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साक्षी समाचार*Wed, 13 May 2020***हैदराबाद में कोरोना के खिलाफ जंग में काफी सहायक होंगी दो मशीनें, ऐसे करती हैं काम**

- कोरोना के खिलाफ जंग लड़ने वाली मशीन तैयार
- रक्षा अनुसंधान और विकास संगठन ने किया कमाल

हैदराबाद: कोरोना वायरस के खिलाफ जंग लड़ने वाली 'मशीन' हैदराबाद में तैयार हो चुकी है। रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की हैदराबाद में मौजूद प्रीमियर प्रयोगशाला रिसर्च सेंटर इमारत (आरसीआई) ने कोरोना के लिए काल साबित होने वाले दो मशीनों को विकसित किया है। इन मशीनों की मदद से नोट, चेक, दस्तावेज, फाइल, रिस्ट वॉच और वॉयलेट ऊपर जमा जानलेवा वायरस को भस्म किया जा सकता है।

आरसीआई के वरिष्ठ वैज्ञानिक डॉ गोपीनाथ ने मीडिया को बताया कि मशीन में सेंसर इसलिए लगाये गये हैं ताकि संपर्क रहित ऑपरेशन किया जा सके। मशीन को छूने की जरूरत नहीं होने से वायरस के प्रसार का खतरा भी नहीं रहेगा। इस मशीन को 'मकिलिंग मशीनफ' भी कहा जाता है।

मशीनों का कॉन्सेप्ट तैयार करने वाले वैज्ञानिक सौरभ कुमार ने बताया कि वस्तुओं को एक बार सेनिटाइज करने के बाद सिस्टम ऑटोमेटिक स्लीप मोड में चल जाता है। इसके चलते ऑपरेटर को डिवाइस के पास इंतजार करने या खड़े रहने की जरूरत नहीं होती है।



इन मशीने के नाम- नोट्सक्लीन और डिफेंस रिसर्च अल्ट्रावॉयलेट सेनिटाइजर (डीआरयूवीएस) रखा गया है। इससे करेंसी नोट को सेनिटाइ किया जा सकता है। इसके अलावा इस मशीन का इस्तेमाल बैंकों और वित्तीय संस्थानों में भी उपयोग किया जा सकता है।

मशीन के अंदर अल्ट्रा वॉयलेट लैंप लगे होते हैं। इसके चलते यह मशीन नोटों की गिनती करते समय उन्हें पूरी तरह से सेनिटाइज भी करेगी। डिफेंस रिसर्च अल्ट्रावॉयलेट सेनिटाइजर (डीआरयूवीएस) मशीन एक बॉक्स जैसी होती है। इतना नहीं मशीन में सेंसर भी लगे हैं।

इंसान के हाथ सेंसर के सामने आते ही मशीन में से एक बॉक्स बाहर निकल आता है। उस बॉक्स के अंदर मोबाइल फोन, आईपैड, लैपटॉप, घड़ी, पर्स, आदि रख सकते हैं। इसके बाजू में लगे दूसरे सेंसर के सामने हाथ आते ही बॉक्स बंद हो जाता है। इसके बाद मशीन के अंदर मौजूदा एल्ट्रावॉयलेट लैंप जल जाते हैं। अल्ट्रावॉयलेट किरणें सामान को सेनिटाइज कर देती है। उन्होंने यह बताया कि इन दोनों मशीनों के निर्माण की जानकारी मिलते ही इनकी मांग होने लगी है।

<https://hindi.sakshi.com/news/telegana/two-new-machines-develpoed-drdo-and-rci-hyderabad-corona-80856>

Coronavirus sanitising tools developed by DRDO based Hyderabad lab

Hyderabad's DRDO based laboratory, Research Centre Imarat (RCI), has developed sanitizing tools to disinfect currency notes, mobile phones, and other daily useable

By Ashish Pandey

Hyderabad: In order to survive the post coronavirus lockdown period, the world is coming together with innovations that can help cope with the Covid-19 crisis. DRDO based laboratory, Research Centre Imarat (RCI), in Hyderabad has developed an automated contactless UVC sanitization cabinet called DRUVS (Defence Research Ultraviolet Sanitizer) which has been designed to sanitize the mobile phones, iPads, laptops, currency notes, cheque leaves, challans, passbooks, paper, envelopes, etc.

The DRUVS Cabinet is having a contactless operation which is very important to contain the spread of the virus. The proximity sensor switches clubbed with the drawer opening and closing mechanism makes its operation automatic and contactless.

The DRUVS provides 360-degree exposure of UVC to the objects placed inside the cabinet.

Once the sanitization is done, the system goes in sleep mode hence the operator needs not to wait or stand near the device.

Currency sanitising device to curb spread of coronavirus

Research Centre Imarat (RCI) has also developed an automated UVC currency sanitizing device called NOTESCLEAN.

Bundles of currency notes can be sanitized using DRUVS, however disinfection of each currency notes using it will be a time-consuming process.

For that purpose, a sanitizing technique has been developed, where one has to just place the loose currency notes at the input slot of the device. It picks the notes one by one and makes them pass through a series of UVC lamps for complete disinfection.

<https://www.indiatoday.in/education-today/news/story/coronavirus-sanitising-tools-developed-by-drdo-based-hyderabad-lab-1677100-2020-05-12>



Disinfection tray developed by Hyderabad's lab to sanitise currency notes, mobile phones etc.

Only web check-in, no cabin baggage as per draft SOP for aviation sector

New Delhi: The Civil Aviation Ministry may allow only web check-in for air passengers and prohibit any cabin baggage when the airlines resume services in the coming days.

The suggestions are part of a draft Standard Operating Procedure (SOP) which is under discussion. The suggestions were sought by the ministry from airlines and airports.

"The suggestions have now been received. The final SOP is yet to be issued," the ministry said in a statement.

The safety procedures also include issuing a health questionnaire for the passengers. "A questionnaire to be circulated to the passengers and filled up by them in advance about their past history related to Covid-19 and quarantine, if any, in the last one month. Any passenger who has undergone quarantine in the last one month would be sent for scrutiny at the isolated Security Check unit only," it said.

As per the draft document, passengers will have to report at the airport two hours prior to the departure time. The draft SOP said: "Web check-in only. Print boarding pass, check-in baggage ticket if required."

In the initial phase of the service resumption, no cabin baggage would be allowed and checked-in baggage would be only one unit, with a weight of less than 20 kg.

Social distance markings, disinfecting of all common areas like lifts, travelators, escalators, chairs in seating areas, food and beverage (F&B) and retail outlets would be done and availability of movable hand wash cart or alcohol based hand sanitisers at regular intervals within the terminal would be ensured.

Airport operators may have to explore the possibility of installing sanitising tunnel, developed by the DRDO, at the airport entry, as per the draft document.

In another major move, visitors may be disallowed from entry into the terminal or the forecourt area, if the proposed SOP gets the green light.

Further, it proposes a social distancing norm of 6 feet away for all queues to be maintained at the entry gate. "Airports to identify areas for segregation and Covid-19 testing for suspected passengers," it said.

(Disclaimer: This story has not been edited by Outlook Staff and is auto-generated from news agency feeds. Source: IANS)

<https://www.outlookindia.com/newscroll/only-web-checkin-no-cabin-baggage-as-per-draft-sop-for-aviation-sector/1832548>

DRDO Technology



Wed, 13 May 2020

Advantage DRDO, India might shelve NASAMS II purchase from the United States

With clear orders from the Prime Minister Office, Armed forces have been told to cut import of foreign defense equipment amid slowing economy due to the Chinese virus pandemic and prefer procurement of local Indian substitute. According to sources close to idrw.org, procurement of NASAMS II from the United States soon will be put on the backburner and likely to be shelved indefinitely for the time being.

US state department had notified its Congress of the impending sale of NASAMS II multi-layered air defense shield earlier this year for \$1.86 billion. Delhi had called for price negotiation after it was found to be too expensive to procure. Defense analysts had called out New Delhi for ignoring indigenous products for the imported system due to alleged mounting pressure on India to consider their procurement to avoid sanctions after New Delhi went ahead to ink the \$5.43 billion deal with Russia for five squadrons of S-400 surface-to-air missile systems in 2018.

NASAMS II multi-layered air defense shield was selected to provide aerial shield for a National Capital Territory of Delhi against aerial threats ranging from drones to ballistic missiles. India has plans to have a Three-layer shield for the National Capital where will see the deployment of the indigenous two-tier ballistic missile defense (BMD) system being developed by DRDO for the Outer security against Intermediate-range ballistic missile and long-range cruise missiles.



Mid-tier will see the deployment of the S-400 system against Aircraft and ballistic missile and inner-tier will see the deployment of the NASAMS II type system which will provide a shield against precision-guided ammunition and drones in the inner circle.

If New Delhi goes ahead and shelve NASAMS II purchase from the United States then Akash 1S and Akash NG could be procured for providing aerial shield at an inner circle or DRDO will be cleared to develop NASAMS II type system consisting of Ground launched Astra BVRAAM missiles for protection against smaller threats.

Defense Analysts Ranesh Rajan speaking to idrw.org believes that more such aerial shield will be coming in major cities of India in near future and Mumbai is next city to get a similar shield and NASAMS II system requirement could only have grown in near future as more cities come under three-tier missile shield in near future, going for the local system will make much more sense as NASAMS II system as no capability to tackle short or medium range ballistic missiles and indigenous Akash surface to air missiles have demonstrated its ability to neutralize small targets like Drones and PGMs.

(Note: Article cannot be reproduced without written permission of idrw.org in any form even for YouTube Videos to avoid Copyright strikes)

<https://idrw.org/advantage-drdo-india-might-shelve-nasams-ii-purchase-from-the-united-states/#more-227320>

Defence News

COVID-19: Defence Forces Contribution

The Statesman

Wed, 13 May 2020

OP Samudra Setu: A Navy that dares; a Navy that cares

This operation is being progressed in close coordination with the Ministry of Defence, External Affairs, Home Affairs, Health and various other agencies of the Government of India and State governments

By Sayan Chatterjee

New Delhi: On 5th of May 2020, Indian Navy had launched its Operation “Samudra Setu” – meaning “Sea Bridge”, as a part of national effort to repatriate stranded Indian citizens from overseas. Indian Naval Ships INS Jalashwa and Magar were tasked, and further sailed off for the

port of Malè, Republic of Maldives and commenced the evacuation operations from 08 May 2020 in phases.

