఆంధ్రవైభవ):** ప్రభుత్వం కోవిడ్-19 పై ప్రధాని మోడీ నేతృత్వంలో కేంద్ర ప్రభుత్వం యుద్ధం చేస్తోందని, సరైన సమయంలో సరైన నిర్ణయాలతో కట్టిడి చేయగలుగుతున్నామని కేంద్ర రక్షణ శాఖ మంత్రి రాజ్ నాథ్ సింగ్ అన్నారు. ఈ విషయంలో ప్రపంచ దేశాలతో పోల్చుకుంటే మనం ఎంతో ముందున్నామన్నారు. సగరంలోని డీఆర్ డీవో పరిశోధన సంస్థ ఈఎన్ఐసీ ఆసుపత్రులు సంయుక్తంగా రూపొందించిన మొబైల్ వైరాలజీ రిసర్చ్, డయాగ్నోస్టిక్ లాబోరేటరీ (ఎంటిఆర్ డీఎల్)ని గురువారం ఢిల్లీ నుంచి వీడియో కాన్ఫరెన్స్ ద్వారా రక్షణ శాఖ మంత్రి రాజ్ నాథ్ సింగ్ ప్రారంభించారు. సగరంలోని పనత్ నగర్ ఈఎన్ఐసీ ఆస్పత్రిలో డీఎన్ఐ ఏర్పాటు చేయగా గురువారం అడుబాయిలోకి తీసుకువచ్చారు. కేవలం 15 రోజుల

వ్యవధిలో బయోసేఫ్టీ లెవెల్-2, లెవెల్-3 ల్యాబ్ ను రూపొందించిన డీఆర్ డీవో అధికార యంత్రాంగాన్ని, ఈఎన్ఐసీ ఆసుపత్రి వర్గాలను ఈ సందర్భంగా ఆయన అభినందించారు. రక్షణ శాఖ మంత్రి కోవిడ్-19 కు సంబంధించి వివిధ అంశాలపై సుధీర్ఘంగా మాట్లాడారు. డీఆర్ డీవో రూపొందించిన ఈ ఎంటిఆర్ డీఎల్ ద్వారా రోజుకు ఠాణాల్కు 1000 నుంచి రెండువేల వరకూ శాంపిల్స్ ను పరీక్షించే అవకాశం ఉంటుందని, కరోనాపై పోరాటంలో ఇది సరికొత్త ఆయుధంగా మారవచ్చుందని అభిప్రాయం వ్యక్తం చేశారు. దేశవ్యాప్తంగా ఈ ల్యాబ్ ను అందుబాటులోకి తీసుకువచ్చేందుకు డీఆర్ డీవో ముంతగా పాలుపంచాలని రాజ్ నాథ్ సూచించారు.

### దేశంలో తొలి మొబైల్ వ్యాన్ ఇక్కడే

కేంద్ర హాం శాఖ సహాయ మంత్రి కిషన్ రెడ్డి మాట్లాడుతూ వైరాలజీ మొబైల్ ల్యాబ్ సదుపాయం హైదరాబాద్ లో మొదటిగా అందుబాటులోకి రావడం సంతోషంగా ఉందన్నారు. సికింద్రాబాద్ పార్లమెంట్ పరిధిలో వైరాలజీ ల్యాబ్ ను ఏర్పాటు చేసినందుకు కేంద్ర మంత్రులు రాజ్ నాథ్ సింగ్, సంతోషే గంగాధరకు కృతజ్ఞతలు తెలిపారు. రాష్ట్ర ప్రభుత్వాలతో కలిసి దేశ

ప్రతివారం 304 కరోనా టెస్టింగ్ ల్యాబ్‌ను 755 కోట్ల ప్రత్యేక ఆస్తులను ఏర్పాటు చేశామని వివరించారు. ప్రజలు సహకరిస్తేనే కరోనాను కట్టడి చేయడం సాధ్యమవుతుందని కిషన్‌రెడ్డి స్పష్టం చేశారు.

**కేంద్రంతో కలసి పోరాడుతున్నాం : కేటీఆర్**

రాష్ట్ర పురపాలక, ఐటీ, పరిశ్రమల శాఖ మంత్రి కేటీఆర్ పరామర్శ మూట్టాడుతూ, సనత్‌నగర్ ఈఎన్ఐఆర్ ఆసుపత్రి ప్రాంగణంలో ఏర్పాటు చేసిన వైరాలజీ ఏర్పాటుకు కృషి చేసిన డిఆర్డీవో, ఈఎన్ఐఆర్ ఆసుపత్రి సిబ్బందిని అభినందించారు. దేశంలో ఇలాంటి అత్యుత్తమ ప్రమాణాలు ఉన్న ల్యాబ్ ఇదొక్కటేనని, సుమారు ఆరు నెలల సమయం పట్టే వంటి ల్యాబ్‌ను కేవలం రెండు పారాల్తో నిర్మించిన డిఆర్డీవోను, అందుకే సహకరించిన ఇతర కంపెనీలను ప్రశం

నించారు. కరోనా వైరస్ ను కట్టడి చేసేందుకు కేంద్ర ప్రభుత్వంతో కలిసి తెలంగాణ ప్రభుత్వం కూడా గట్టి ప్రణాళికలను అమలు చేస్తోందన్నారు. ఇలాంటి అత్యుత్తమ వైరాలజీ ల్యాబ్‌ను ఏర్పాటు చేసేందుకు సహకరించిన అందరికీ తెలంగాణ తరపున మంత్రి కేటీఆర్ కృతజ్ఞతలు తెలిపారు. ప్రజల సహకారంతోనే కోవిడ్‌పై విజయం సాధించగలమని అన్నారు.

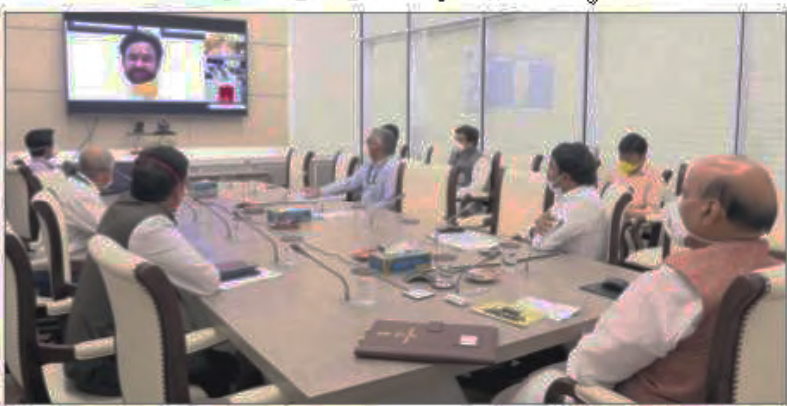
**మొబైల్ ల్యాబ్ ప్రత్యేకతలివీ....**

డిఆర్డీవో అందించిన సాంకేతికతతో మగా ఇంజనీరింగ్ అండ్ ఇన్‌ఫ్రాస్ట్రక్చర్ లిమిటెడ్ అనుబంధ సంస్థ జూమ్ ఈ మొబైల్ వైరాలజీ ల్యాబ్‌ను రూపొందించింది. ఇది దేశంలోనే మొట్టమొదటి ఓపెన్ ఎలై-3 కంటైన్డర్ వైరాలజీ ల్యాబ్. ఇక్కడ అనేక సంఖ్యలో

కంటైన్డర్ ఓపెన్ ఎలై-3 (బయోసేఫ్టీ) ప్రమాణాలతో కూడిన ప్రయోగశాలను కేవలం 15 రోజుల్లో నిర్మించారు. సాధారణ వైరస్ ప్రయోగాల కోసం ఓపెన్ ఎలై-3 ప్రయోగశాల ఉంటే సరిపోతుంది. అయితే కోవిడ్-19 వంటి ప్రాణాంకక వైరస్‌పై ప్రయోగాలు చేయాలంటే ఓపెన్ ఎలై-3 ప్రమాణాలతో కూడిన ప్రయోగశాల తప్పనిసరి. ఓపెన్ ఎలై-3 ప్రమాణాలు పాటించడం వల్ల ఎందులో పనిచేసే శాస్త్రవేత్తలు, సిబ్బంది వైరస్ బారిన పడకుండా సురక్షితంగా ఉంటారు. నిమ్న వైద్యశాల ప్రధాన శాస్త్రవేత్త డాక్టర్ మధు మాహానరావు ఆధ్వర్యంలో శాస్త్రవేత్తలు వైద్యులు ఈ ప్రయోగశాలలో విధులు నిర్వహిస్తారు. ల్యాబ్ కోవిడ్-19 వైరస్ ప్యాథ్ నిర్ధారణ పరీక్షలు చేస్తారు. అదేవిధంగా నియంత్రిత పాఠావరణంలో వైరస్‌ను పెంచుతారు. వైరస్‌ను అరికట్టగల మందులను కనుగొనేందుకు ప్రయోగాలు చేస్తారు. ప్యాక్సినిను కనుబట్టేందుకు పరిశోధనలు చేస్తారు.

**డిఆర్డీవో సహకారం**

దేశంలో వేగంగా విస్తరిస్తున్న కరోనా కేసులను అరికట్టేందుకు డిఆర్డీవో వైద్య శాస్త్రవేత్తల బృందం భారత్ లో మొట్టమొదటిసారి బహుళ ప్రయోజనకరమైన ఓపెన్ ఎలై-3 అంజ్ఞాతియ ప్రమాణాలతో కూడిన మొబైల్ కంటైన్డర్ వైరాలజీ ల్యాబ్‌ను నిర్మించారు. నిమ్న ఆసుపత్రి రిసెర్చ్ అండ్ డెవలప్ మెంట్ విభాగం అధిపతి ప్రముఖ శాస్త్రవేత్త డా. మధు మాహానరావు ఈ మొబైల్ ల్యాబ్‌ను రూపొందించారు. ఈఎన్ఐఆర్ వైద్యకళాశాల డిసైనింగ్ నిహాన్ సహకారం అందించారు.



