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# समाचार पत्रों से चयित अंश Newspapers Clippings

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

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*Thu, 11 June 2020*

## **TEDBF: At \$71 million flyaway costs, TEDBF It will be cheaper than Rafale M and F-18 E/F**

*By Tushkar Shirodkar*

Twin Engine Deck Based Fighter (TEDBF) Program cleared by Modi Government will cost Indian Taxpayers less than Rs.13,000 crores in Research & Development cost which will include 4 Pre-Production Prototypes and yet it will be cheaper than what it could have cost India if these jets were acquired from abroad, especially if Navy had pushed to acquire 57 jets under its “Multi-Role Carrier Borne Fighters” Tender.

Rafale M per unit flyaway cost in 2011 was reported to be around \$89 million, which was flyaway costs per unit, minus its weapons package but with today’s inflation, it could easily be over \$120-150 million per unit and F-18 E/ F in its latest Block-III version is estimated to be around \$100 million flyaway costs per unit, which could still make TEDBF quite a cheaper option for the Indian Navy since Indian weapons package for the jet will be way cheaper than French and American weapons package which cost almost like a new jet.



Since Navy’s tender never moved into a request for Proposal (RFP) stage even if Lockheed Martin had jumped in and had offered its carrier-borne F-35C Joint Strike Fighter it could have set Indian taxpayers back by at least \$131.2 million flyaway costs per unit, spares, and weapons package by even more.

If Navy had demanded a Specific Enhancement package for these jets then the cost of each jet could have seen a considerable increase in cost per unit, since prices mentioned are what they were billed to their respected Navy and developed as per operational and staff requirements of their respected Naval requirements.

IAF paid Rs.12,800 crores for Specific Enhancement package for the 36 Dassault Rafale which will have India specific modifications and enhancements but at the same price, ADA will complete Research & Development cost of Rs.13,000 crores of the TEDBF Program and yet it will still turn out to be cheaper than an imported carrier-based fighter jet and will be developed as per Naval Operational requirement and will take technologies already under development for Tejas Mk2 and AMCA fighter jet program. According to ADA, the Air Force version also called ORCA will have a cost of around \$65 million flyaway costs per unit and as per idrw.org report, the Navy had committed to procuring 100 and IAF 50 jets.

Note: Tejas M1A costs \$43.6 million flyaway costs per unit and Tejas Mk2 is estimated to cost \$55-59 million flyaway costs per unit.

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<https://idrw.org/tedbf-at-71-million-flyaway-costs-tedbf-it-will-be-cheaper-then-rafale-m-and-f-18-e-f/#more-228951>

## Defence News

## Defence Strategic: National/International



Thu, 11 June 2020

### **Daulat Beg Oldi: Read about India’s strategically important airstrip in Ladakh that keeps the Chinese troops in check**

*The Indian Army maintains helipads and a gravel airstrip here, the highest airstrip in the world. The Air Force also carries routine sorties using An-32 aircraft to provide relief and supplies to the troops stationed nearby*

Amidst the ongoing stand-off between Indian and China along the Line of Actual Control (LAC), a former Vice Chief of the Indian Air Force (IAF) made a startling revelation that the IAF had once had to reactivate the historic Daulat Beg Oldie airstrip in Ladakh, without the permission of the then-Congress led UPA government in 2008.

Air Marshal Pranab Kumar Barbora, who was the Commander-in-Chief of the western air command in 2008, wanted to re-open an airstrip along the Line of Actual Control (LAC) not only to maximise logistical support for troops stationed at Ladakh but also to check the Chinese activity along the LAC and to prevent any incursion by the Chinese troops.

The plan of Indian Air Force to re-activate the strip, which could give a huge strategic advantage to the Indian troops against received a major setback after UPA government under Manmohan Singh refused to give permission. Interestingly, the government did not give any clear reason for refusing permission.

However, the Air Marshal realising the prevailing security necessities along the LAC, decided to follow his plan, without the centre’s permission.

In May 2008, the Air Marshal himself flew an An-32 transport aircraft and landed on the Daulat Beg Oldie airstrip in Ladakh without informing the government. The historic airstrip was reactivated by the Indian Air Force again.



Daulat Beg Oldie airstrip/ Image Source: India TV

## **The strategic importance of Daulat Beg Oldi airstrip**

Daulat Beg Oldi airstrip lies in one of the most strategically important terrains just near the base of the Karakoram Range and also close to Chip Chap river. The airstrip is just 8 km south of the Chinese border and 9 km northwest of the Aksai Chin Line of Actual Control between India and China.

The DBO airstrip is also one of the world's highest airstrips in the world, located and operated at an altitude of nearly 17,000 feet. It was built during the 1962 war with China, however, there were no operations here since 1965. For 43 years, there had been no clearance from Delhi to re-operate from this outpost.

The first pilot to land a C-119G Fairchild Packet aircraft was IAF's Squadron Leader CKS Raje. After a slight instability was observed in the runway after an earthquake in 1966, the landing of fixed-wing aircraft was discontinued, as per a report in SP's Aviation.