On a war footing stride, The Indian Navy made suitable preparations to undertake this evacuation by sea. This operation is being progressed in close coordination with the Ministry of Defence, External Affairs, Home Affairs, Health and various other agencies of the Government of India and State governments. The Indian Navy has carried out similar Non-Combatant Evacuation Operations (NEO) from overseas on earlier occasions, as part of Op-Sukoon (2006) and Op-Rahat (2015).

The Indian Mission in the Republic of Maldives prepared a list of Indian nationals to be evacuated by Naval ships and further facilitated their embarkation after the requisite medical screening. A total of 1000 persons are on plan to be evacuated during the first trip, catering for COVID-related social distancing norms vis-a-vis the carrying capacity and medical facilities available onboard.

The ships have been suitably provisioned for the evacuation operation. The evacuated personnel would be provided with the basic amenities and medical facilities during the sea-passage. In view of the unique challenges associated with COVID-19 stringent protocols have also been stipulated. The evacuated personnel will be disembarked at Kochi, Kerala and entrusted to the care of State authorities.

On 7th of May, INS Jalashwa arrived off the port of Male in the morning hours to undertake the evacuation of Indian citizens stranded at the Maldives during the ongoing pandemic, to bring back the Indian nationals home from foreign shores. INS Jalashwa, the Indian Navy's Landing Platform Dock (LPD) with its capacity to generate 3MW of electrical power, 60,000 gallons (212 tons) of fresh water a day and extensive medical facilities, seems to be the best-suited vessel to undertake the HADR missions.

The ship has been provided relief and COVID protection material as well as medical and administrative support staff. As a precautionary measure, for the transit back to India the ship will be zoned to prevent intermingling of the crew with the evacuees. It is planned to evacuate about 750 persons.

On 8th of May, evacuation of Indian citizens from Maldives began in the morning as INS Jalashwa docked at Male with the premises of Male airport being utilized as a staging area for our citizens, the process of screening people and issuing them with IDs is on presently. As per the latest manifest then, a total of 732 personnel has registered, and that included 19 pregnant women and 14 children. The Defence Attaché Male visited the ship on arrival to discuss and further coordinate the procedures for embarkation.

Baggage disinfection stations, Medical screening and Reception desks at the jetty were set up to ensure safe embarkation whilst following social distancing norms. Priority is being accorded for pregnant ladies and children to embark first and bunk allocation has also been undertaken by the ship's crew catering to age / medical requirements.

Later, INS Jalashwa set sail from Male, the Maldives bringing back 698 evacuees of Indian national which included 595 males, 103 females and 19 pregnant ladies on-board. Commencement of Operation Samudra Setu on 08 May 2020 was marked with INS Jalashwa embarking 698 stranded Indian citizens in Port of Male, Maldives.

Western Fleet ships mission deployed in the Indian Ocean Region (IOR) joined INS Jalashwa, on her passage back from Maldives; highlighting India's unwavering commitment to safeguarding her diaspora anywhere in the world. On her passage back to Kochi, Kerala, Western Fleet ships joined her in a demonstration of Indian Navy's commitment to the national effort.

Amidst the global pandemic of COVID-19, Indian Naval ships are deployed to support the ongoing national effort to repatriate Indian nationals across the seas. Whilst INS Jalashwa sails towards the mainland for disembarkation at Cochin Port Trust terminal on Sunday, May 10th, INS Magar made her way to enter Male port.

On 10th of May, INS Magar, arrived at Male Port to continue the repatriation effort of the Indian Government. INS Magar, an LST(L) designed for landing operations, had made all necessary logistic, medical, and administrative preparations at her base port Kochi to comfortably accommodate civilians before setting sail towards the Maldives.

The ship intended to evacuate about 200 citizens while ensuring all precautions related to COVID-19 including social distancing norms are followed. Even as heavy rains at Male made conditions difficult, the ship planned to ensure safety of people. As an SOP zoned section of the ship with essential facilities like food and washrooms were prepared to accommodate the evacuees and a separate mess has been allotted for ladies, infants, and senior citizens.

Additional precautions have been taken by dividing the evacuees into groups to avoid crowding at common areas like dining hall, bathrooms etc. A total of 202 personnel later embarked the ship, which includes 24 women, 2 expectant mothers and 2 children. One of the men, who hails from Tamil Nadu, had a fractured leg. In line with the procedure followed on 08th of May, the evacuees were screened medically, their baggage disinfected and were allotted IDs as per various zones earmarked on board the ship. INS Magar departed Male on 10th evening for Kochi on completion of embarkation.

INS Jalashwa will be evacuating approx 700 Indian nationals from Malè to Kochi on 15 May 2020, during her second repatriation sortie. Jalashwa has already repatriated 698 citizens to India on 10 May during her first sortie. INS Magar, carrying 202 Indian nationals is likely to reach Kochi by evening today 12 May 2020 (approx 1800hrs).

An unclassified brief on the participating IN ships and the previous Non-Combatant Evacuation Operations (NEO) has been emphasized over here for our valued readers.

The launching of ground forces to sustain operations ashore in a hostile environment always been a crucial task for the Indian Navy. While traditionally such capability has existed in the Navy through conventional amphibious vessels, in contemporary times, such operations are best conducted by vessels that are capable of stand-off beaching. Such ships are called expeditionary operations platforms. The unprecedented tsunami in December 2004 brought out a critical capability gap in the Indian Navy's inventory. It was the capability to provide Humanitarian Assistance/Disaster Relief (HADR) from undeveloped/ semi-developed coastlines.

Most ships carrying relief material had a small helicopter (Chetak) as well as small boats with limited load-carrying capability. Ships such as destroyers and frigates, though loaded with relief supplies and disaster relief bricks, required berths and jetty cranes which were located at a considerable distance from the devastation site.

It was also observed that LPDs from Singapore and US navies were very effective. The Indian Navy, therefore, scouted and shortlisted USS Trenton (Landing Platform Dock or LPD) as the most suitable platform to fulfil intermediate capability till the Indian Navy builds its own LPD class of ships. Six second-hand UH-3H helicopters were offered to the Indian Navy and these are proving to be true force multipliers for a ship engaged in any kind of an operation-from HADR to out-of-area contingencies to evacuation operations.

INS Jalashwa

USS Trenton was commissioned as INS Jalashwa on 22 June 2007 at Norfolk, USA. Since her commissioning in 2007, INS Jalashwa has proved to be an extremely valuable acquisition to the Navy's arsenal. Her integration with the fleet has expanded the force architecture of the Navy and has been imparting valuable experience in running, deploying, and maintaining an LPD.

Her participation in exercises requiring amphibious capability, strategic sealift and HADR missions has expanded the window of exposure to the fleet and planners ashore. INS Jalashwa has a full load displacement of 17,521 tonnes. She is 179m in length and has a width of 30.5m. She can achieve a max speed of 21 knots and has a complement of 330 personnel. She also has 4 LCMs for transporting troops ashore.

The main weapon systems of the ship comprise of CIWS-two AK630 Gun Mounts and 25 mm Gun mount.

INS Magar

INS Magar was commissioned by Admiral RH Tahiliani, Chief of the Naval Staff on 15 July 1987 with Pennant No. L-20 at GRSE Yard, (then) Calcutta. Commander DB Roy was the first Commanding Officer. INS Magar is the lead ship of the Magar class amphibious warfare vessels of the Indian Navy.

She took part in Operation Pawan during which she was involved in the transfer of Army troops and vehicles from Chennai to Sri Lanka. INS Magar has a displacement of 5,750 tonnes. The ship has a length of 120 metres and a beam of 17.5 metres. As an amphibious ship, she can carry Tanks and Armoured Personnel Carriers for transportation to target beaches.

The ship can also carry a strength of 500 fully laden troops nearly 10 days, in addition to her own crew. The main weapon systems of the ship comprise of CRN 91 Guns, Chaff launcher (KAVACH) and the WM-18A Rocket launcher. The ship also carries 4 LCVPs onboard which can be used for landing of troops. INS Magar has the capability to the beach and discharge tanks, APCs and troops directly onto the target territory. The bow door of the ship opens after beaching to discharge the load embarked in the tank spaces. Other ships of the class include Gharial, Shardul, Kesari and Airavat.

(The writer is a Delhi-based independent contributor to print and online publications)

<https://www.thestatesman.com/india/op-samudra-setu-navy-dares-navy-cares-1502887699.html>

THE FINANCIAL EXPRESS

Wed, 13 May 2020

Mission Sagar: India extends a helping hand to IOR countries, Maldives receives food items from New Delhi

The 'Mission Sagar' is being coordinated by the Ministry of External Affairs and Ministry of Defence and other agencies and comes close on the heels of Operation Samudra Setu which has been launched to repatriate stranded Indian from several countries across the globe

By Huma Siddiqui

On Tuesday, on its first stop, INS Kesari offloaded 580 tonnes of essential food items sent by India to the Maldives, under "Mission Sagar". The food material was handed over in the presence of High Commissioner of India to Maldives, Sunjay Sudhir and from the Maldives side there were the Foreign Minister, Abdulla Shahid and the Defence Minister, Ms Mariya Ahmed Didi. According to the Indian Navy, the INS Kesari was deployed in line with Prime Minister Narendra Modi's vision of Security and Growth for All in the Region 'SAGAR' and its Neighbourhood First policy.

The 'Mission Sagar' is being coordinated by the Ministry of External Affairs and Ministry of Defence and other agencies and comes close on the heels of Operation Samudra Setu which has been launched to repatriate stranded Indian from several countries across the globe.