<https://epaper.prabhanews.com/2645900/Telangana-Main/24-4-2020-telangana-main#page/2/1>



Fri, 24 April 2020

**Mobile Virology Lab**

**దేశంలోనే తొలిసారి హైదరాబాద్ ఇఎన్ఐఆర్ ఆసుపత్రిలో ఏర్పాటు ప్రారంభించిన రక్షణ మంత్రి రాజ్ నాథ్ 2వేల కరోనా టెస్టుల సామర్థ్యం**

**హైదరాబాద్, ఏప్రిల్ 23 ప్రభాతవార్త :** దేశంలోనే తొలి మొబైల్ వైరాలజీ ల్యాబ్‌ను హైదరాబాద్ ఈఎన్ఐఆర్ ఆసుపత్రిలో ఏర్పాటు చేశారు. ఈ ల్యాబ్‌ను కేంద్ర రక్షణ శాఖ మంత్రి రాజ్ నాథ్ సింగ్ గురువారం ఆన్ లైన్ లో సనత్ నగర్ లోని ఈఎన్ఐఆర్ ఆసుపత్రి ప్రాంగణంలో ఏర్పాటు చేసిన ప్రారంభించారు. ఈ కార్యక్రమంలో కేంద్ర హోంశాఖ సహాయ మంత్రి కిషన్ రెడ్డి, సంతోష్ గంగ్వార్, తెలంగాణ మున్సిపల్, పరిశ్రమలు, ఐటీ శాఖల మంత్రి కేటీఆర్, డిఆర్డీవో అధికారులు పాల్గొన్నారు. అనంతరం కిషన్ రెడ్డి మాట్లాడుతూ 2

వేల టెస్టులు చేసే సామర్థ్యం ఈ వైరాలజీ ల్యాబ్ కు ఉందన్నారు. కరోనాను ఎదుర్కోవడంలో టెస్టులు ఎంతో ఉపయోగపడుతాయన్నారు. దేశవ్యాప్తంగా లక్షా 86 వేల కోట్ల ఔట్ సైన్ ఏర్పాటు చేశామని కిషన్ రెడ్డి తెలిపారు. 24 వేల టెస్టుల ఔట్ సైన్ ఏర్పాటు చేశామన్నారు. ప్రైవేటు కంపెనీల సహకారంతో వెంటిలేటర్లను తయారు చేయిస్తున్నామని వెల్లడించారు. అందరూ కలిసి కట్టుగా కరోనాను ఎదుర్కోవాలని ఆయన పిలుపునిచ్చారు. మర్యాద ఘన కారణంగానే కరోనా కేసులు పెరిగాయని పేర్కొన్నారు. కరోనా నియంత్రించుకు 755 ప్రత్యేక



ఇఎస్ఐ ఆసుపత్రి వద్ద ప్రారంభించిన సంచార వైరాలజీ ల్యాబ్

ఆసుపత్రులను ఏర్పాటు చేసినట్లు కిషన్ రెడ్డి వివరించారు.

ఈ సందర్భంగా కేబీఆర్ మాట్లాడుతూ.. కేంద్రంతో కలిసి కరోనాపై పోరాడుతున్నామన్నారు. స్వీయ నియంత్రణ పాటించాలని ప్రజలకు విజ్ఞప్తి చేస్తున్నామని కేబీఆర్ తెలిపారు. కరోనా జాధితులకు చికిత్స అందించేందుకు గచ్చిబౌలిలో 20 రోజుల్లోనే 1500 వడకలతో టిమ్మి ఏర్పాటు చేసినట్లు ఆయన చెప్పారు. కేంద్రం మార్గదర్శకాలను రాష్ట్రంలో ఆమలు చేస్తున్నామని కేబీఆర్ తెలిపారు. కొవిడ్-19 చికిత్స కోసం రాష్ట్రంలో 8

ప్రత్యేక ఆసుపత్రులు ఏర్పాటు చేసినట్లు ఆయన వివరించారు. హైదరాబాద్ లో లాక్ డౌన్ ను మరింత పకడ్బందీగా ఆమలు చేస్తామని తెలిపారు.

రాష్ట్రంలో రూ.1500 చొప్పున లాక్ డౌన్ రోజుల్లో 88 లక్షల కుటుంబాలకు బియ్యం, సగదు వంపిణీ చేసినట్లు కేబీఆర్ వివరించారు. తెలంగాణ సిఎం కేసిఆర్ నాయకత్వంలో అన్ని జాగ్రత్తలు తీసుకుంటున్నామని కేబీఆర్ పేర్కొన్నారు. కేంద్రంతో కలిసి కరోనాపై పోరాడుతున్నామన్నారు. స్వీయ నియంత్రణ పాటించాలని ప్రజలకు విజ్ఞప్తి చేస్తున్నామని కేబీఆర్ తెలిపారు.

**Mobile Virology Lab**

# ఈఎస్ఐ ఆస్పత్రిలో మొబైల్ వైరాలజీ ల్యాబ్

○ ప్రారంభించిన కేంద్ర మంత్రి రాజ్ నాథ్ సింగ్

○ డీఆర్టీవో, ఈఎస్ఐ కలిసి తయారీ హైదరాబాద్, వెలుగు: దేశంలో మొదటిసారిగా మొబైల్ వైరాలజీ ల్యాబ్ రాష్ట్రంలో ప్రారంభమైంది. డీఆర్టీవో, ఈఎస్ఐతో కలిసి రూపొందించిన ఈ 'మొబైల్ వైరల్ రీసెర్చ్ అండ్ డయాగ్నోస్టిక్ ల్యాబ్'ను హైదరాబాద్ ఈఎస్ఐ ఆస్పత్రిలో వీడియో కాన్ఫరెన్స్ ద్వారా రక్షణ మంత్రి రాజ్ నాథ్ సింగ్ ప్రారంభించారు. కేంద్ర హోం శాఖ సహాయ మంత్రి జి. కిషన్ రెడ్డి, కార్మిక వ్యవహారాల శాఖ సహాయ మంత్రి సంతోష్ గాంగూర్, రాష్ట్ర ఐటీ మంత్రి కేటీఆర్, డీఆర్టీవో చైర్మన్ సతీశ్ రెడ్డి వీడియో కాన్ఫరెన్స్ ద్వారానే పాల్గొన్నారు. వైరస్ కల్చర్, వ్యాక్సిన్ తయారీపై పరిశోధనలతో పాటు ల్యాబ్లో టెస్టులూ చేయనున్నారు. కరోనా నియంత్రణకు డీఆర్టీవో సైంటిస్టులు కృషి చేస్తున్నారని కిషన్ రెడ్డి కొనియాడారు. 6 నెలలు పట్టే వైరాలజీ ల్యాబ్ను 15 రోజుల్లోనే ఏర్పాటు

చేయడం అభినందించే విషయమన్నారు. అంతర్జాతీయ ప్రమాణాలు, టెక్నాలజీతో ఏర్పాటు చేసిన ఈ బయో సేఫ్టీ లెవెల్ (బీఎస్ఎల్) 3 ల్యాబ్ లో వెయ్యి నుంచి 2 వేల టెస్టులు చేయొచ్చన్నారు. రాష్ట్ర ప్రభుత్వాలతో కలిసి దేశమంతా 304 టెస్టింగ్ ల్యాబ్లు, 755 కొవిడ్ ప్రత్యేక ఆస్పత్రులను సిద్ధం చేశామని కిషన్ రెడ్డి తెలిపారు. కరోనా పేషెంట్ల కోసం 1.86 లక్షల బెడ్లు అందుబాటులో ఉన్నాయని, వాటిలో 24 వేల ఐసీయూ బెడ్లు ఉన్నాయని చెప్పారు. దేశంలో 3 వేల క్వారంటైన్ సెంటర్లున్నాయన్నారు. మేకిన్ ఇండియాలో భాగంగా బీహెచ్ ఈఎల్, డీఆర్టీవో, ఇతర ప్రైవేట్ సంస్థలతో కలిసి పీపీపీ పద్ధతిలో పీపీఈ కిట్లు, వెంటిలేటర్లు తయారు చేస్తున్నామని వివరించారు. ప్రజల సహకారంతోనే వైరస్ వ్యాప్తిని అడ్డుకోగలుగుతామన్నారు. పల్లె ప్రజలు నో కరోనా అంటూ కట్టడి చేసుకుంటుంటే, సిటీల్లో ఉన్నోళ్లు మాత్రం ఆవో కరోనా అంటున్నారని, అది మంచి పద్ధతి కాదన్నారు.

<https://epaper.v6velugu.com/2645770/V6-Prabhatha-Velugu-Telugu-Daily-Newspaper/24-04-2020#page/3/1>

## Opinion: Covid-19 is a wake-up call to prepare India against bio-threats

*Need to setup level-4 laboratories, task force to prepare against bio-threats*

*By Dr. W. Selvamurthy*

The COVID-19 episode is a strong wake-up call for the nation to prepare a blueprint on bio-threat preparedness, response, mitigation and restoration.

India today has the largest biological wealth in the world. It has the demographic advantage of having the human resource of 1.3 billion people with 50 per cent below the age of 25 years. The animal wealth is also comparable to the human resource in numbers with more than one billion animals. The country has unparalleled plant wealth. More than 15 per cent of GDP comes from the agriculture sector and 60 per cent of the population is employed in this sector directly or indirectly. The nation has a rich biodiversity with two hotspots, one in the North East and other in the Western Ghats, having more than 45,000 species of plants - many of them having medicinal value.



With such biological assets, there is a need for formulation of detailed plans and strategies to appropriately respond to any bio-threat to the three major categories of biological wealth.

Bio-threats can arise from a natural outbreak transiting to an epidemic or pandemic, from an irresponsible nation venturing into bio-warfare on a large scale which is rather a remote possibility, or from an act of bioterrorism from a non-state actor.

It must be noted that the Biological and Toxin Weapons Convention (BTWC) is still not ratified globally, unlike the Chemical Weapons Convention (CWC) which is administered by the Organization for the Prohibition of Chemical Weapons (OPCW), an intergovernmental organization based in the Hague.

Likewise, one cannot rule out the possibility of a virulent and contagious pathogen making its way out of an advanced microbiology laboratory; or a vaccine development unit that could inadvertently leak the pathogen out of a laboratory or facility that does not practice adequate bio-safety and bio-security safeguards.

All these scenarios re-emphasize the need for a concerted action plan for our nation that should be made operational on a priority basis.

The Defence Research & Development Organization (DRDO) has already developed considerable expertise to deliver a large number of CBRN (chemical, biological, radiological and nuclear) defence technologies and products to our Armed Forces.