The Indian Army maintains helipads and a gravel airstrip here, the highest airstrip in the world. The Air Force also carries routine sorties using An-32 aircraft to provide relief and supplies to the troops stationed nearby. The outpost is strategically important as it helps Indian Armed Forces to keep a check on Chinese troops that patrols along the Line of Actual Control.

In a significant demonstration of its capabilities, the Indian Air Force had landed a C-130J Super Hercules transport aircraft in Daulat Beg Oldie on 20 August 2013. In fact, the DBO airstrip and the necessary infrastructure built around it has been adding weight to India's bargaining power with China in the current stand-off.

The Daulat Beg Oldi outpost is also one of the five officially agreed personnel meeting points between the Indian Army and the People's Liberation Army for regular consultations and interactions between the two armies.

<https://www.opindia.com/2020/06/daulat-beg-oldi-india-strategically-important-airstrip-ladakh-chinese-troops-lac/>

**hindustantimes**

Thu, 11 June 2020

## **Chinese air activity goes down, limited troop pullback effected**

*Both the Indian Air Force (IAF) and PLAAF (People's Liberation Army Air Force) had been flying their platforms since the stand-off between India and China's armies began a month ago in the Galwan and Pangong Tso areas of eastern Ladakh*

*By Shishir Gupta*

New Delhi: Indian and Chinese air force fighters remained on the ground, with negligible air activity noticed over the past two days, even as disengagement of troops picked up at two out of four points in the eastern Ladakh sector, officials watching the situation said on Wednesday.

The PLA Air Force fighter activity has come down considerably since military commander talks on June 6.

Fighter air activity was nil on Tuesday while there was some air movement in Aksai Chin region on Wednesday, said the officials cited above, adding that there was significant reduction of Chinese vehicles at patrolling point 14 at Galwan Nullah and a decrease in PLA troops at the contentious finger 4 in the Pangong Tso sector.

The PLA has already moved out 15 high-speed interceptor boats from the finger 4 area of the high-altitude lake.

According to senior officials, the reduction of air activity and the withdrawal from the two most contested points in eastern Ladakh means that disengagement will pick up in the coming days, with military commanders on both sides in touch with each other.

While the annual summer military exercises are on in China's Xinjiang region, the air forces on both sides conducted combat air patrol sorties around the stand-off area with air defences ready across the Line of Actual Control (LAC).

Both the Indian Air Force (IAF) and PLAAF (People's Liberation Army Air Force) had been flying their platforms since the stand-off between the two countries' armies began a month ago in the Galwan and Pangong Tso areas of eastern Ladakh.

The PLAAF brought in additional strength of half-a-squadron of fighters to the western Xinjiang region in the name of military exercises and had not only activated its air defences but also all the air bases—Kashgar, Hotan, Yarkand, Korla, Ngari-Gunsa—in the region. The Ministry of External Affairs remains tight-lipped about the ground situation in eastern Ladakh, but it is understood that the disengagement will be done slowly and steadily by the two armies with the military commanders being in touch with each other.

Even though the Chinese PLAAF has undertaken a number of sorties in the vicinity of eastern Ladakh like the Indian Air Force, senior Indian military commanders believe that this fighter flying was on account of exercises. "As we have no confirmation that the fighters were loaded with ammunition and missiles, we believe that the Chinese Air Force was participating in military exercises. Weaponising the aerial platform would have indicated the intent of the Chinese military," a senior official said.

Senior IAF officials said the loading of air-to-air missiles is a sure indicator of the adversary's intent as the seekers of missiles have limited shelf life and hence there is no point in loading the fighters with expensive weapons if there is no hostile intention.

<https://www.hindustantimes.com/india-news/chinese-air-activity-goes-down-limited-troop-pullback-effected/story-JOxv2xKp5DSgS19SVhfvKJ.html>



Thu, 11 June 2020

## Explained: The strategic road to DBO

*In the reporting on the LAC stand-off, the Darbuk-Shyok-Daulat Beg Oldie (DSDBO) road has often appeared. What is this all-weather road built by India over nearly 20 years, and why does it matter?*

*By Nirupama Subramanian*

Of the possible triggers cited for the People's Liberation Army's (PLA) targeting of Indian territory along the Line of Actual Control (LAC) in eastern Ladakh, the construction of the 255-km long Darbuk-Shyokh-Daulat Beg Oldie (DSDBO) all-weather road is possibly the most consequential.

Running almost parallel to the LAC, the DSDBO road, meandering through elevations ranging between 13,000 ft and 16,000 ft, took India's Border Roads Organisation (BRO) almost two decades to construct.

Its strategic importance is that it connects Leh to DBO, virtually at the base of the Karakoram Pass that separates China's Xinjiang Autonomous Region from Ladakh.

DBO is the northernmost corner of Indian territory in Ladakh, in the area better known in Army parlance as Sub-Sector North.

DBO has the world's highest airstrip, originally built during the 1962 war but abandoned until 2008, when the Indian Air Force (IAF) revived it as one of its many Advanced Landing Grounds (ALGs) along the LAC, with the landing of an Antonov An-32.