Till date around 900 Indians have been repatriated onboard INS Jalashwa and INS Magar and more will be coming back on these ship in the next round.



The INS Kesari was deployed in line with Prime Minister Narendra Modi's vision of Security and Growth for All in the Region 'SAGAR' and its Neighbourhood First policy. (IE)

India and the Maldives

Both countries are close maritime neighbours and have a strong defence and diplomatic relations.

On the arrival of the food grains in the island nation, Maldives President Ibrahim Mohamed Solih in a tweet thanked Prime Minister Modi for the gift of essential food supplies.

The foreign Minister of that country has called it “India’s `Ramazan gift’ to the Maldives”.

What has India sent?

Onboard the INS Kesari there were 580 tonnes of food supplies which have been offloaded. These include rice, wheat flour, sugar, yellow dhal, onions and potatoes.

Helping hand to fight COVID-19

India has also sent dispatched doctors and paramedics with essential medical supplies last month to help the IOR nation fight against the spread of COVID-19.

Under Operation Sanjeevani last month Indian Air Force had airlifted 6.2 tonnes of medicines to the country held in various cities in India. India has also helped in evacuating nine Maldivians out of Wuhan City, China.

As reported earlier, the Maldives is the first destination of India’s Mission Sagar, under which medicines and essential food commodities will be supplied by New Delhi to four Indian ocean countries including –Maldives, Mauritius, Madagascar, Comoros and Seychelles.

Repatriation from the Maldives continues

Later this week on May 15, INS Jalashwa will turn around from to Male to Kochi port and carrying Indian nationals from Kerala and Lakshadweep. Also, air India flights have been planned from the Maldives to Delhi, Bangalore, Mumbai and Chennai.

In the second round INS Jalashwa is going to get back around 700 Indians.

<https://www.financialexpress.com/defence/mission-sagar-india-extends-a-helping-hand-to-ior-countries-maldives-receives-food-items-from-india/1956851/>

Defence Strategic National/International

THE FINANCIAL EXPRESS

विस्तार

Wed, 13 May 2020

CDS General Bipin Rawat bats for the Indian industry

For sure, this has been the avowed objective of the procurement policies and procedures, such as they are, for a long time

By Amit Cowshish

The Chief of defence staff General Bipin Rawat has set the tone for the defence procurements in the coming years with a clear message that the dependence on, if not preference for, import of expensive foreign weaponry must give way to indigenous equipment and platforms. For sure, this has been the avowed objective of the procurement policies and procedures, such as they are, for a long time. In fact, since 2014, there has been a renewed focus on Make in India in defence since. That none of this has worked would be an understatement.

According to a report by the Stockholm International Peace Research Institute (SIPRI) published earlier this year, India was the second-largest importer of arms in the world over the past

five years (2014-19) and ranked 23rd in the list of the top 25 exporting countries, most of the exports being from the state-owned production units to some neighbouring countries.

This is not where India should have been two decades after the defence sector was opened to foreign direct investment and private sector participation and several years of pursuing the goal of self-reliance in defence.

The newness of what General Rawat has said lies not just in an oblique admission of these ground realities, but a candid acknowledgement that the preference for imports is often on account of unrealistic services qualitative requirement (SQRs), or specifications, formulated by the armed forces.

These SQRs are such that neither the Indian industry nor the defence research and development organisation (DRDO) can achieve them within the desired time frame.

Any suggestion that SQR formulation is a problem area and, therefore, these have to be more realistic, is generally countered with vehement assertions that dilution of the SQRs would amount to compromising on the military capability that the equipment is required to deliver.

General Rawat's statement that hand-holding of the Indian industry requires the armed forces to accept weapon systems even if initially they meet 70 per cent of the SQRs – for given the opportunity, they will eventually deliver the weapon systems with cutting-edge technologies – puts paid to the traditional opposition to gradual scaling up of the specifications as the industry gains more and more experience.

Coming from the chief of defence staff, it should carry weight with the armed forces and address one of the most intractable problems faced by the industry. Setting realistic SQRs and improving the existing system of field trials for indigenously designed and/or manufactured equipment would go a long way in boosting Make in India than any other measure.

The objective of the field trials must be to enable the participating vendors to rectify any deficiency noticed during the trials within a reasonable time so that they remain in contention, rather than eliminating them at the first sign of failure to meet any of the several parameters on which the equipment is generally trial-evaluated.

For sure, it will take a lot of doing to translate the chief's thoughts into action on the ground, ensuring their acceptability by the individual services being the first major task. The services too will have to figure out to what extent the SQRs can be scaled down for the benefit of the Indian industry without making any serious compromises on the operational needs.

These developments should not have the foreign vendors worried about their prospects in India. For one thing, India will continue to need some state-of-the-art equipment, whose SQRs cannot be eased, making it difficult for the Indian industry to make it in India within the desired time frame.

Such equipment, platforms and weapons systems may continue to be imported while the Indian industry climbs up the learning curve, or the Indian industry may need to tie up with the foreign vendors for co-development and/or co-production of such equipment. This situation is unlikely to change any time soon.

How the chief's ideas play out and whether these will energise the fledging Indian defence industry, especially the micro, small and medium enterprises, and the start-ups, would also depend on some other crucial factors.

First, it must be made easier for the defence companies to operate in India. This requires a fundamental attitudinal change so that they are treated as partners and not potential defaulters. This also requires quick decision-making. The civilian and military leadership has a significant role to play in this as their attitude, as well as the speed and quality of their decision-making, can make or mar any project.



General Rawat's statement that hand-holding of the Indian industry requires the armed forces to accept weapon systems even if initially they meet 70 per cent of the SQRs – for given the opportunity

Second, the procurement procedures need to be made simpler than what they are. The draft Defence Procurement Procedure 2020, released by the defence ministry on 20 March, seems to have made the procedure more complex, rather than making it simpler.

Most importantly, financial realism that now also takes into account the post-COVID 19 fiscal constraints, will have to be the basis of the future procurement plans drawn up to strike a balance between the security needs and the imperatives of promoting indigenous defence production.

(The author is former Financial Advisor (Acquisition), Ministry of Defence. Views are personal.)

<https://www.financialexpress.com/defence/cds-general-bipin-rawat-bats-for-the-indian-industry/1956363/>

THE ECONOMIC TIMES

Wed, 13 May 2020

HAL may enter as government revisits Navy chopper plan

The Rs 21,000-crore plan to manufacture naval utility helicopters in partnership with a foreign vendor has been in the works for over a year and important decisions on going to the next step of technical evaluation have to be taken shortly

By Manu Pubby

New Delhi: The defence ministry is re-evaluating its big 'Make in India' plan to manufacture naval utility helicopters. The companies have been asked to explain if the programme has export potential and the Centre is also looking at giving Hindustan Aeronautics Limited (HAL) a chance to enter the competition.

The Rs 21,000-crore plan to manufacture naval utility helicopters in partnership with a foreign vendor has been in the works for over a year and important decisions on going to the next step of technical evaluation have to be taken shortly.

Sources said queries have been sent to Indian and foreign companies bidding for the project to understand if there are plans to continue the line beyond the 111 helicopters envisaged to meet exports in both civil and military markets.

The ministry is also assessing if a lesser number of choppers were to be ordered, what the impact would be on technology transfer and cost viability.

There is an apprehension that the project could be cut down in numbers as the ministry is revising all procurement plans due to an anticipated budget cut.

Sources also said the HAL, which has been making a strong pitch for its Advanced Light Helicopter (ALH), could get a chance to enter the competition if it is able to develop compliant prototypes, within a specified period of time.

The state-owned company has been pitching a naval variant of the ALH with folding rotor blades and tail but is yet to develop a prototype.

<https://economictimes.indiatimes.com/news/defence/hal-may-enter-as-government-revisits-navy-chopper-plan/articleshow/75704072.cms>



India worries China may be constructing south China sea-like artificial Island in Maldives

China and India, which have faced off along the border between the two countries for past few days, remain locked in a silent confrontation despite the COVID-19 pandemic; Beijing's attempts to expand its political influence among the island nations of the Indian Ocean have angered New Delhi.

In another development affecting relations between India and China, the latest satellite images of face-lifted Feydhoo Finolhu Island in the Indian Ocean have posed serious concerns for New Delhi.

A satellite images from January 2018 shows the original size of the island: about 38,000 sq. metres. The other image, from February 2020, shows land reclaimed by China following the destruction of the reef, which made the island 100,000 sq. metres. The image also shows ongoing construction on the reclaimed area. The island, which is almost 600 km from India and close to Malé airport, was leased to an undisclosed Chinese company for 50 years at a cost of about \$4 million in December 2016 by the Maldives.



Geopolitical expert Hans Kristensen was reproachful of the project for environmental reasons, speculating that China might destroy the reef in its efforts to expand.

In the strategically important South China Sea, Beijing has built seven artificial islands following reef destruction in the Spratly Islands. It took huge amounts of sand and coral reefs to add 1,300 ha to the islands. China's ministry of defence said in 2018 that China has a "natural right as a sovereign nation" to deploy military assets to its bases in the Spratly Islands.

However, China claims that it enjoys sovereign rights and jurisdiction over the relevant waters in the South China Sea where infrastructure development took place.

As part of its One Belt One Road connectivity initiative to increase its footprint in the Indian Ocean Region, China has been attempting to build infrastructure in the South East Asian countries as well.

Like the Island in Maldives, Beijing has been engaged in key infrastructure projects in Myanmar as well, such as New Yangon City, Kyaukphyu Deep-Sea Port and Industrial Zone and the China-Myanmar Border Economic Cooperation Zone.

With the heightened activity of the Chinese fleet in the Indian Ocean Region over past few months, experts have highlighted the developments as part of Beijing's String of Pearls strategy — coined by the US consultancy Booz Allen Hamilton in its 2005 report "Energy Futures in Asia" — to expand its naval presence throughout the Indian Ocean Region (IOR) by building maritime civilian infrastructure in friendly countries.

While India has been desperately trying to counter China's attempts to encircle the country, which holds important position in the Indian Ocean region, Beijing has denied the existence of any such strategy.