These include field-based diagnostic tools, personal protective equipment (PPE), collective protection at underground field shelters, decontamination devices and materials and medical management. Even a model hospital to handle CBRN victims has been developed. The National Disaster Management Authority (NDMA) has issued Standard Operating Procedure with valuable inputs from DRDO.

A decade ago, DRDO also formulated a blueprint for bio-threat mitigation and initiated a dialogue through inter-ministerial consultation. Now is the most opportune time to give a renewed thrust to all necessary endeavours for bio-threat preparedness.

A national-level mission mode program on bio-threat mitigation may need to be launched with overall coordination by the National Security Advisor (NSA) in the Prime Minister's Office, since bio-threat may impact our comprehensive National Security. A task force at National Security Council Secretariat may be constituted to address this dire need with the focus. Since it involves coordination between multiple ministries such as defence, health, agriculture and others, it is essential to constitute an inter-ministerial steering committee for proper coordination keeping DRDO as the nodal department.

Necessary resources including adequate budget need to be allocated for this important national mission. Currently, in our country, we have only one BSL- 4 facility at the National Institute of Virology, Pune. The country would require at least five more such facilities to be established on priority for undertaking advance R&D endeavours to study pathogens, keep a repository of potential bio-threat agents and develop diagnostics and therapeutics.

A large country like ours should strengthen the existing surveillance systems and mechanisms for identifying natural outbreaks. A reliable database of epidemiological studies on infectious diseases needs to be strengthened to discriminate between the natural outbreak or the onset of an epidemic.

The Government of India needs to make a critical investment for the development of appropriate technologies and products, evolve suitable policies and ensure their practices at the grass-root level by networking with the state. In a federal structure like ours, the involvement and participation of states is an essential perspective of such a national initiative. It is indeed a 'wake-up call for the nation' to respond appropriately and adequately towards any bio-threat considering the emerging scenario.

*(Dr. W. Selvamurthy is president, Amity Science, Technology and Innovation Foundation, Director-General for Amity Directorate of Science and Innovation and Chancellor, Amity University, Chhattisgarh. He worked with DRDO for over 40 years, where he spearheaded the R&D program related to delivering CBRN defence technologies and products to the Armed Forces.)*

*(The opinions expressed in this article are those of the author's and do not purport to reflect the opinions or views of THE WEEK.)*

<https://www.theweek.in/news/india/2020/04/23/opinion-covid-19-is-a-wake-up-call-to-prepare-india-against-bio-threats.html>

ज्ञान प्रसार एवम् विस्तार  
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## COVID-19: Defence Minister reviews work of armed forces medical services; Hails initiatives

*Rajnath Singh reviewed the functioning of Armed Forces Medical Services (AFMS) and their assistance to civilian authorities to contain the spread of COVID-19*

*By Prachi Mankani*

Mumbai: Defence Minister Rajnath Singh reviewed the functioning of the Armed Forces Medical Services (AFMS) and their assistance to civilian authorities to contain the spread of COVID-19 at a meeting on Thursday. The meeting was attended by Defence Secretary Dr Ajay Kumar, Director General AFMS Lt Gen Anup Banerji, Director General (Organisation and Personnel) AFMS Lt General A K Hooda, Director General Medical Services (Navy) Surgeon Vice Admiral M V Singh and Director General Medical Services (Air) Air Marshal M S Butola.

The team briefed the Defence Minister about various actions taken in terms of issuing advisories to Armed Forces personnel, providing assistance to civilian authorities in respect of quarantine facilities, provisioning of hospitals and healthcare in the prevailing situation.



"On a request received from the Ministry of Health and Family Welfare, quarantine facilities for civilians were created and are currently functional at six stations for civilian evacuees from Italy, Iran, China, Malaysia and Japan," said a Defence Ministry release. "Standby quarantine facilities have also been created at other stations. Starting 1st Feb 2020 these facilities have housed 1,738 individuals."

While appreciating various measures initiated by the Armed Forces Medical Services, the Defence Minister also directed them to extend all possible assistance to civil authorities to overcome the challenges posed by COVID-19.

### **Defence Forces Directed To Put On Hold The Acquisition Processes**

The Indian Army has prepared a set of instructions for personnel rejoining from leave/temporary duty/courses to ensure any potential spread of the disease is contained among forces. All personnel in the Army will be classified as Green (who have completed 14 days quarantine period), Yellow (who need to undergo 14 days quarantine period) and Red (Symptomatic requiring isolation and further treatment in COVID hospital), the Army has said.

Broad modalities/guidelines for rejoining have been planned in a phased manner considering the number of individuals rejoining from leave/temporary duty/courses and the requirement for smooth reporting, quarantine and onward dispersal to units, the Army said on Monday.

<https://www.republicworld.com/india-news/general-news/defence-minister-reviews-work-of-armed-forces-medical-services.html>

## Business Standard

Fri, 24 April 2020

### Union government's dearness allowance freeze to save Rs 11,000 crore from military

*Jawans at the entry level will be set back by Rs 15,000 to 20,000 in a year*

*By Ajai Shukla*

If Chinese military planners thought they could use the Covid-19 crisis to steal a march in the Indian Ocean, they may have been mistaken. India may be under the world's largest coronavirus lockdown, but its navy is not.

Serving soldiers, sailors and airmen of the three defence services, and retired veterans and their families who draw pensions, will bear the brunt of the government's decision to suspend bi-annual increases of Dearness Allowance (DA) and Dearness Relief (DR).

The freeze on DA will affect the military's 1.5 million serving men and women – 1.265 million in the army, 83,500 in the navy and 155,000 in the air force.

Meanwhile, the freeze on DR will affect 2.59 million military pensioners and about 600,000 civilians drawing defence pensions. The decision does not violate the "one rank, one pension" principle because pensions have been frozen across the board.

With the defence budget for 2020-21 allocating Rs 142,292 crore for salaries and Rs 133,825 crore for pensions, the suspension of DA/DR increases will save at least Rs 11,000 crore over a year. The savings could be as much as Rs 13,000-14,000 if inflation rises sharply.

Serving defence employees are entitled to a DA increase twice each year to compensate for inflation, as measured by the Consumer Price Index (CPI). The increase is announced by the Finance Ministry's Department of Expenditure in March and September each year, as a percentage of each employee's salary. The increase is actually disbursed with effect from the following July and January respectively.

Those drawing defence pensions are entitled to DR, which is also raised bi-annually, in tandem with the CPI.

In September 2019, the Finance Ministry had announced a rise of 4 per cent in DA/DR, raising it from 17 per cent of basic salary to 21 per cent. This was to be paid from January 1, 2020 onwards, but has now been retrospectively placed on hold.

The government has also placed on hold the "additional instalments of DA and DR due from July 1, 2020 and January 1, 2021."

All defence employees have already contributed a day's salary to the PM-CARES fund. This freeze on salaries, however, will cost them significantly more – about Rs 15,000 to Rs 20,000 in a year for an entry-level soldier, sailor or airman.

<http://ajaiashukla.blogspot.com/2020/04/union-governments-dearness-allowance.html>



Fri, 24 April 2020

## Will CDS General Bipin Rawat transfer AH-64 Apache combat helicopters to Army?

By Tushkar Shirodkar

India recently concluded a deal worth \$930 million for the purchase of 6 AH-64 Apache combat helicopters through U.S. Department of Defense's Foreign Military Sales (FMS) route for the Indian Army Aviation Corps (AAC) after a long bitter turf war between Indian Air Force (IAF) and AAC over control of the combat helicopters which has the intended role to provide air support to the Army's Strike Corps.

Since the orders for Six New AH-64, Apache combat helicopters are technically the same as 22 procured for the IAF and was brought by evoking the follow on-option of original order contracted in 2015 for the IAF. AAC was allowed to procure and keep Six follow on-option AH-64 Apache combat helicopters in 2017 and AAC now has plans to make a case for more 39 Apache Gunships due to IAF not agreeing to transfer 22 combat gunships which are already has been procured.



There has been growing chorus by Indian military planners to avoid duplications of expensive assets like combat gunships and AAC has been arguing that world over combat gunships which are usually used to provide air support to the Army's Strike Corps is maintained and flown by Army pilots under its command and IAF should transfer 22 gunships already in its possession.

The matter has already reached Chief of Defence Staff General Bipin Rawat who has taken up himself to convince IAF top brass to transfer combat gunships to the ACC. The decision is likely to be taken by end of this year or ACC will be allowed to raise the requirement for 39 more AH-64 Apache combat helicopters.

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<https://idrw.org/will-cds-general-bipin-rawat-transfer-ah-64-apache-combat-helicopters-to-army/#more-225795>



*Fri, 24 April 2020*

## **The day after: Thoughts on future air defence**

The ongoing covid-19 crisis will, like all things, come to pass and end one day. The time that it will take to 'normalise' after the pandemic is contained, cannot be said with certainty but what is certain is that the pandemic will end.

Expectantly, then the things will go back to normal; but will it be the pre-Corona normal or a new normal? What will be the degree of change is still in the realm of speculation. One often finds Niels Bohr being quoted saying that, 'Prediction is very difficult, especially if it's about the future'. That notwithstanding, speculate and predict we must for us to be prepared for any future scenario. It may well be so in the future as we face another conflict.

### **Overview**

In the prevailing security environment, there is an increased uncertainty resulting in a marked reduction in stability and balance that existed earlier. The lines between states and non-state actors often get blurred making it difficult to identify the nature of threat. Another cause of concern is the technological advances occurring at asymmetric pace at regional and global level, with the dis-coherence between adversaries increasing, giving rise to further instability and thus a push to reliance on unconventional and irregular methods to try and even out against a superior adversary.

The conditions leading to events which result in instability will be experienced in more and more fields for longer durations with the instability becoming the default condition.

Stable conditions will however co-exist in limited spheres and that will make the desired end-state or the culmination point difficult to be defined. It is almost as if there are two, or more, parallel environments co-existing and the warfare will spill over these necessitating the requirement of a force not only capable of fighting across the full spectrum of operations but also across these parallel environments- of old-world mechanised manoeuvre, insurgencies and the newer hybrid warfare over the six domains.