Meanwhile, India and China were in a tense face-off near the Naku La sector (ahead of Muguthang Valley) pass at a height of over 5,000 metres in India's Sikkim on Saturday. As many as 11 soldiers, including four Indians and seven Chinese, were injured in the violence on the Line of Actual Control.

<https://www.defencenews.in/article/India-Worries-China-may-be-Constructing-South-China-Sea-Like-Artificial-Island-in-Maldives-830589>

Wed, 13 May 2020

Tata Power wins contract to modernise 37 Indian airfields

Tata Power Strategic Engineering Division (Tata Power SED), a defence business of the Tata Power Company, has secured a contract for modernisation of 37 Airfields infrastructure of Indian Airforce (IAF), Indian Navy and Indian Coast Guard (ICG).

The \$159m (Rs12bn) contract was awarded by Ministry of Defence (MoD), Government of India. Work related to the contract will be executed over the next four years.

Under the contract, the company will be responsible for the supply, installation and commissioning of modern airfield equipment such as Cat II Instrument Landing System and Cat II Airfield Lightning System.

Additionally, the contract includes navigational aids and air traffic management system.

The company will also develop the required civil and electrical infrastructure.

The contract awarded is a continuation of the previous order awarded to Tata Power SED in March 2011. It was awarded by Indian MoD for the modernisation of 30 airfields and was successfully executed.

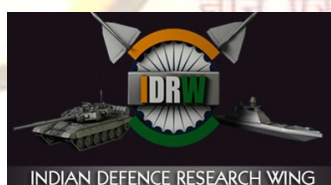
Additionally, 37 airfields undergoing modernisation will provide control of airfield systems to air traffic controllers.

During poor visibility and harsh weather conditions, the airfield systems will enhance aerospace safety and operational capability of missions.

Separately, Tata Power is in the process of selling its SED business to Tata Advanced Systems (TASL) through a scheme of arrangement.

The National Company Law Tribunal (NCLT) already approved the transfer, which is expected to be completed upon securing regulatory and other routine approvals.

<https://www.airforce-technology.com/news/tata-power-modernise-indian-airfields/>



Wed, 13 May 2020

India needs 30-fold jump in renewable and nuclear energy: Dr. Anil Kakodkar

Dr. Kakodkar, a Padma Vibhushan awardee and a former Chairman of Atomic Energy Commission and Chairman of Rajiv Gandhi Science & Technology Commission, was speaking during his online lockdown lecture organised by Nehru Science Centre, Mumbai on the occasion of National Technology Day.

During his speech, he talked about the correlation between Human Development Index (HDI) and per capita energy consumption globally, and as per the statistics, countries with higher HDI where citizens enjoy high quality of life have higher



per capita consumption of energy. However, for the developing countries like India “the need of the hour is to strike a balance between enhancing the quality of human life as well as keeping a control over the climate crisis,” he said.

Dr. Kakodkar by citing an example of a report of an Inter-Governmental Panel on Climate Change, said that “staying below 1.5-degree increase in 2,100 will require cuts in Green House Gas (GHG) emissions of 45 percent below 2010 levels by 2030 and to net-zero by 2050”. He emphasized that it means we have only 10 years left to realise deep CO2 emission cuts while ensuring the development aspirations of many countries globally.

The scientist further suggested that to achieve this, the world has to act now by leveraging available and rapidly deployable technologies.

Thus, decarbonisation of energy production in the country is essential since the demand for electric power from industries and commercial sector is high, he added.

It is possible by increasing the share of low-carbon energy sources, particularly renewables like solar, hydro and biomass together with nuclear which can greatly contribute in achieving zero emissions to a great extent, Dr. Kakodkar commented.

In his action plan, he suggested that we need better plans to control the CO2 emission as it is still high when compared to preceding years. Also, different levels of consumption strategy need to be observed by different countries based on their HDI.

<https://idr.org/india-needs-30-fold-jump-in-renewable-and-nuclear-energy-dr-anil-kakodkar/>

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Wed, 13 May 2020

Five most dangerous chemical weapons

By Ajay Yeole

Watch Out! Here Are the Five Most Dangerous Chemical Weapons
The three year crisis in Syria has led to a resurgence of interest in chemical weapons. Often referred to as the “poor man’s bomb,” chemical weapons require a relatively low investment, can cause severe psychological and physical effects and are agents of disruption.

Three year crisis in Syria has led to a resurgence of interest in chemical weapons. Often referred to as the “poor man’s bomb,” chemical weapons require a relatively low investment, can cause severe psychological and physical effects and are agents of disruption. Modern chemical weapons were introduced during World War I in an effort to reduce the deadlock of trench warfare. But they are subject to topography and weather patterns. As munitions have become more precise, their tactical advantage is being eroded. Today, they horrify more than they contribute to victories on the ground. Their indiscriminate nature and unpredictability, coupled with the sometimes-gruesome effects they have make them effective weapons of fear.



Below are five of the worst chemical weapons:

Most toxic: VX

VX belongs to organophosphorus compounds and is classified as a nerve agent because it affects the transmission of nerve impulses in the nervous system. It is odorless and tasteless in its pure form, and appears as a brownish oily liquid.

Developed in the UK in the early 1950s, VX is particularly potent because it’s a persistent agent: Once it’s released into the atmosphere it’s slow to evaporate. Under regular weather

conditions, VX can persist for days on surfaces, while it can last for months in very cold conditions. “VX vapor is heavier than air,” which means that when released, “it will sink to low-lying areas and create a greater exposure hazard there.” Such characteristics make VX potentially useful as an area-denial weapon.

VX is also a fast-acting agent. Symptoms can appear only seconds after exposure. They include salivation, constriction of the pupils and tightness in the chest. As with other nerve agents, VX works by affecting the enzyme (acetylcholinesterase) that acts as the body’s ‘off switch’ for glands and muscles. With the enzyme blocked, molecules constantly stimulate the muscles. As the muscles spasm, they tire. Death is caused by asphyxiation or heart failure. While it is possible to recover from exposure, tiny amounts of the agent can be lethal.

Most recently used: Sarin

September 2013, the UN confirmed that a chemical weapons attack involving specially designed rockets that spread sarin over rebel-held suburbs of the Syrian capital took place the month before. UN Secretary General, Ban Ki-Moon stated that this was the “most significant confirmed use of chemical weapons against civilians since Saddam Hussein used them in Halabja in 1988.”

Sarin (also known as GB) is a volatile but toxic nerve agent. A single drop the size of the head of a pin is enough to kill an adult human rapidly. It is a colorless and odorless liquid at room temperature, but evaporates rapidly when heated. After release, sarin will spread into the environment rapidly and present an immediate but short-lived threat. Similar to VX, “symptoms include headaches, salivation and secretion of tears, followed by gradual paralysis of the muscles” and possible death.

Sarin was developed in 1938 in Germany when scientists were researching pesticides. The Aum Shinrikyo cult used it in a 1995 attack on the Tokyo subway. While the attack caused mass panic, it only killed 13 because the agent was dispersed in liquid form. In order to maximize casualties, not only must the sarin be a gas, but the particles need to be small enough so they are easily absorbed through the lining of the lungs, yet heavy enough that they are not breathed back out. Sarin is not easy to weaponize.

The quality of the agent also matters. Sarin (and VX) is susceptible to degradation, especially if it isn’t pure. Iraq’s sarin for example, had a shelf life of about one to two years. While the degraded products are still toxic, they can’t be used as weapons. Although Syria’s CW stockpile was growing old and the agents were likely to have deteriorated significantly, the sarin used in the attack on the Ghouta suburbs on August 21, 2013 was higher quality than that used in the 1995 Tokyo attack or in Halabja. But it was still a far cry from the sarin produced by the United States and the Soviet Union

Most popular: Mustard Gas

Also known as sulphur mustard, this agent gets its name from its trademark rotten mustard or garlic and onion odor. It belongs to the group of blister agents (or vesicants) that work by targeting the eyes, respiratory tract and skin, first as an irritant and then as poison for the body’s cells. It’s particularly grisly and slow acting. When skin is exposed to it, it reddens and burns for a few hours before large blisters appear and cause severe scarring and pain. Eyes will swell, tear and possibly go blind a few hours after exposure, and when inhaled or ingested, victims will experience sneezing, hoarseness, coughing up blood, abdominal pain and vomiting.

But exposure to mustard gas is not always fatal. When it was first used in WW1, it killed only 5 percent of those exposed. It became a popular chemical weapon—used in both world wars, during the civil war in Yemen and the Iran-Iraq war—because of its properties.

Along with its gruesome physical effects, mustard gas is chemically stable and very persistent. Its fumes are more than six times heavier than air and stay near the ground for several hours. This made it particularly useful for filling and contaminating enemy trenches. It remains toxic for a day or two under average weather conditions and from weeks to months under very cold conditions. What’s more, persistency can be increased by “thickening” the agent: dissolving it in nonvolatile solvents. It poses significant problems for protection, decontamination and treatment.

Mustard gas is relatively easy to produce, with readily available early precursors. It also retains its quality for a long time. For example, German munitions used in the world wars are still periodically dug up in Belgium and the agents are barely degraded.

Mustard gas forces enemy troops to wear full protective equipment thereby degrading efficiency. But the protective gear doesn't always work. Gas masks, for example, are often not enough. During the Iran-Iraq war, mustard gas seeped through the masks as young Iranians' beards (grown for religious purposes) broke the seal of the mask. Mustard gas also easily penetrates through clothes, shoes or other materials.

Most dangerous: Phosgene

To this day, phosgene is considered one of the most dangerous existing chemical weapons. It was first used in combination with chlorine gas on December 19, 1915, when Germany dropped 88 tons of the gas on British troops, causing 120 deaths and 1069 casualties. During World War I, it accounted for 80 percent of all chemical fatalities. Although it is not as toxic as sarin or VX, it's much easier to make, which makes it more accessible to all.