It will no longer be important to win a war till such time a perceived victory can be denied to the adversary. Iraq, with the technologically most advanced Army operating against a rag-tag opponent is a good example of this imbalance and denial of victory. Such conditions and strategic environments will only increase in the future. This will place a heavy demand on the armed forces to define and plan for objectives, and this will also be true of air defences. Only defending the air space and strategic assets will not suffice but denial of air space to the adversary and destruction of his air power in the entire spectrum from 'nap of the earth' to 'near space' will be more important.

### **Fifth Generation Air Warfare**

The nature of warfare is already fluid with it being conducted across multiple domains and spheres, with no unanimity over the type and generation of warfare we conduct today. While most countries grapple with the industrialized "third-generation" war fought by conventional armies over land and resources, parts of the world are witness to the "fourth generation" warfare that is a conflicts over ideas, waged by "ad-hoc warriors."

Not surprisingly, there is no unanimity over what generation of warfare it will be and what will the contours of this warfare. While some analysts call it Swarming – the fourth generation, after



Melee, Massing and Manoeuvre – wherein the future conflict will see the use of large numbers of dispersed individuals or small groups coordinating together but fighting as a coherent whole. This will be the age of Swarming, the next generation of war or the so-called “fifth-generation”. As per other analysts “fifth-generation” will not feature armies or clear ideas but will be a “vortex of violence,” a free-for-all of surprise destruction motivated more by frustration than by any political aim with coherent plans for the future.

Air forces, on the other hand, have a different take on this. The fifth generation air warfare will encompass and combine aspects such as network-centric approach, the combat cloud operational construct, multi-domain battle and fusion warfare.

The concept is based around interconnectivity and instantaneous sharing of information. The first requirement is of collecting information – done by a “sensing grid” comprising of all components from satellites and AWACS to the grunt on the ground. Each entity act as a sensor and becomes an individual node, capable of uploading and sharing the information. This is done through an “information grid” that receives, processes, stores, protects and communicates information quickly and securely.

The information from the nodes, via data-link connectivity is fed in real-time to the ‘combat cloud’ that is the central repository for all information and can be used to extract the combined ‘big picture’. Instead of a crew or individual only being aware of what is happening based solely on their own sensors, the ‘combat cloud’ provides a wide-area, integrated surface and air picture to all, extending for hundreds of kilometres, vastly improving situational awareness.

The advantage of using the ‘combat cloud’ are obvious- it enables targeting information and designation from one node to be extracted by another without the two directly in communication with each other. This in turn allows the strike aircraft to engage the target without having to use its own on-board sensors. The disadvantage is near total reliance on data and connectivity for success as any corruption or loss of data will lead to either an incomplete or inaccurate ‘big picture’. It can result in uncertainty and loss of engagement of targets or worse, in engagement of friendly or neutral elements. Reliance on data also implies the vulnerability to hacking, physical attack, electronic jamming and cyber-attacks.

### **The Future Air Threat**

Aircraft will be the main face of air threat but will increasingly be complemented, and supplemented by unmanned aerial systems (UAS). The UAS will pose the biggest challenge both qualitatively and quantitatively. Technological advances will make the UAS more capable and lethal increasingly operating across the entire spectrum of conflicts. Swarms of autonomous miniature UAS will pose a serious challenge for providing a comprehensive air defence cover.

Helicopters will only be a marginal and secondary threat while cruise missiles will be a more potent threat.

‘Leakers’ with the capability of going ‘below the radar’ and bypassing air defences will remain a challenge, no matter how advanced the air defences are and pose a serious threat. Suppression of air defence will be a major focus area and there will be need to have counter-suppression techniques in place.

Ballistic missiles with conventional warheads/multiple warheads will be used for tactical as well as strategic purposes. Distinguishing a missile with a conventional warhead or nuclear warhead will be enhance the strategic ambiguity. Though the stated ‘No First Use (NFU)’ policy of the Chinese does exist, will it remain a restraining factor for it? It will be a very different scenario with Pakistan. With Ballistic Missile Defences (BMD) being operationalised by an increasing number of countries, reliance on ballistic missiles with multiple re-entry vehicles, manoeuvrable hypersonic glide vehicles and cruise missiles will increase. To enhance the overall effectiveness of any strike, cyber-attacks – both soft and hard kill, will be carried out simultaneously.

### **Future Air Defence**

The Challenges. As the land forces and the air force operate in their respective domains, a major concern is the integration of the two in a seamless manner. Ideally, the two should have common

operating platforms and communications but in absence of the same, the sensor and communication grids should be integrated for relevant users. This is of critical importance for ground based air defences as they will need access to both army and air force networks. Another challenge for the ground based air defence systems (GBADS) will be to cater for the requirement of land forces as they carry out the hybrid fourth/ fifth warfare operations and at the same time counter air operations carried out in a more network centric environment. The GBADS will thus need to straddle across two different environment and should be able to adapt to both.

The air defence systems will be dependent not only on the types of air threats but also the strategic environment in which they are likely to be used and the type of warfare that will be fought in the future. This puts a greater strain on the GBADS as the conflict will be carried over varied terrain, over different generations. This means that the weapons suitable for one environment will not be suitable for another. The need will be thus of a range of GBADS to fulfil varying needs.

**Types of GBAD Systems.** The AD system will be fielded at two strata; strategic and tactical with the National Missile Defence providing the strategic AD cover with the Anti-Ballistic Missile (ABM) Defence. This will cover only select areas of national and strategic importance and would remain under the domain of the Air Force. The tactical AD will be employed at the operational and tactical level of which the mainstay will be the surface to air missiles (SAM) – with varying capabilities and ranges but SAMs will not be the end-all of the air defences. They will need to be supplemented by guns and more importantly counter-UAS systems, both hard-kill and soft-kill. It will be prudent to include Directed Energy Weapons (DEW) as a possible GBADS as they offer many advantages over conventional gun systems.

Similarly, Electronic Warfare (EW) systems for soft kill and C-UAS operations will be the preferred option over SAM and guns. For surveillance, Quantum radars, Passive Emitter Locating Systems and Counter Low Observability Radars will need to be integrated in to the surveillance grid.

Counter ISR systems in form of Long Range SAMs will be required against AWACS and EW aircraft. Counter-Rocket, Artillery, Mortar (C-RAM) systems will be required not only for force protection but also for defence of own systems.

The overall system will need to be multi-layered and the tactical AD system will need to mesh in with the strategic AD system to ensure a seamless integration. Another agency required to be integrated will be the Cyber Defence Agency to protect the AD system from adversary's cyber-attacks.

**System Requirements.** Interoperability will be a key requirement to ensure that one type of weapon can be integrated with another. Further, integration across the full spectrum of operations with the supported arms will be a must so that the AD weapon systems are able to operate in all terrain conditions, across the entire range of operations. The other requirements will be

- Self contained single platform systems,
- Each unit ( individual weapon system) be able to act as a node; hooked on to the grid, and
- Ability to operate isolated and yet remain integrated with overall operational plan by hooking on to the sensor and information grid.

Integration of Artificial Intelligence (AI) will be important, especially for sensors and information grid operation but it will have to be 'man-in-the-loop'. The Russian Aerospace Forces have already tested an air defence automatic control system (ACS) fitted with elements of AI that automatically analyses the aerial situation and gives out recommendation on the use of GBADS.

One key requirement in future will be the ability to rapidly converge and disperse in adverse conditions. In this, all entities will need to be mobile and operate 'shuttered-down' to be able to operate in NBC environment.

**Deployment.** The deployment should always be of a mix of weapons to cater for different threats. This should include passive systems for soft kill. As it will not be possible to deploy the required 'scale of defence' ab initio, the plans should cater for switching of resources, and build up as per the progress of operations. Mobility will be key factor.

From Deterrence to Denial. Deployment should cater for offensive use of GBADS and forward posture to exploit ranges and deny larger air spaces to the adversary. GBADS should graduate from deterrence to denial. Long range SAMs should be used aggressively to deny the enemy the use of his own air space and ensure punitive damages should he try to use his air power- even over own territory.

Force protection and preservation. GBADS will themselves be a prime target of enemy air forces. Counter-suppression will be important though the threat will be more from EW rather than hard-kill anti-radiation missiles (ARM). Larger AD systems like S-400 themselves will need protection by C-RAM systems.

Organisational Requirements. Incremental build up, and ability to scale down the defences as per the perceived threats will be important. For this, the GBADS should ideally be organised into batteries with a headquarter (down to a battery headquarter) be able to control troops and sections equipped with different types of weapons. The headquarters should be based on incremental, brick system with staff allocated to it as per requirement.

### **Conclusion**

The key factors that are important for future GBADS will be networked weapon systems with the requisite mobility used aggressively for all else will flow from these. Organisations will have to be small, and flexible with minimal logistic requirements and ability to operate independently even while isolated.

It is also important to remember while discussing, and speculating, about the future of warfare is that almost all the contingency plans have actually failed as nations, and armed forces, go about facing the present crisis with very few honourable exceptions who learnt from their past experience. The key to understanding the future may thus lie in our studying the history and past conflicts to make sense of tomorrow and the day after.

Like everything else, it will be the same with air defence.

While we look at the next generation warfare and how it will be fought and won, it may be prudent to look at the past conflicts to understand how face future challenges. A more important thing to remember is that it will exact a heavy price to be prepared for the next war but the price will be heavier if we are not prepared.

<https://idrw.org/the-day-after-thoughts-on-future-air-defence/>

## **Business Standard**

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Thu, 23 April 2020

### **At war with the virus**

*By Ajai Shukla*

In just a few months, the novel Coronavirus disease (Covid-19) pandemic has upended conventional calculations about national and international security. On January 11, army chief General MM Naravane had listed his primary challenges as defending the Siachen Glacier, the China border, the Pakistan border and tasks related to counter-insurgency and counter-terrorism (CI/CT), in that order. On March 4, as Covid-19 was picking up steam, the general gazed into his crystal ball and declared that tanks and fighter aircraft would soon become irrelevant and be replaced by new-technology lasers and directed energy weapons. Today, with large sections of the army, navy and air force in preventive lockdown against Covid-19 and the generals rethinking operational functioning, it is embarrassingly evident that defence and national security planners, whose primary function is to anticipate threats, were oblivious to the possibility of a global pandemic. Indian planners were hardly alone in this blindness. On January 15, the World Economic Forum ranked the top ten global risks for 2020 (in decreasing order of likelihood) as: extreme weather events, climate change, natural disasters, biodiversity loss, human-made

environmental disasters, data fraud/theft, cyber attacks, water crises, global governance failure and asset bubbles. “Infectious diseases” didn’t make it into that list, even as China was reeling under clearly a new contagion.

Today, notwithstanding the continuing imperative for us to guard our borders and combat militant activity that continues in dribs and drabs, the Covid-19 pandemic is unquestionably India’s greatest security, economic and social challenge. The three defence services have been sucked willy nilly into the national effort against Covid-19 and the defence economy has shifted focus to developing and manufacturing equipment to combat the effects of the virus. From repatriating Indian citizens working in foreign countries, including from China, Japan, Iran and Italy; establishing quarantine facilities; setting up backup medical facilities with intensive care units and ventilators for Covid-19 patients and diverting defence factories to manufacturing medical equipment, military resources have been thrown into backing up our woeful civil healthcare system. This is hardly surprising: numerous North American and European countries, with their excellent healthcare and social service infrastructure, have deployed military resources against the pandemic.

The armed forces are uniquely structured and equipped for such emergencies. Their inherent “surge capacity” enables the quick mobilisation of personnel and equipment to meet extraordinary requirements. The military is organized in a well defined, but flexible, hierarchy that functions in hazardous situations, even in the face of high casualties. Militaries are equipped with expensive and extremely useful assets – their own mobile medical departments, ships outfitted as floating hospitals; heavy transport aircraft and sealift, heavy engineering departments that can erect temporary hospitals in days, and mobile troops that can enforce lockdowns and quarantines. Designed to be self-sufficient in wartime, the military can be rapidly switched between hotspots independent of other government wings. Finally, deploying the military creates unmistakable optics of government resolve, often resulting in tense situations being resolved without actually firing bullets. India’s military has not yet been required for enforcing law and order but, if the situation worsens, widespread hunger could conceivably bring protests out onto the streets.

The military is fully on board in combating Covid-19, since the pandemic sharply undermines its interests. Its greatest worry is the blow to the economy, which will inevitably erode the already limited funds the government can spare for defence. An analysis in this newspaper by this columnist and Devangshu Datta (February 10, 2019, “*Defence modernisation budget rises just 5% each year in real terms*”) reveals that, over the decade beginning 2009-10, a period in which the Gross Domestic Product (GDP) grew between 6-8 per cent annually, the defence capital budget (which buys new weapons and equipment) rose by an annualised average of just 5 per cent, after adjusting for exchange rate depreciation and domestic inflation. In other words, during the decade that ended in 2018-19, modernisation funding grew 1-3 per cent slower than the GDP.

Economic growth assessments for the current year already foresee GDP growth contracting to 0.4 per cent, and this will almost certainly turn negative if the lockdown is extended or re-imposed later. Either way, there is near-certainty that this year’s defence capital allocations will be slashed in the revised estimates, given the crippling blow the lockdown has dealt to government tax revenues and pressure on the government to provide bailouts to industry and subsidies for the over 100 million people who are likely to slip below the poverty line. Any reduction in defence spending would be borne by the capital budget, since salaries and pensions cannot be reduced at this stage.

Ironically, given longstanding criticism that the military’s manpower is bloated, the Covid-19 pandemic is certain to make exceptional demands on personnel, especially those manning operational units that operate in cramped confines where social (or professional) distancing is unfeasible. Any outbreak of Covid-19 in, say, an army piquet on the Line of Control, or on board a naval warship or submarine, would require the quarantining of all personnel and their replacement with a fresh contingent or crew. Furthermore, all personnel returning from leave would require to be quarantined for at least 14 days, in purpose-built isolation facilities, before being cleared to re-join their units and mingle in close quarters with their comrades. Given that personnel go on leave



at least twice each year, every soldier, sailor and airman will now spend close to a month in unproductive quarantine.

The Covid-19 pandemic, even if it is eventually limited in its effect or controlled somehow, must push the military into a long-term reconsideration of its primary challenges. There must be greater emphasis on humanitarian aid and disaster relief (HADR) – including the management of contagious illnesses and impending crises caused by climate change. The army, navy and air force have traditionally, and willingly, provided HADR in floods, earthquakes, cyclones and tsunamis, but as a secondary role under the rubric of “Aid to the Civil Authority”, discharged using its the warfighting equipment at hand. In the days ahead, the military would do well to create an arsenal of dual-use assets, including hospital ships and amphibious vessels to provide succour along India’s 7,500 kilometre coastline and island territories; a comprehensive beefing up of the army medical corps with containerised field hospitals that could be transported by air and made functional within hours; more medium-and-heavy lift transport aircraft and helicopters to deliver significant quantities of aid to remote regions; and a countrywide communications and surveillance backbone, designed not just for the military’s own use but to also provide redundancy for civil infrastructure. By creating assets that serve the nation in peacetime, the military would be making a more powerful case for a larger defence budget. Finally, many of these HADR military assets would also further India’s power projection aspirations, its regional diplomacy and role as an Indian Ocean security provider.

Given the pan-border nature of pandemics, Covid-19 provides India with a useful outreach mechanism for the South Asian region, including Pakistan. At a juncture when New Delhi has reached a dead end with Islamabad, purposefully taking forward with Pakistan the joint approach tentatively initiated by Prime Minister Narendra Modi last month would be attractive, given this country’s capabilities and capacities in medicine. It would be good strategy to turn a serious security vulnerability into an opportunity for regional cooperation.

[https://www.business-standard.com/article/opinion/at-war-with-the-virus-120042201721\\_1.html](https://www.business-standard.com/article/opinion/at-war-with-the-virus-120042201721_1.html)



*Fri, 24 April 2020*

## **India's new bridge on China border can take 40 tons of weight**

*The bridge is located in a region that witnessed a months-long military standoff in 2017 over the Doklam plateau, claimed by China and Bhutan, India's ally*

*By Sudhi Ranjan Sen*

### **Highlights**

- *The bridge allows faster movement of artillery and troops*
- *It is located in a region that witnessed a military standoff in 2017*
- *It strides a key route of the Chinese Army into India from Tibet*

India has opened a new all-weather access near its border with China to enable faster movement of troops and artillery, another potential irritant in relations between the two nuclear-armed neighbours.

The new bridge, which can take 40 tons of weight, was built in Arunachal Pradesh, a region that has been claimed by China and near the scene of previous clashes. Border intrusions have risen 50% in 2019 compared to the previous year, people with knowledge of the matter said.

"That part of the border has always had a tendency to friction point between India and China. Lack of reliable and all weather connectivity was vulnerability," said Nitin Gokhale, a New Delhi-based strategic affairs expert. "The new bridge and improved road overcomes that and ensures uninterrupted supply to troops."



The new bridge also strides one of the main access routes of the Chinese Army into India from Tibet

The new access along the border with China comes amid heightened tensions between the two nations after Beijing accused India of blocking its companies in the country after New Delhi tightened laws for foreign investors from acquiring local firms. The bridge is located in a region that witnessed a months-long military standoff in 2017 over the Doklam plateau, claimed by China and Bhutan, India's ally. It was one of the most serious flare-ups since China won a border war with India in 1962.

China's Ministry of Foreign Affairs did not respond to a message requesting comment.

India claims the Chinese army violated the 3,488 km long un-demarcated border, parts of which are disputed, over 600 times, the people said, asking not to be identified as the matter is not public.

"India and China have different perceptions of the border," Indian Army spokesman Aman Anand said on Thursday. "Perceived transgressions are a result of the perceived boundary."

Under Prime Minister Narendra Modi, India is ramping up its infrastructure along the border, which it says isn't aimed at any particular country, but rather the development of remote border areas. It has completed 74 strategic roads along the eastern border, with plans afoot to finish 20 more by next year, the people said. It will reduce time taken to move and material by half and help 431 villages that lie across the region during the COVID-19 outbreak.

India tweaked its law on foreign investment by making it mandatory for companies from countries that share a land border to acquire local firms only after seeking an approval from the government. The move, which cuts the risk of opportunistic takeovers as the coronavirus outbreak drives down valuations of Indian companies, had so far applied only to FDI from Bangladesh and Pakistan. India shares its land border with seven countries, including China.

The new bridge also strides one of the main access routes of the Chinese Army into India from Tibet.

<https://www.ndtv.com/india-news/indias-new-bridge-on-china-border-can-take-40-tons-of-weight-2217130>

THE TIMES OF INDIA

Fri, 24 April 2020

## India opens bridge in Arunachal Pradesh setting stage for China face-off

New Delhi: India has opened a new all-weather bridge, which can take 40 tons of weight, in Arunachal Pradesh to enable faster movement of troops and artillery.

The new bridge may become another potential irritant in relations between India and China.

"That part of the border has always had a tendency to friction point between India and China. Lack of reliable and all weather connectivity was vulnerability," said Nitin Gokhale, a New Delhi-based strategic affairs expert. "The new bridge and improved road overcomes that and ensures uninterrupted supply to troops."

"That part of the border has always had a tendency to friction point between India and China. Lack of reliable and all weather connectivity was vulnerability," said Nitin Gokhale, a New Delhi-based strategic affairs expert. "The new bridge and improved road overcomes that and ensures uninterrupted supply to troops."

The new access along the border with China comes amid heightened tensions between the two nations after Beijing accused India of blocking its companies in the South Asian nation after New Delhi tightened laws for foreign investors from acquiring local firms. The bridge is located in a region that witnessed a months-long military standoff in 2017 over the Doklam plateau, claimed by China and Bhutan, India's ally. It was one of the most serious flare-ups since China won a border war with India in 1962.



Daporijo bridge constructed by BRO

China's Ministry of Foreign Affairs did not respond to a message requesting comment.

India claims the Chinese army violated the 3,488 kilometer (2,167 miles) long un-demarcated border, parts of which are disputed, over 600 times, the people said, asking not to be identified as the matter is not public.

"India and China have different perceptions of the border," Indian Army spokesman Aman Anand said on Thursday. "Perceived transgressions are result of the perceived boundary."

Under Prime Minister Narendra Modi, India is ramping up its infrastructure along the border, which it says isn't aimed at any particular country, but rather the development of remote border areas. It has completed 74 strategic roads along the eastern border, with plans afoot to finish 20 more by next year, the people said. It will reduce time taken to move and material by half and help 431 villages that lie across the region during the Covid-19 outbreak.