Phosgene is an industrial chemical used in the fabrication of plastics and pesticides. It's made by exposing chlorinated hydrocarbon compounds to high temperatures. In other words, it can be made at home by exposing chloroform to UV-light for a few days.

Phosgene is a choking agent that works by attacking lung tissue. Initial likely symptoms of coughing, choking, tightness in the chest, nausea, and occasionally vomiting occur minutes after exposure. This may seem quick but it actually means that victims continue to inhale it until symptoms become apparent. Delayed effects can occur up to 48 hours after exposure.

At room temperature and pressure, it's an almost colorless gas that smells of freshly cut grass in low concentrations. It's nonflammable and evaporates when heated above eight degrees, which makes it volatile. But its vapor density is more than three times that of air, which means that it'll linger in low-lying areas, including trenches.

Most attainable: Chlorine

OPCW inspectors declared that "pulmonary irritating agents such as chlorine, have been used in a systematic manner in a number of attacks" in Syria after Assad pledged to give up its chemical weapons. This led to doubts about the value of the U.S.-Russian deal on the elimination of Syria's chemical weapons.

Chlorine is a readily available industrial chemical with many peaceful uses, including as bleach in paper and cloth, to make pesticides, rubber, and solvents and to kill bacteria in drinking water and swimming pools. It's the perfect example of a problematic dual-use chemical. Chlorine did not figure in Assad's initial stockpile declaration in October and was not removed with the rest of Syria's chemical weapons last month. Despite its dual-use nature, chlorine's use as a chemical weapon is still banned under the Chemical Weapons Convention (CWC).

Chlorine gas is yellow-green colored and has a strong smell similar to bleach. Like phosgene, it is a choking agent, which obstructs breathing and damages tissues in the body. It can easily be pressurized and cooled to liquid state so that it can be shipped and stored. Chlorine spreads quickly and stays close to the ground because it is heavier than air. Though it is less lethal than other chemical agents, chlorine is dangerous because it's easy to manufacture and disguise
Special mention: Riot control agents

While not strictly banned by the CWC (it doesn't apply to domestic law enforcement), riot control agents have often been used with devastating effects. Their temporary effects include crying, uncontrollable blinking, burning in the throat, sneezing, coughing, vomiting, and at times temporary blindness.

<https://cyrus49.wordpress.com/2020/05/11/five-most-dangerous-chemical-weapons-drdo-ajay-yeole/>

DNA metabarcoding reveals metacommunity dynamics in a threatened boreal wetland

The ability to accurately detect changes in ecosystem biodiversity caused by human activity has long challenged environmental scientists and ecologists, but a new study, published in *PNAS*, has established new DNA-based methods that are effective for environmental assessment and monitoring.

Led by researchers from Environment and Climate Change Canada's Water Science and Technology Directorate and the Hajibabaei Lab at the University of Guelph, the study focused on at-risk wetlands in the Peace-Athabasca Delta (PAD) located in northern Alberta, Canada. The PAD is a large inland wetland complex threatened by encroachment from oil sands mining in the Athabasca watershed and hydroelectric dams in the Peace watershed.

"For more than a decade, we have been working closely with scientists from Environment and Climate Change Canada to develop and apply high-throughput DNA based biodiversity analysis for monitoring key ecosystems across Canada," said Dr. Mehrdad Hajibabaei, a co-author of the study, and a professor in the Department of Integrative Biology at the University of Guelph. "This study is a key contribution from this collaborative effort to bring cutting-edge genomics to ecological analyses."

Aquatic macroinvertebrates were sampled between 2011 and 2016 across a gradient of wetland flood frequency, applying both microscope-based morphological identification and DNA metabarcoding -- a method first introduced by Hajibabaei Lab in 2011. DNA metabarcoding involves sequencing environmental DNA (eDNA) to identify many organisms within the same environmental sample. By using multispecies occupancy models (MSOMS) -- a model used to assess biodiversity through species richness and interactions -- the study found that DNA metabarcoding detected a much broader range of biodiversity per sample compared to traditional morphological identification and was essential to identifying significant responses to flood and thermal regimes.

"By using massively parallel sequencing and advanced computational analysis, DNA metabarcoding overcomes critical chokepoints in biomonitoring," said Hajibabaei. "It allows processing large number of samples without the need of separating and sorting tiny larvae. It uses sequences from the DNA barcoding gene to make taxonomic identification often at a better resolution than achievable by morphological examination."

The study demonstrates that family-level occupancy masks high variation among genera and quantify the bias of barcoding primers on the probability of detection in a natural community. It also revealed that patterns of community assembly were nearly random, suggesting a strong role of randomness in the dynamics of the metacommunity.

"Until now, our ability to make consistent and accurate identifications of the hundreds of species which comprise these hyper-diverse and dynamic communities has limited our ability to make broad statements about how resource developments are degrading critical goods and services needed by migratory birds and wildlife," said Dr. Donald Baird, federal scientist with Environment and Climate Change Canada. "These impacts can have knock-on consequences for local communities who rely on these critical habitats for food security," said Baird, who co-authored the study and is actively involved in monitoring wetlands in Alberta's oil sands region.

Simulations used in the study also demonstrated that metabarcoding was much more efficient, especially in a more precise taxonomic resolution, and provided the statistical strength required to detect change on a broader, landscape-level scale.

"Being able to demonstrate DNA metabarcoding as an effective tool in ecological analyses across space and time, and in critical ecosystems such as the Peace-Athabasca Delta, is an important stepping-stone for broader application of this approach," said Hajibabaei.

Hajibabaei is currently applying the study's DNA metabarcoding approaches to assess key watersheds across Canada in a new program called STREAM. Launched last year in partnership with World Wildlife Fund-Canada, Living Lakes Canada, Environment and Climate Change Canada, STREAM is establishing a nationwide network of community-based biomonitoring programs.

Story Source:

[Materials](#) provided by [Centre for Biodiversity Genomics, University of Guelph](#). Note: Content may be edited for style and length.

Journal Reference:

1. Alex Bush, Wendy A. Monk, Zacchaeus G. Compson, Daniel L. Peters, Teresita M. Porter, Shadi Shokralla, Michael T. G. Wright, Mehrdad Hajibabaei, Donald J. Baird. **DNA metabarcoding reveals metacommunity dynamics in a threatened boreal wetland wilderness.** *Proceedings of the National Academy of Sciences*, 2020; 117 (15): 8539 DOI: [10.1073/pnas.1918741117](https://doi.org/10.1073/pnas.1918741117)
<https://www.sciencedaily.com/releases/2020/05/200512134424.htm>

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Wed, 13 May 2020

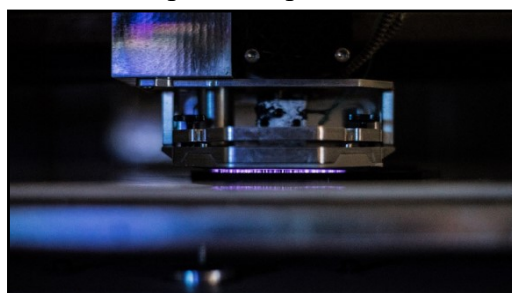
Researchers invent technology to remedy 3d printing's 'weak spot'

Texas A&M and Essentium, Inc. researchers have developed a way to more effectively weld adjacent printed layers together

By Vandana Suresh

Allowing users to create objects from simple toys to custom prosthetic parts, plastics are a popular 3D printing material. But these printed parts are mechanically weak — a flaw caused by the imperfect bonding between the individual printed layers that make up the 3D part.

Researchers at Texas A&M University, in collaboration with scientists in the company Essentium, Inc. have now developed the technology needed to overcome 3D printing's "weak spot." By integrating plasma science and carbon nanotube technology into standard 3D printing, the researchers welded adjacent printed layers more effectively, increasing the overall reliability of the final part.



Texas A&M and Essentium researchers have developed the technology to weld adjacent 3D printed layers more effectively, increasing the reliability of the final product.

"Finding a way to remedy the inadequate bonding between printed layers has been an ongoing quest in the 3D printing field," said Micah Green, associate professor in the Artie McFerrin Department of Chemical Engineering. "We have now developed a sophisticated technology that can bolster welding between these layers all while printing the 3D part."

Their findings were published in the February issue of the journal *Nano Letters*.

Plastics are commonly used for extrusion 3D printing, known technically as fused-deposition modeling. In this technique, molten plastic is squeezed out of a nozzle that prints parts layer by layer. As the printed layers cool, they fuse to one another to create the final 3D part.

However, studies show that these layers join imperfectly; printed parts are weaker than identical parts made by injection molding where melted plastics simply assume the shape of a preset mold upon cooling. To join these interfaces more thoroughly, additional heating is required, but heating printed parts using something akin to an oven has a major drawback.

“If you put something in an oven, it’s going to heat everything, so a 3D-printed part can warp and melt, losing its shape,” Green said. “What we really needed was some way to heat only the interfaces between printed layers and not the whole part.”

To promote inter-layer bonding, the team turned to carbon nanotubes. Since these carbon particles heat in response to electrical currents, the researchers coated the surface of each printed layer with these nanomaterials. Similar to the heating effect of microwaves on food, the team found that these carbon nanotube coatings can be heated using electric currents, allowing the printed layers to bond together.

To apply electricity as the object is being printed, the currents must overcome a tiny space of air between the printhead and the 3D part. One option to bridge this air gap is to use metal electrodes that directly touch the printed part, but Green said this contact can introduce inadvertent damage to the part.

The team collaborated with David Staack, associate professor in the J. Mike Walker ‘66 Department of Mechanical Engineering, to generate a beam of charged air particles, or plasma, that could carry an electrical charge to the surface of the printed part. This technique allowed electric currents to pass through the printed part, heating the nanotubes and welding the layers together.

With the plasma technology and the carbon nanotube-coated thermoplastic material in place, Texas A&M and Essentium researchers added both these components to conventional 3D printers. When the researchers tested the strength of 3D printed parts using their new technology, they found that their strength was comparable to injection-molded parts.