India tweaked its law on foreign investment by making it mandatory for companies from countries that share a land border to acquire local firms only after seeking an approval from the government. The move, which cuts the risk of opportunistic takeovers as the coronavirus outbreak drives down valuations of Indian companies, had so far applied only to FDI from Bangladesh and Pakistan. India shares its land border with seven countries, including China.

<https://timesofindia.indiatimes.com/india/india-opens-bridge-in-arunachal-pradesh-setting-stage-for-china-face-off/articleshow/75340188.cms>

**ThePrint**

Fri, 24 April 2020

## **Covid blurs distinction between war and peace as soldiers worldwide fight the third army**

*Covid-19 is posing a unique challenge for militaries world over. Asymptomatic nature of the disease in younger soldiers has only made things difficult*

*By Lt. Gen. H S Panag (Retd)*

Indian Armed Forces had been coping well with Covid-19, until the alarm bells began ringing with a report that 26 sailors of Indian Navy Ship Angre, a shore establishment of Western Naval Command, have tested positive. All militaries of the world have been affected in varying degrees by Covid-19. Given the hybrid nature of modern conflict which encompasses the entire spectrum of conflict, there is no clear distinction between peace and war. In asymmetric conflict, terrorists consider calamities, which divert the focus of nations and their armies, as god gifted opportunities.

sINS Angre's case exemplifies the seriousness of the Covid-19 threat. On 7 April, one sailor was tested positive. All sailors in contact were then quarantined and later tested positive despite remaining asymptomatic. Luckily, so far, this has been an isolated case. All ships in docks or on patrol duty—from the Straits of Malacca in the East to Bab-el-Mandeb, or those taking part in 'Op Sankalp' to provide protection to Indian merchant vessels and anti-piracy patrols in the Gulf of Aden—are free from infection.

Indian Army which reported its first case as early as 20 March, so far has had only 9 personnel tested positive, which includes three doctors and one nursing assistant. There has been no effect whatsoever on the ongoing missions in operational areas. In fact, the Army has stepped up its counter-infiltration and counter-terrorist operations to prevent the terrorists from taking advantage of Covid-19. Indian Air Force has so far not reported any Covid-19 positive case.

### **Disease as the third enemy**

Since times immemorial diseases and war have been 'deadly comrades'. History shows us that more soldiers die of disease than battle wounds. During the Napoleonic wars, the number of British army soldiers who died of diseases were eight times more than the number of those who died fighting.

In the American Civil War, two-thirds of the estimated 660,000 deaths of soldiers were caused by pneumonia, typhoid, dysentery, and malaria. Closer home, in the initial stages of the campaign in Burma (1942-1945) the ratio of evacuation of casualties from the battle zone due to the diseases (malaria, dysentery, and typhus) and battle wounds was 120:1 ( *Page 177, Defeat Into Victory by Field Marshal William Slim*). Colloquially, in military parlance, diseases are known as the "third army" in a war.

The nature of military organisations, their habitat, training and modus operandi, both during peace and war makes them extremely vulnerable to contagious infections. Being instruments of last resort for national security, disease prevention for force preservation and effectiveness is extremely important for the military. Armed forces maintain very high standards of hygiene and sanitation and are supported by an excellent medicare infrastructure and personnel.

### **Covid infecting Armies**

Covid-19 is posing a unique challenge for militaries all over the world. In absence of a preventive vaccine the reliance is on disease prevention through strict quarantine of military establishments, isolation of positive cases and contact tracing/testing. All these measures have serious limitations. Asymptomatic nature of the disease in younger soldiers creates additional problems. Despite these odds the military has to persevere in order to pursue its assigned mission of combatting internal and external threats. In addition, the military has to assist the civil authorities in fighting the disease.

Conflict hardly ever pauses due to epidemics and natural disasters. In October 2005, the 7.5 richter earthquake with epicentre around Muzaffarabad, caused severe damage in Pakistan Occupied Kashmir (PoK), including to the defences of the Pakistan Army along the Line of Control. Pakistan rushed its army reserves from the hinterland to PoK. However, much to our amusement, their first priority was not to provide relief to the beleaguered population but to reinforce the defences lest the Indian Army takes advantage of the situation.

Despite the world grappling with the deadly coronavirus and in need of all its resources to tide over the crisis there is little support at the United Nations for the "global ceasefire" proposed by the French President Emmanuel Macron.

Hence, most armies around the world are secretive about the effect of Covid-19 on their forces. Despite the People's Liberation Army having played a major role in the management of Covid-19 at its epicentre, Wuhan, China brazenly announced that none of its soldiers had tested positive.

US military by far is the worst affected having reported 3,438 positive cases. Between 100-200 new cases are being diagnosed on a daily basis. 22 deaths have also been reported. The most visible presence of US power projection, the US Navy, tops the list with 1,240 cases, followed by the US Army with 890 cases, US Air Force with 330 cases and the Marine Corps with 250 cases.

Three aircraft carriers – USS Theodore Roosevelt, USS Ronald Reagan and USS Nimitz – have been infected in varying numbers considerably impacting their combat effectiveness and are presently docked at various ports. Another aircraft carrier USS Carl Wilson in dry docks has also reported infections. With USS Abraham Lincoln completing a long operational deployment, for the first time in history, there is no aircraft carrier deployed in the Western and North Pacific. By contrast the PLA is having a free run in the South China Sea and North Pacific.

In a major embarrassment to France, its Flagship aircraft carrier, Charles De Gaulle, was rendered ineffective with 1,046 out of 1,760 sailors infected with Covid-19 and scurried to its home base at Toulon.

### **So far so good for Indian forces**

Based on the information available in the public domain, our armed forces have done exceptionally well in ensuring force preservation without impinging on the ongoing operational missions and tasks in aid of civil authorities to fight Covid-19. However, it is a long haul and the real challenges lie ahead. The lockdown has only provided a pause and the threat of community transmission looms large. The armed forces have to be prepared for large-scale deployment to fight the epidemic.

We should not let our guard down and in the short term continue to enforce virtual “cocooning”. This must be backed by aggressive testing, including anti-body testing. In the long run, with a young and fit profile, which remains asymptomatic or with mild infection, it is likely that the armed forces as a whole, will develop herd immunity much earlier than national herd immunity which comes after 50-60 % of the population gets infected.

*(Lt Gen H S Panag PVSM, AVSM (R) served in the Indian Army for 40 years. He was GOC in C Northern Command and Central Command. Post retirement, he was Member of Armed Forces Tribunal. Views are personal.)*

<https://theprint.in/opinion/covid-blurs-distinction-between-war-and-peace-as-soldiers-worldwide-fight-the-third-army/407040/>



*Fri, 24 April 2020*

## **China eyes a Covid-19 edge in the Indian Ocean**

*China is leveraging coronavirus confusion and distraction to make gains in rival India's maritime backyard*

*By Bertil Lintner*

If Chinese military planners thought they could use the Covid-19 crisis to steal a march in the Indian Ocean, they may have been mistaken. India may be under the world's largest coronavirus lockdown, but its navy is not.

On April 14, the Indian Navy issued a public statement saying that its Eastern Naval Command's Dornier squadron continues its maritime surveillance missions and that its naval assets remain “mission-ready and prepared for immediate deployment should the need arise.”

The statement was likely prompted by the discovery of a dozen China-deployed Haiyi, or Sea Wing, underwater drones in the eastern Indian Ocean, India's traditional sphere of influence. The drones, known as Unmanned Underwater Vehicles (UUVs), are purportedly used for scientific research for deep-sea mining and other commercial activities.

However, they can also be used to facilitate submarine movements and, in case of a conflict, discover and terminate underwater mines. China's UUVs, which were first launched in mid-December, can operate for months without refueling while sending data to their mother ship, in this case the 4,900-ton survey vessel Xiangyanghong-06 which has since returned to its base in Shangdong province.

Indian warships also recently encountered another Chinese research vessel, the Shivan-1, operating in waters inside the Exclusive Economic Zone (EEZ) of India's Andaman Islands. After being warned, the Shivan-1 retreated outside of India's EEZ.

In recent years, China's Type 093 nuclear-powered submarines have been spotted sailing through the Malacca Strait into the Indian Ocean. According to Indian naval sources, four to five Chinese research vessels are mapping different parts of the Indian Ocean at any given time.

The Observer Research Foundation (ORF), a respected New Delhi-based independent think tank, pointed out in a recent report that China's "deployment of research vessels, UUVs and submarines in the Indian Ocean Region, even when the Covid-19 virus was ravaging the country, has not shown any decline."

"One should not be surprised if China uses the global confusion (caused by the Covid-19 crisis) to its advantage and expands its sphere of influence in the Indian Ocean Region under the garb of relief work."

That is arguably already happening. In the Maldives, a hotbed of China-India competition for influence, Chinese medical aid in the form of so-called "epidemic prevention materials" arrived at the end of March.

While the aid was welcome and needed, it also served to improve Beijing's frosty relations with Male after a pro-Chinese leader lost election to a more India-oriented one in 2018. In mid-March, China pledged to ship supplies to Comoros, a closer Chinese ally in the region, whereas in Seychelles, India was quicker to send four tons of essential lifesaving medicine.

Aid politics has become a new phenomenon in the Indian Ocean amid the Covid-19 crisis, but China, with its vast resources and determination to push forward, may emerge stronger rather after the pandemic that originated in its territory.

The Indian Navy may still have numerical superiority in terms of vessels and manpower, but China, with or without the displacement and disruption caused by the virus, is laying the groundwork to rapidly expand its presence in the region.

It's all cause for consternation in New Delhi as China ramps up its naval maneuvers in what it terms a "two-ocean strategy", encompassing both the Indian and Pacific oceans.

China's naming last week of new "administrative districts" in the disputed islands of the South China Sea, and an ongoing survey by a Chinese vessel in Malaysian waters which prompted the US to send an amphibious assault ship into the area on April 21 are further evidence of China's willingness to flex its new naval muscles in the wider Asian region.

Chinese President Xi Jinping calls China's expansion into the Indian Ocean the "Maritime Silk Road", a concept first mooted during an official visit to Jakarta, Indonesia, in October 2013.

Despite references to a reputed historic "Silk Road" through the oceans, there is no evidence that such a Chinese-run trade route ever existed, no more so than the so-called "Southern Silk Road" to South and Southeast Asia or the "ancient Silk Road" through Central Asia.

But that has not prevented Xi's administration from using the popular term to invent new "Silk Roads" crisscrossing the globe, including in the Indian Ocean, the Pacific Ocean and even the Arctic Ocean.

Not since the Chinese explorer Zheng He sailed across the Indian Ocean in the 15th century have any Chinese fleets plied the maritime region—until now.

The 2017 establishment of a naval facility in Djibouti in the Horn of Africa, China's first overseas military base, part and parcel of a new Chinese strategy aimed at strengthening Beijing's influence far beyond its shores.

Chinese interests in commercial ports such as Gwadar in Pakistan, Hambantota in Sri Lanka and Kyaukphyu in Myanmar are indications of the heft Beijing is putting behind its Indian Ocean push. All of those commercial ports may serve a dual-purpose, potentially allowing China's navy to use the Indian Ocean-facing facilities as logistics bases.

China has also with varying degrees of success targeted smaller, independent Indian Ocean nations like Maldives, Seychelles and Comoros with offers of loans and credits for various development projects.

India has countered with joint annual naval maneuvers known as the Malabar Exercises involving the US and Japanese navies.

Although the exercises are not overtly pointed at China, all three navies see China as a potential adversary. It's not clear if the exercises will be held this year due to the Covid-19 crisis.

In May last year, India carried out a naval exercise in the Indian Ocean with France, another defense partner, with France's only aircraft carrier Charles de Gaulle at its center.

But that will not be repeated this year as more than 1,000 of the Charles de Gaulle's 1,800 sailors have tested positive for Covid-19. The aircraft carrier was earlier preparing for a mission in the Mediterranean, but had to return to French ports and its sailors, put into isolation on military bases across France.

France controls a huge maritime area in the Indian Ocean, which includes waters around its two overseas departments Réunion and Mayotte and the uninhabited islands of Kerguelen, the Crozet Archipelago and St. Paul & Amsterdam, where France maintains scientific crews and even military personnel on a rotation basis.

The United States also has one of its strategically most important overseas bases in the Indian Ocean: Diego Garcia, an island in the British Indian Ocean Territory.

Diego Garcia, which the Americans lease from Britain, has been described as one of the world's most secretive patches of land and includes naval facilities, an air force base, and a sophisticated intelligence listening post.

China's intent to exercise naval power in the Indian Ocean actually predates its declaration of the "Maritime Silk Road." In July 2013, China released the first edition of what has been termed a "Blue Book", outlining Beijing's long-term plans to become a major maritime power.

The gist of Beijing's Indian Ocean strategy then was guided only by commercial and economic interests, while at the same time China indicated that it would not permit any single power to dominate the Indian Ocean Region.

But as China's fuel and mineral imports and consumer goods exports pass largely through the Indian Ocean, it would have been shortsighted for Beijing not to provide those crucial trade routes with a defense umbrella. It's a strategic drive that has continued and may accelerate amid the confusion and distraction of the Covid-19 era.

<https://asiatimes.com/2020/04/china-eyes-a-covid-19-edge-in-the-indian-ocean/>

ज्ञान प्रसार एवम् विस्तार  
के 50 वर्ष

## Halt all acquisitions, armed forces told as Covid-19 threatens budget

*As per Defence Ministry sources, armed forces have been asked put on hold acquisitions to modernise their weaponry in view of coronavirus crisis in the country*

*By Manjeet Singh Negi*

New Delhi: The Department of Military Affairs has asked the Army, Navy and Air Force to put on hold their capital acquisitions in the wake of novel coronavirus pandemic.

Anticipating budget cuts, the armed forces have been asked to put on hold their acquisition cases to modernise their weaponry in view of the prevailing situation in the country, sources in the Defence Ministry told India Today.

The armed forces are in different stages of acquiring multiple platforms for modernising their arsenal. The Indian Air Force, for instance, is in the process of making payments for the 36 Rafale combat aircraft from France and S-400 air defence weapon system from Russia.

The Indian Army is also acquiring tanks, artillery guns and assault rifles from different countries, including America and Russia while the Navy recently signed the deal for 24 multirole choppers from the US.

<https://www.indiatoday.in/india/story/halt-all-acquisitions-armed-forces-told-as-covid-19-threatens-budget-1670098-2020-04-23>

### Science & Technology

THE HINDU

Fri, 24 April 2020

## ISRO invites technology proposals for human space flight missions

*The announcement of opportunity suggests 17 potential areas of work for national research, academic agencies*

The Directorate of Human Space Programme of the Indian Space Research Organisation (ISRO) has invited proposals to develop indigenous technologies for its future human space flight missions.

The concepts can range from food and medicine eaten by astronauts during low-earth space trips; to anti-radiation and thermal protection technologies for the spacecraft, life support systems for astronauts, and inflatable habitats to robotic interfaces during more complex missions.

The announcement of opportunity (AO) issued this week suggests 17 potential areas of work for national research and academic agencies.

The directorate of HSP has sought the proposals by July 15. A selection committee will be formed to scrutinise the proposals. The AO said there was a need to develop affordable local technologies that could support human survival in low-earth orbits initially, and in bigger explorations later.



“This opportunity will enable national research/academic institutions to harness their expertise and capabilities towards development of technologies for space exploration,” the announcement said. In the long term, the country’s emerging human space programme will need to establish research facilities and develop human resources.

In August 2018, ISRO announced its first human space trip slated for around 2022, the ₹10,000-crore Gaganyaan. It plans to send three astronauts to a distance of 400 km in space in a special spacecraft. They will circle earth over three to seven days.

Four pilots of the Indian Air Force are currently training in Moscow to be the first set of potential candidates for Gaganyaan.

<https://www.thehindu.com/life-and-style/isro-invites-technology-proposals-for-human-space-flight-missions/article31419174.ece>

## COVID-19 Research

### Science

Thu, 22 April 2020

# COVID-19 vaccine protects monkeys from new coronavirus, Chinese biotech reports

By Jon Cohen

For the first time, one of the many COVID-19 vaccines in development has protected an animal, rhesus macaques, from infection by the new coronavirus, scientists report. The vaccine, an old-fashioned formulation consisting of a chemically inactivated version of the virus, produced no obvious side effects in the monkeys, and human trials began on 16 April.

Researchers from Sinovac Biotech, a privately held Beijing-based company, gave two different doses of their COVID-19 vaccine to a total of eight rhesus macaque monkeys. Three weeks later, the group introduced SARS-CoV-2, the virus that causes COVID-19, into the monkeys’ lungs through tubes down their tracheas, and none developed a full-blown infection.

The monkeys given the highest dose of vaccine had the best response: Seven days after the animals received the virus, researchers could not detect it in the pharynx or lungs of any of them. Some of the lower dosed animals had a “viral blip” but also appeared to have controlled the infection, the Sinovac team reports in a paper published on 19 April on the preprint server bioRxiv. In contrast, four control animals developed high levels of viral RNA in several body parts and severe pneumonia. The results “give us a lot of confidence” that the vaccine will work in humans, says Meng Weining, Sinovac’s senior director for overseas regulatory affairs.

“I like it,” says Florian Krammer, a virologist at the Icahn School of Medicine at Mount Sinai who has co-authored a status report about the many different COVID-19 vaccines in development. “This is old school but it might work. What I like most is that many vaccine producers, also in lower-middle-income countries, could make such a vaccine.”

But Douglas Reed of the University of Pittsburgh, who is developing and testing COVID-19 vaccines in monkey studies, says the number of animals was too small to yield statistically significant results. His team also has a manuscript in preparation that raises concerns about the way the Sinovac team grew the stock of novel coronavirus used to challenge the animals: It may have caused changes that make it less reflective of the ones that infect humans.

Another concern is that monkeys do not develop the most severe symptoms that SARS-CoV-2 causes in humans. The Sinovac researchers acknowledge in the paper that “It’s still too early to

define the best animal model for studying SARS-CoV-2,” but noted that unvaccinated rhesus macaques given the virus “mimic COVID-19-like symptoms.”

The study also addressed worries that partial protection could be dangerous. Earlier animal experiments with vaccines against the related coronaviruses that cause severe acute respiratory syndrome and Middle East respiratory syndrome had found that low antibody levels could lead to aberrant immune responses when an animal was given the pathogens, enhancing the infection and causing pathology in their lungs. But the Sinovac team did not find any evidence of lung damage in vaccinated animals who produced relatively low levels of antibodies, which “lessens the concern about vaccine enhancement,” Reed says. “More work needs to be done though.”

SARS-CoV-2 seems to accumulate mutations slowly; even so, variants might pose a challenge for a vaccine. In test tube experiments, the Sinovac researchers mixed antibodies taken from monkeys, rats, and mice given their vaccine with strains of the virus isolated from COVID-19 patients in China, Italy, Switzerland, Spain, and the United Kingdom. The antibodies potently “neutralized” all the strains, which are “widely scattered on the phylogenetic tree,” the researchers noted.

“This provides strong evidence that the virus is not mutating in a way that would make it resistant to a #COVID19 vaccine,” tweeted immunologist Mark Slifka of Oregon Health & Science University. “Good to know.”

Sinovac is an experienced vaccinemaker—it has marketed inactivated viral vaccines for hand, foot, and mouth disease; hepatitis A and B; and H5N1 influenza or bird flu. But Meng says it could produce, at most, about 100 million doses of the vaccine and might need to partner with other makers if the company’s COVID-19 vaccine proves safe and effective in human trials.

The company recently started phase I clinical trials in Jiangsu province, north of Shanghai, which aim to gauge safety and immune responses in 144 volunteers. An equal number of participants will receive the high and low doses or a placebo. Although placebos are not typically used in phase I studies—which do not assess efficacy—Meng says this can help better evaluate whether the vaccine causes any dangerous side effects. The company hopes to start phase II studies by mid-May that have the same design but enroll more than 1000 people, with results due by the end of June.

If all goes well, Meng says, Sinovac will seek to launch traditional phase III efficacy trials that compare the vaccine with a placebo in thousands of people. The company has also discussed joining international vaccine trials being organized by the World Health Organization (WHO). Given the low level of transmission now occurring in China, the company is considering still more efficacy trials in other countries being hit harder by the virus. “We can’t put all our eggs in one basket,” Meng says.