“The holy grail of 3D printing has been to get the strength of the 3D-printed part to match that of a molded part,” Green said. “In this study, we have successfully used localized heating to strengthen 3D-printed parts so that their mechanical properties now rival those of molded parts. With our technology, users can now print a custom part, like an individually tailored prosthetic, and this heat-treated part will be much stronger than before.”

The primary author of the research is C. Brandon Sweeney, a former Texas A&M materials science and engineering student in Green’s laboratory. He is the head of research and development and co-founder at Essentium.

Other contributors to this research include Blake R. Teipel ‘16 and Bryan S. Zahner ‘14 from Essentium; Martin J. Pospisil ‘19, Smit A. Shah ‘19, and Muhammad Anas from the Texas A&M chemical engineering department; and Matthew L. Burnette from the Texas A&M mechanical engineering department.

This work is supported by funds from the National Science Foundation.

<https://today.tamu.edu/2020/05/12/researchers-invent-technology-to-remedy-3d-printings-weak-spot/>

US to Announce Chinese Hackers Targeting COVID-19 Vaccine Research: Report

US is reportedly considering to issue a warning that Chinese hackers are trying to steal important COVID-19 research data.

The Trump administration is considering to issue a warning that hackers tied to the Chinese government are attempting to steal information from researchers who are working to develop a coronavirus vaccine, US administration officials told The Washington Post on Monday.

The US Federal Bureau of Investigation (FBI) and cybersecurity experts believe that the threat is coming from "non-traditional actors" such as Chinese students and researchers in the United States, said one official, who spoke on the conditions of anonymity.

"These actors have been observed attempting to identify and obtain valuable intellectual property and public health data," a draft of the warning says, according to the official quoted by The Washington Post.

There is no indication that any attempt thus far has been successful, said a second official.

The expected warning should be out within a week or so, the official added further.

Asked about the warning, which was first reported by the New York Times, Zhao Lijian, the spokesman for the Chinese Foreign Ministry, said, "We firmly oppose and fight all kinds of cyber-attacks conducted by hackers. We are leading the world in COVID-19 treatment and vaccine research. It is immoral to target China with rumors and slanders in the absence of any evidence."

The newspapers stated that the planned alert would probably exacerbate the already fraught relations between Washington and Beijing in the midst of the coronavirus pandemic. And it coincides with heightened efforts by the Trump administration to draw attention to China's long-running campaign to steal American secrets and intellectual property -- including biomedical research -- to gain advantage in the global economy.

President Trump and Secretary of State Mike Pompeo have suggested that the virus originated or leaked from a lab in Wuhan, China, though the government has produced no evidence to back that assertion.

But the laboratory in Wuhan has regularly denied claims of being the probable source of the virus.

Moreover, Beijing, on its part, has falsely suggested that the US Army may have "brought the epidemic to Wuhan," seeking to fuel a coronavirus conspiracy theory.

The expected alert also will come as private security researchers say they have seen commercial and government organisations developing treatments for COVID-19 being targeted by government-linked hackers in China, Iran, and Russia, the Post reported.

"Intense intelligence collection on COVID-19 may have begun as early as January," John Hultquist, director of intelligence analysis at FireEye, a cybersecurity firm, told the newspaper.

"We believe Vietnamese actors started targeting the Chinese government for this information around then," he added.

Hulquist noted the pandemic is "an existential threat" to governments around the world. So, he said, "we expect intelligence services to aggressively collect information from organisations involved in the response, regardless of their commercial ties."

The joint advisory also will urge victims to contact the FBI and will provide DHS-recommended resources for protecting data.

<https://gadgets.ndtv.com/internet/news/us-to-announce-chinese-hackers-targeting-covid-19-vaccine-research-report-2227478>



Wed, 13 May 2020

Explained: How will the pandemic play out? Some possible scenarios, from research

A study suggests prolonged or intermittent social distancing may be necessary into 2022 to prevent the case load from exceeding critical care capacities.

New Delhi: For the last several months, the key questions on everybody's mind have included how long the Covid-19 pandemic will run, and whether the disease will resurface season by season. Two new studies, first reported in *The New York Times*, project various shapes the Covid-19 curve can take.

One study, published in *Science*, projects that winter outbreaks will probably recur. It suggests prolonged or intermittent social distancing may be necessary into 2022 to prevent the case load from exceeding critical care capacities.

The other study is a viewpoint published by the US Center for Infectious Disease Research and Policy (CIDRAP). It projects various conceptual courses that the pandemic "wave" may take. These are based on historic patterns of previous pandemics as well as the findings of the paper in *Science*.

The bottomline: the pandemic will not leave anytime soon. "The broad conclusion of both studies was that SARS-CoV-2 will not go away on its own and that with control measures in place we can protect health care capacity but then move more slowly to herd immunity, if herd immunity is possible (we still don't know how long immunity will last). For this reason it will be many months and likely several years before the virus moves through the population in a region with significant transmission and significant control measures," Marc Lipsitch, epidemiologist at the Harvard TH Chan School of Public Health, told *The Indian Express*, by email.

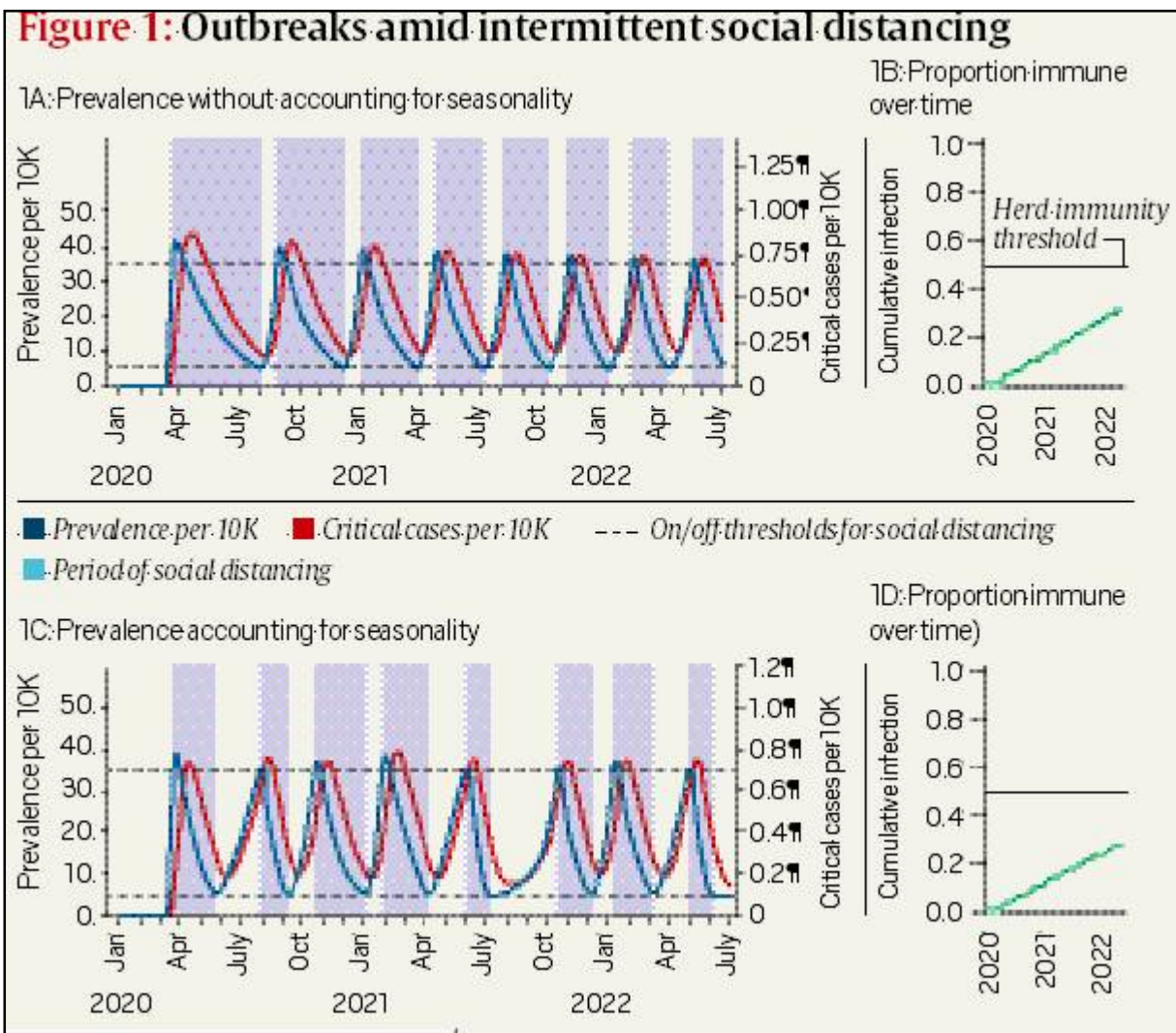
How social distancing helps

The study in *Science* used US time series data for two other coronavirus infections (OC43 and HKU1), made estimates for seasonality and immunity, and prepared a model for SARS-CoV-2 transmission.

The charts in Figure 1 have been reproduced from the paper in *Science*, with minor modifications. Chart 1A plots a time series for prevalence of total cases and critical cases per 10,000. The dotted line represents a prevalence threshold for enforcing/removing social distancing measures, while the blue bars represent the period of social distancing. On the right, Chart 1B projects the corresponding cumulative progress towards herd immunity.

Charts 1C and 1D are to be read the same way. The difference is that the second pair of charts accounts for seasonality of outbreaks, while the first pair does not.

"We projected that recurrent wintertime outbreaks of SARS-CoV-2 will probably occur after the initial, most severe pandemic wave," the researchers wrote.