To quickly obtain more efficacy data after the phase I and II trials and potentially help people, Meng says Sinovac may ask regulatory agencies in China and other countries for emergency authorization to give the vaccine to those at high risk of becoming infected, such as customs agents and police officers who do not typically wear the protective gear used by health care workers. The Democratic Republic of the Congo in 2018 began to widely use an experimental Ebola vaccine under that status and the evidence suggests it powerfully helped curb that epidemic. (That Ebola vaccine first received regulatory approval in November 2019.)

According to WHO, six other vaccines had entered human trials as of 23 April, and 77 others were in development. The vast majority of these vaccines use the modern tools of genetic engineering—only four rely on the old-fashioned inactivation technology—but Meng says what ultimately matters is whether a vaccine is safe and effective, not how it’s made. “We are not comparing ourselves to anyone,” Meng says. “In this pandemic situation, the most important thing is to make a vaccine, no matter what kind of vaccine it is, that’s safe and effective as soon as possible.”

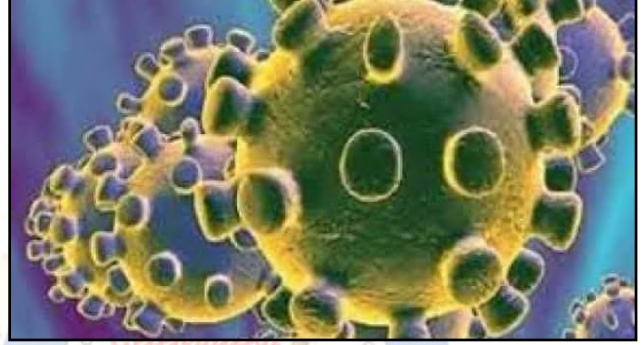
<https://www.sciencemag.org/news/2020/04/covid-19-vaccine-protects-monkeys-new-coronavirus-chinese-biotech-reports>

## कोरोना वायरस पर टेम्परेचर का कितना पड़ता है असर, जानने के लिए शुरू हुए शोध

प्रयागराज

तापमान का कोरोना वायरस पर असर पड़ता है या नहीं, इसे लेकर शोध किए जा रहे हैं। वैज्ञानिक अभी किसी सटीक निष्कर्ष पर नहीं पहुंचे हैं पर इलाहाबाद विश्वविद्यालय के शारीरिक शिक्षा विभाग के अध्यक्ष प्रो. डीसी लाल ने कोरोना से दुनियाभर में अब तक हुई मौतों पर किए गए अध्ययन के बाद दावा किया है कि जिन देशों का तापमान कम होता है वहां गर्म देशों की तुलना में ज्यादा मौतें हुई हैं।

प्रो. लाल ने मार्च के अंत से ही इस पर अध्ययन शुरू कर दिया था। बताया कि दुनिया के कुल 195 देशों में से 82 ऐसे हैं, जहां का औसत वार्षिक तापमान 20 डिग्री सेल्सियस कम रहता है तो भारत सहित 113 देशों में औसत वार्षिक तापमान 20 डिग्री सेल्सियस से ज्यादा रहता है। डॉ. लाल का दावा है कि पांच अप्रैल को सर्द देशों में कोरोना से 95 प्रतिशत मौतें हुई थीं तो वहीं गर्म देशों में सिर्फ तीन प्रतिशत मौतें हुई थी। जबकि 21 अप्रैल को सर्द देशों में 95 प्रतिशत तो गर्म देशों में पांच प्रतिशत मौतें हुई थी।



डॉ. लाल ने विश्व के पांच सर्द देशों (अमेरिका, इटली, स्पेन, फ्रांस और यूके) तथा पांच गर्म देशों (ब्राजील, मैक्सिको, भारत, इंडोनेशिया और इक्वाडोर) में हुई मौतों पर भी अध्ययन किया है। उनका दावा है कि पांच शीर्ष सर्द देशों में 71 प्रतिशत तो पांच शीर्ष गर्म देशों में 2.7 प्रतिशत मौतें हुई हैं। बकौल डॉ. लाल कोरोना प्रभावित अफ्रीकी महाद्वीप के गर्म देशों में 1100 मौतें हुई हैं वहीं यूरोप महाद्वीप के कोरोना प्रभावित सर्द देशों में एक लाख से अधिक मौतें हुई हैं। डॉ. लाल कहते हैं कि मैक्सिको और अमेरिका, वियतनाम और चीन के आधार पर किए गए अध्ययन में भी यह बात सामने आई है कि सर्द देशों में मौतें गर्म देशों की तुलना में ज्यादा हैं। बकौल डॉ. लाल इटली में ही उत्तरी इटली जो सर्द है, वहां ज्यादा तो अपेक्षाकृत गर्म दक्षिणी इटली में कम मौतें हुईं। इसी प्रकार उत्तरी अमेरिका में ज्यादा तो दक्षिणी अमेरिका में मौतों की संख्या कम है।

### तापमान का पड़ता है असर

इविवि सेंटर ऑफ एटमॉस्फेरिक एण्ड ओशियन स्टडीज के कोआर्डिनेटर प्रो. सुनीत द्दिवेदी कहते हैं कि कोविड-19 पर तापमान का कितना असर है, इस बारे में अभी स्पष्ट तौर पर कुछ कहना तो उचित नहीं होगा पर पुराने कोरोना वायरस पर हुए अध्ययन में यह पाया गया था कि चार डिग्री सेल्सियस से अधिक तापमान और आर्द्रता ज्यादा हो तो वायरस के फैलने की संभावना कम रहती है। लेकिन कोविड-19 का वायरस पुराने वायरस से अलग और ज्यादा खतरनाक है इसलिए इस पर तापमान के पड़ने वाले प्रभाव के बारे में कुछ स्पष्ट तौर पर कहना अभी उचित नहीं होगा। हां, चीन और इटली के पांच-पांच बड़े स्थानों को लेकर तापमान, आद्रता, हवा की रफ्तार पर हुए एक अध्ययन में पाया गया है कि तापमान का असर पड़ता है, कितना पड़ता है यह अभी स्पष्ट तौर पर नहीं कहा जा सकता है। तापमान ज्यादा होने से वायरस के मालीक्यूल से होने वाले प्रभाव की अवधि कम हो जाती है।

<https://www.livehindustan.com/uttar-pradesh/story-research-started-to-know-how-much-temperature-affects-coronavirus-3169487.html>

## ..तो इस वजह से भी कोविड-19 की वैक्सीन बनाने में हो सकती है दिक्कत, रिसर्च में हुआ खुलासा

प्रयागराज

नई दिल्ली (जेएनएन)। हम सब ये जान चुके हैं कि पूरी दुनिया में कोरोना वायरस के तीन प्रकार अलग-अलग तरह से प्रकोप मचा रहे हैं। इस वजह से वैज्ञानिकों के सामने इसकी दवा को विकसित करना एक बड़ी चुनौती बन गई है। ग्लोबल टाइम्स के मुताबिक एक नई रिसर्च में ये बात निकलकर सामने आई है कि आने वाले छह महीने में जब तक दवा आएगी तब तक वायरस में कई बदलाव आ चुके होंगे। इसको देखते हुए वैज्ञानिकों को इस बात का भी डर सताने लगा है कि इसकी दवा विकसित होने के बाद भी ये जरूरी नहीं होगा कि वो दूसरे मरीज पर भी कारगर साबित हो। लिहाजा वैज्ञानिकों के लिए असल चुनौती इस वायरस के अलग-अलग प्रकारों के लिए अलग-अलग दवाएं और टीके तैयार करने की होगी। आपको बता दें कि दुनिया में 70 से अधिक टीका बनाने के प्रोजेक्ट चल रहे हैं और इससे ज्यादा दवाओं के हैं।

चीन के झिजियांग यूनिवर्सिटी की रिसर्च में ये बात निकल कर आई है कि वुहान के बाद कोविड में म्यूटेशन के कारण इसके कुछ स्टेन या प्रकार घातक हुए हैं। खासकर कोरोना वायरस का जो प्रकार यूरोप में सक्रिय हैं, वे इसी घातक म्यूटेशन के चलते हैं। यूरोप से ही कोरोना का ये प्रकार न्यूयॉर्क पहुंचा था। जबकि अमेरिका के बाकी हिस्सों खासकर वाशिंगटन राज्य में कोरोना का जो प्रकार पाया गया वो न्यूयॉर्क के मुकाबले कम घातक हैं। शोधकर्ताओं का कहना है कि वैज्ञानिकों ने इन बदलाव को पहले गंभीरता से नहीं लिया जिसके चलते मौत और संक्रमण के मामले ज्यादा हुए। लेकिन शोध में ये बात सामने आने के बाद ही यूनिवर्सिटी के वैज्ञानिक डॉक्टर लंजुन की सलाह पर वुहान में लॉकडाउन का फैसला किया गया था। इस अध्ययन में दावा किया गया है कि कोविड-19 वायरस में तेजी से बदलाव आ रहे हैं। इनमें से कई एकदम नए हैं जो आने वाले दिनों में वायरस की कार्यप्रणाली में भी बदलाव ला सकते हैं, जिसकी वजह से भविष्य में इसको लेकर बनने वाली कोई भी एक दवाई दूसरे मरीज पर कारगर साबित नहीं होगी।

आपको यहां पर बता दें कि वैज्ञानिकों ने अब तक कोरोना के जिन तीन प्रकारों का पता लगाया है उनको ए, बी और सी वायरस का नाम दिया है। इसको लेकर अमेरिका के माउंट सिनाई अस्पताल में इसके जीनोम पर आधारित शोध किया गया। इसके अलावा केंब्रिज यूनिवर्सिटी में भी इसको लेकर शोध हुआ जिसमें इसके तीन प्रकारों की पृष्टि की गई थी। इन रिसर्च में इस बात का खुलासा हुआ है कि अमेरिका के न्यूयॉर्क में कोरोना वायरस के जिस प्रकार ने कोहराम मचाया हुआ है वह यूरोप से आई है। इसके अलावा अमेरिका के ही पश्चिम में चीन से आई कोरोना की नस्ल ने कोहराम मचाया हुआ है। आपको यहां पर ये भी बता देते हैं कि न्यूयॉर्क में कोरोना का ए टाइप कहर बरपा रहा है जो सी टाइप के मुकाबले करीब 270 गुणा अधिक घातक है।

<https://www.jagran.com/news/national-no-one-vaccine-can-be-cure-every-coronavirus-patient-because-of-its-three-types-jagran-special-20215255.html>