Charts 1A and 1C project a time series based on the time and the stage when social distancing measures are intermittently enforced. On their right (1B & 1D), the corresponding proportion of the population immune over time, heading towards a herd immunity

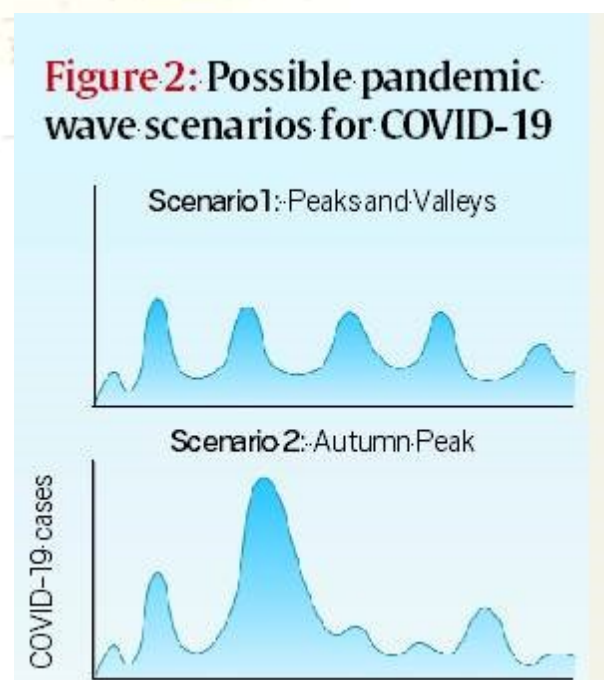
While the graphs reproduced here are for scenarios with current US critical care capacity, Lipsitch made it clear that this is not a projection of exact trajectory even for the US but a description of a policy and its broad features. “Other regions may have different levels of transmission (India seems to be showing less transmission than many expected, for reasons that are unclear), different seasonality, and different control policies,” he said.

In Figure 2, the charts look at conceptual wave scenarios. (Source: CIDRAP)

Waves, as a concept

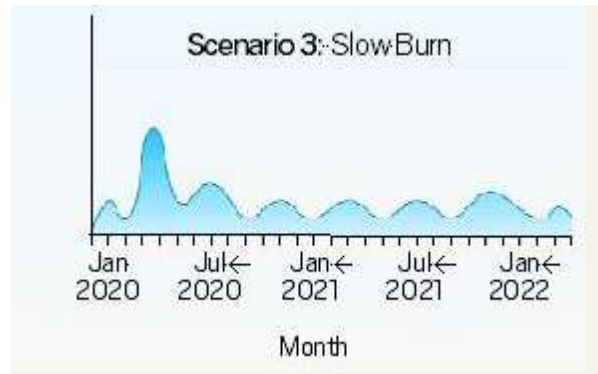
Projecting several scenarios for the future of the pandemic, the CIDRAP viewpoint summarised these as shown in Figure 2.

Scenario 1: The first wave in spring 2020 is followed by a series of repetitive smaller waves through the summer, and then consistently over a 1- to 2-year period, gradually diminishing sometime in 2021.



Scenario 2: The first wave in spring 2020 is followed by a larger wave in the autumn or winter of 2020 and one or more smaller subsequent waves in 2021.

Scenario 3: The first wave in spring 2020 is followed by a “slow burn” of ongoing transmission and case occurrence, but without a clear wave pattern. This pattern may vary geographically and may be influenced by mitigation measures in place.



<https://indianexpress.com/article/explained/explained-how-will-the-pandemic-play-out-some-possible-scenarios-from-research-6405570/>

ThePrint

Tue, 12 May 2020

Scientists identify new bat coronavirus that sheds light on how SARS-CoV-2 evolved

Children, teens at higher risk of complications to bowel abnormalities in patients, ThePrint brings you the latest research on Covid-19.

By Mohana Basu

New Delhi: New research is being initiated in various parts of the world to study the SARS-CoV-2 virus, that has so far killed 287,529 people and infected over 4,269,704 globally.

Here are some of the latest findings on the virus from teams across the world.

New bat coronavirus may reveal how these pathogens evolve

Scientists have found a bat coronavirus that is similar to the SARS-CoV-2. This finding can help understand how coronaviruses evolve naturally.

While researchers consider bats the most likely natural hosts for SARS-CoV-2, origin of the virus is still unclear.

In a study published in the Current Biology, researchers have described a recently identified bat coronavirus that has some regions of the genome similar to the SARS-CoV-2.

While the coronavirus, named RmYN02, is not a direct evolutionary precursor of SARS-CoV-2, the findings suggest that the seemingly unusual insertion of new genetic traits can occur naturally in coronavirus evolution.

Researchers also said that the study provides strong evidence against SARS-CoV-2 being a genetically-manipulated virus leaked from a laboratory.

The researchers identified RmYN02 from an analysis of 227 bat samples collected in Yunnan province of China, between May and October of 2019. RNA from the samples was sent for metagenomic next-generation sequencing in early January 2020, soon after the discovery of SARS-CoV-2.

A close genetic relative of SARS-CoV-2 is another virus, called RaTG13, which was previously identified on bats in the Yunnan province. However, RmYN02 is even more closely related to SARS-CoV-2 in some parts of the genome.

The researchers have noted that RmYN02 is not likely to infect human cells, as the region of the genome that helps the SAR-CoV-2 to bind with human cells is not similar.

<https://theprint.in/health/scientists-identify-new-bat-coronavirus-that-sheds-light-on-how-sars-cov-2-evolved/419688/>

कहां से आया कोरोना / पैंगोलिन और चमगादड़ पर शक गहराया, रिसर्च में पता चला जानवरों में मिला वायरस इंसान में फैले Sars-CoV-2 जैसा

नेचर जर्नल में छपी चीनी वैज्ञानिकों की रिसर्च रिपोर्ट

- पैंगोलिन-CoV वायरस की संरचना इंसान के SARS-CoV-2 और चमगादड़ के Sars-CoV RaTG13 नाम के वायरस जैसी
- सिर्फ एक अंतर के आधार पर कहा जा रहा संभव है कि वायरस चमगादड़ से आया और पैंगोलिन के जरिये इंसानों में फैला

वुहान: कोरोनावायरस कहां से आया? इस गुत्थी को सुलझाने के लिए दुनिया और संस्थान चीन के पीछे पड़े हैं। तमाम बिखरी कड़ियों को जोड़ने की कोशिश हो रही है और अभी तक सारे क्लूज दो जानवरों- पैंगोलिन और चमगादड़ पर जाकर खत्म हो रहे हैं।

अब तक मिले सबूतों से बहुत हद तक ये बात सिद्ध हो रही है कि चमगादड़ से निकले कोरोना के मूल वायरस ने कुछ ताकत पैंगोलिन से ली और फिर एक नए रूप में विकसित होकर इंसानों में Sars-CoV-2 वायरस बनकर फैल गया।

चीन की स्टडी में फिर पैंगोलिन घरे में

अपनी कई महीनों से चल रही रिसर्च स्टडी में खुद चीन के दो प्रमुख वैज्ञानिक कांगपेंग झियाओ, जुन्कियोनग झाई इस नतीजे पर पहुंचे हैं कि कोविड-19 महामारी का Sars-CoV-2 वायरस के पनपने में पैंगोलिन और चमगादड़ दोनों की भूमिका है।

जर्नल नेचर में छपी रिपोर्ट के हवाले से इन वैज्ञानिकों को मिले नए सबूत इशारा कर रहे हैं कि इंसानों तक कोरोनावायरस के पहुंचने में मासूम सा नजर आने वाला पैंगोलिन इंटरमीडिएट होस्ट यानी बीच की कड़ी हो सकता है।

विश्व स्वास्थ्य संगठन ने भी बीते दिनों चमगादड़ की भूमिका को संदिग्ध बताया था। इस रिसर्च को पढ़ने वाले भारत में बैटमेन के नाम से मशहूर वन्यजीव जीवविज्ञानी रोहित चक्रवर्ती भी कहते हैं कि कहीं न कहीं चमगादड़ और पैंगोलिन कोरोना के नए वायरस की टूटी कड़ियों को जोड़ सकते हैं।s

जीन्स लेवल पर मिली 100% समानता

साउथ चाइना एग्रीकल्चर यूनिवर्सिटी के कॉलेज ऑफ़ वेटरनरी मेडिसिन के शोधकर्ताओं के रिसर्च पेपर में पहली बार अपने दावे के पक्ष में ठोस सबूत दिए हैं। वैज्ञानिकों ने मलयन प्रजाति के पैंगोलिन और 4 विशेष जीन्स पर फोकस करके निष्कर्ष निकाले हैं। उन्हें पैंगोलिन में जो कोरावायरस (पैंगोलिन-CoV) मिला है उसका अमीनो एसिड इंसानों में फैले वायरस के जेनेटिक मटेरियल यानी आरएनए से 100%, 98.6%, 97.8% और 90.7% समान है।

स्पाइक प्रोटीन से मिला क्लू

मलयन पैंगोलिन में मिले वायरस में कोशिकाओं पर आक्रमण करके उन्हें पकड़ने वाला स्पाइक प्रोटीन मिला है वह ठीक वैसा ही जिसका इस्तेमाल कोरोनावायरस इंसानों में कर रहा है। इसे विज्ञान की भाषा में रिसेप्टर बाइंडिंग डोमेन कहा जाता है।

वायरस की कड़ियों को जोड़ने में जीवों की जीनोम सीक्वेंसिंग यानी जेनेटिक मटेरियल को क्रम से लगाकर उसकी तुलना करना सबसे अहम प्रक्रिया है। इस नई स्टडी में इसी प्रक्रिया का इस्तेमाल करके वैज्ञानिक इस नतीजे पर पहुंचे हैं कि पैंगोलिन-CoV की संरचना इंसान में फैले नए SARS-CoV-2 और चमगादड़ के Sars-CoV RaTG13 नाम के वायरस के समान है।

एक अंतर ने समझ बढ़ाई

अभी तक यही माना जा रहा है कि चमगादड़ के इसी Sars-CoV RaTG13 से ही नया कोरोनावायरस SARS-CoV-2 पैदा हुआ है। केवल एक अंतर मिला है जो स्पाइक या S जीन का है। वैज्ञानिकों ने दो दिन पहले जब इसी अंतर पर फोकस किया तो समझ में आया कि ये कहीं न कहीं एक से दूसरे जानवर के शरीर में पहुंचा और वहां अपने आप को बदलकर एक नए रूप में पैदा हुआ है। इस तरह संभव है कि वायरस चमगादड़ से आया और पैंगोलिन के जरिये इंसानों में फैला।

मलयन पैंगोलिन की प्रमुख भूमिका

वायरस को सोर्स ट्रूटने के लिए चीनी वैज्ञानिक यह स्टडी पिछले साल से कर रहे हैं। इसके बारे में फरवरी के महीने में कुछ बातें सामने आई थीं। वैज्ञानिकों की टीम ने यह स्टडी एक वाइल्ड लाइफ रेस्क्यू सेंटर में चार चीनी पैंगोलिन और 25 मलयन पैंगोलिन पर की। इसमें उनके फेफड़ों से टिशूज निकाले गए और उनमें वायरस की मौजूदगी का पता लगाया गया।

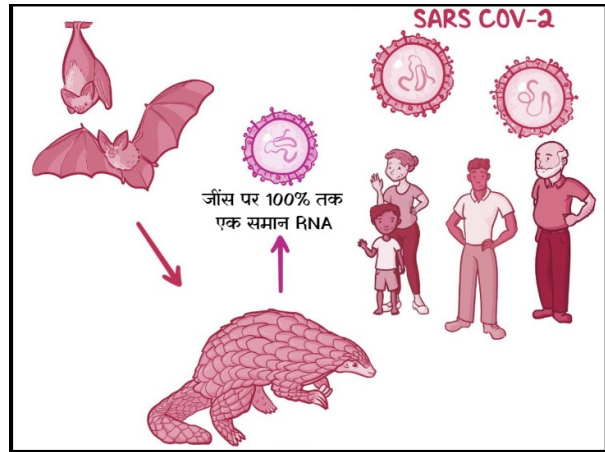
इसी क्रम में यह सामने आया कि 25 मलयन पैंगोलिनों में से 17 का आरएनए Sars-CoV-2 जैसे वायरसों के लिए पॉजिटिव है और उनमें धीरे धीरे कोरोना संक्रमण जैसे लक्षण भी सामने आए। इन जानवरों को सांस लेने में तकलीफ होने लगी, वे धीरे धीरे शिथिल होकर पड़ गए और रोने-चिल्लाने लगे। बाद में 17 में से 14 पैंगोलिन मर गए।

मलयन या सुंडा पैंगोलिन बेहद शर्मिला जीव और एक दुर्लभ प्रजाति है। पूरे दक्षिण एशिया में पाया जाने वाला यह पैंगोलिन सिर्फ 5 किलो का होता है। इसके स्कैल के कारण यह शिकारियों और तस्करों के निशाने पर रहता है। मादा अपने बच्चे को पूंछ पर लिए घूमती है। चींटी, दीमक और कीड़े खाने वाले इस जानवर की आंखें बेहद कमजोर लेकिन सूंघने की शक्ति बहुत तेज होती है।

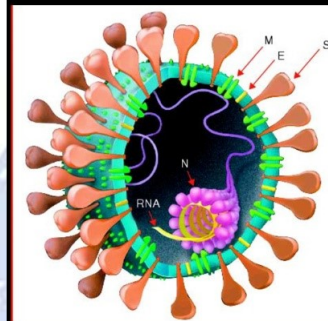
पैंगोलिन और चमगादड़ दोनों एक जैसे निशाचर

वैज्ञानिकों का यह भी कहना है कि चूंकि पैंगोलिन और चमगादड़ दोनों निशाचर जानवर हैं, दोनों ही कीड़े खाते हैं, और दुनियाभर में लगभग हर जगह फैले हुए हैं तो इसीलिए ये दोनों जानवर साझेदारी में सार्स परिवार के कोरोनावायरस के लिए आदर्श वाहक हैं और सबूत भी इसी ओर संकेत कर रहे हैं।

स्टडी में वैज्ञानिकों ने इस घटनाक्रम को भी स्पष्ट करते हुए लिखा है कि आमतौर पर बीमारी के कुदरती वाहक में उसके गंभीर लक्षण नहीं दिखते हैं, लेकिन उससे यदि बीमारी किसी इंटरमीडिएट होस्ट जानवर में चली जाती है तो वह संक्रमण के क्लिनिकल लक्षण दिखाता है।



इंसान में फैले वायरस SARS-CoV-2 की अंदरूनी तस्वीर



पैंगोलिन-CoV की संरचना इंसान के SARS-CoV-2 और चमगादड़ के वायरस Sars-CoV RaTG13 के समान है। अंतर सिर्फ एक स्पाइक S का है।



पेंगोलिन पर नजर रखें, तस्करी और मांस खाना रोकें

इसी कारण वैज्ञानिकों ने अपनी रिसर्च में जोर देकर लिखा है कि पेंगोलिन दुनिया में सबसे ज्यादा तस्करी होने वाला जानवर है। हर देश की तस्करी की ये पहली पसंद है और यही बात दुनिया के लोगों के लिए खतरा भी है क्योंकि ये स्तनपायी चींटीखोर जानवर Sars-CoV-2 जैसे वायरसों का भी वाहक है। ऐसे में अगर इसकी तस्करी और व्यापार नहीं रुकता है तो भविष्य में भी कोरोनावायरस पूरी दुनिया में फैलता रहेगा।

इसी वजह से इस रिसर्च पेपर में दुनियाभर की सरकारों से कहा गया है कि उन्हें पेंगोलिन पर एक व्यवस्थित ढंग से लम्बे समय तक निगरानी रखकर इस जानवर के अवैध शिकार, तस्करी और व्यापार पर सख्त प्रतिबंध लगा देने चाहिए। इसके मांस को खाने पर तो पूर्ण प्रतिबंध लगा देने की सिफारिश की गई है।

<https://www.bhaskar.com/coronavirus/news/covid-19-may-have-originated-from-recombined-bat-pangolin-coronaviruses-127291389.html>



Tue, 12 May 2020

मोटे लोगों को कोरोना वायरस से सबसे अधिक खतरा, रिसर्च में सामने आए चौंकाने वाले नतीजे

राहुल कुमार

नई दिल्ली। कोरोना वायरस को लेकर पूरे विश्व में खलबली मची हुई है। ऐसे में एक नई बात सामने आया रही है कि अगर आप मोटापे का शिकार हैं तो आपको कोरोना वायरस से ज्यादा सतर्क रहने की जरूरत है। एक रिसर्च में यह बात सामने आई है कि यह वायरस मोटे लोगों के लिए काफी खतरनाक है और मोटापे से ग्रस्त लोगों को आइसोलेशन में रखना 14 दिन काफी नहीं है। शोधकर्ताओं के एक समूह ने मोटापे से पीड़ित लोगों को 28 दिन यानी दोगुने वक्त के लिए क्वारंटाइन रहने की सलाह दी है।

मोटापा कोरोना वायरस को दे रहा आमंत्रण इटली के साइंटिफिक इंस्टीट्यूट फॉर रिसर्च, हॉस्पिटलाइजेशन एंड हेल्थकेयर में हुए इस शोध के बारे में बताते हुए शोधकर्ताओं ने कहा कि इन्फ्लूएंजा जैसे वायरस मोटे लोगों को ज्यादा प्रभावित करते हैं। रिसर्च में कहा गया है कि, जो व्यक्ति कोविड-19 से संक्रमित है और मोटापे से भी ग्रस्त है उन्हें क्वारंटाइन के दौरान 14 दिन के वजाय 28 दिन तक निरीक्षण करने की जरूरत है। मोटे लोग सामान्य लोगों की तुलना में कई कारणों से ज्यादा संक्रमित होते हैं।

मोटे लोग कोरोना वायरस से लड़ने में कम सक्षम शोध में इटली के दो वैज्ञानिक इस नतीजे पर पहुंचे कि कोविड-19 और मोटापे के बीच इंटरैक्शन इस बात पर निर्भर करता है कि इन्फ्लूएंजा जैसा वायरस मोटे लोगों पर कैसा असर डाल रहा है। इन्फ्लूएंजा वायरस दुबले लोगों की तुलना में मोटे लोगों के लिए ज्यादा खतरनाक होता है। इंफेक्शन की चपेट में आने के बाद उनकी हेल्थ को ज्यादा दिन के लिए मॉनिटर किया जाना जरूरी है। शोधकर्ताओं के अनुसार मोटापे शरीर में सूजन हो सकती है। यह व्यक्तियों की प्रतिरक्षा प्रणाली को बाधित कर सकता है। जिसके कारण मोटे लोग कोरोना वायरस से लड़ने में कम सक्षम हो पाते हैं।

मोटापे से ग्रस्त कोरोना के मरीजों की हालत तेजी से बिगड़ी उन्होंने यह भी सलाह दी कि मोटे व्यक्ति में क्वारंटाइन का समय दुबले लोगों की तुलना में दोगुना होना चाहिए। वहीं अमेरिका में भी एक इसी तरह का अध्ययन सामने आया है। जिसमें कहा गया है कि, कोरोना महामारी में युवा मरीजों के लिए मोटापा

सबसे बड़ा खतरा बनकर उभरा है। कैंसर, फेफड़े या हृदय रोग के मरीजों के मुकाबले मोटापे से ग्रस्त कोरोना के मरीजों की हालत तेजी से बिगड़ी। शोधकर्ताओं का कहना है कि मोटापे से ग्रस्त मरीजों में संक्रमण तेजी से फैलने का खतरा होता है, क्योंकि उनकी प्रतिरोधी क्षमता की ज्यादातर ताकत शरीर में जमी अतिरिक्त चर्बी से होने वाले प्रदाह की मरम्मत में ही लग जाती है। अमेरिका में बड़ी संख्या में मौतों की यह बड़ी वजह बनकर उभरी है। ये अध्ययन एक मार्च से दो अप्रैल के बीच हुए और क्लीनिकल इन्फेक्शियस डिसीज जर्नल में प्रकाशित हुए।

<https://hindi.oneindia.com/news/india/research-claims-obese-young-people-most-at-risk-from-coronavirus-559917.html>