In August 2013, the IAF created history by landing one of its newly acquired Lockheed Martin C-130J-30 transport aircraft at the DBO ALG, doing away thereafter with the need to send helicopters to paradrop supplies to Army formations deployed along the disputed frontier.

Defence Minister Rajnath Singh has acknowledged that “large numbers” of Chinese troops had massed along the LAC, and had “come a little further than they used to earlier”, making the situation “different” this time from earlier incidents between the two sides in the same region.

The Chinese build-up along the Galwan River valley region overlooks, and hence poses a direct threat to the DSDBO road.

The token mutual de-escalation of the two armies, ahead of a series of bilateral consultations between senior military and other officials, is expected to be completed over an extended period. The withdrawals are subject to reciprocal endorsement.

The DSDBO highway provides the Indian military access to the section of the Tibet-Xinjiang highway that passes through Aksai Chin. The road runs almost parallel to the LAC at Aksai Chin, the eastern ear of erstwhile Jammu and Kashmir state that China occupied in the 1950s, leading to the 1962 war in which India came off worse.

The DSDBO’s emergence seemingly panicked China, evidenced by the 2013 intrusion by the PLA into the nearby Depsang Plains, lasting nearly three weeks.

DBO itself is less than 10 km west of the LAC at Aksai Chin. A military outpost was created in DBO in reaction to China’s occupation of Aksai Chin, and is at present manned by a combination of the Army’s Ladakh Scouts and the paramilitary Indo-Tibetan Border Police (ITBP). Both forces regularly patrol the LAC.

There are additional strategic considerations in the area.

To the west of DBO is the region where China abuts Pakistan in the Gilgit-Baltistan area, once a part of the erstwhile Kashmir principality.

This is also the critical region where China is currently constructing the China-Pakistan Economic Corridor (CPEC) in Pakistan-Occupied Kashmir (PoK), to which India has objected.

As well, this is the region where Pakistan ceded over 5,180 sq km of PoK to China in 1963 under a Sino-Pakistan Boundary Agreement, contested by India.

What makes the DSDBO an “all-weather” road is the 37 prefabricated military truss bridges along it. Previously an old road, largely a track, existed along the same alignment as the pucca road, but was practically unusable during summer due to the flooding of the snow-fed Shyok river – or River of Death – and its tributaries, including the Chip Chap, Galwan, and Chang Chenmo that crisscross it.

The Shyok river itself is a tributary of the Indus, flowing through northern Ladakh and Gilgit-Baltistan. It eventually re-joins the Indus at Keris, east of Skardu.

In October 2019, Defence Minister Singh inaugurated a 500-m-long Bailey Bridge on the road. The bridge is named after Colonel Chewang Rinchen, an Indian Army hero from Ladakh. Located at 14,650 ft, it is believed to be the world’s highest such bridge.

An alternative route exists from Leh to Daulat Beg Oldie through the 17,500-ft-high Sasser Pass that was part of the ancient Silk Route connecting Leh to Yarkand. It leads from the Nubra Valley into the Upper Shyok Valley en route to China’s Karakoram Pass, indicating the topographical and strategic interlinking of the entire disputed region between India and China and to a lesser extent, Pakistan.

For most of the year bar a few summer months, Sassar La — or pass — is snow-bound and inaccessible. The BRO is currently building a “glaciated road” between Sasoma (north of Leh, near the Nubra River) to the Sasser Pass, but it could take several years to complete. But even when it is, the alternate DBDSO will remain critical to the Army and its defences in the region.

<https://indianexpress.com/article/explained/lac-stand-off-india-china-darbuk-shyok-daulat-beg-oldie-dsdbo-road-6452997/>

## China confirms: Both are taking steps to ease LAC situation

*In Beijing, asked about reports of troops on both sides disengaging and moving back to their previous positions, Chinese foreign ministry spokesperson Hua Chunying told a media briefing that both the countries are taking steps to ease the situation along the borders.*

*By Shubhajit Roy*

New Delhi: A day after it emerged that Indian and Chinese troops have begun moving back from standoff positions at different points in the Galwan and Hot Spring areas of Ladakh, Beijing said on Wednesday that the two sides have started implementing the “positive consensus” reached by senior commanders of the two countries on June 6 and are taking steps to “ease” the situation along the Line of Actual Control (LAC).

This is the first official response from the Chinese government, while the Indian side has not issued any statement so far.

Meanwhile, the two sides held Major General-level talks, which lasted over four hours, on Wednesday. Sources said the Indian side pressed for restoration of status quo ante, reiterating that troops should move back to the positions held in April-end, before the standoff began. The Indian side also sought reduction in the number of Chinese troops in the region.

In Beijing, asked about reports of troops on both sides disengaging and moving back to their previous positions, Chinese foreign ministry spokesperson Hua Chunying told a media briefing that both the countries are taking steps to ease the situation along the borders.

“Recently, the diplomatic and military channels of [China](#) and India held effective communication on the situation along the border and reached positive consensus,” she said. “The two sides are following this consensus to take actions to ease the situation along the borders,” she added.

On Monday, Beijing had said both sides agree that there is need to implement the “consensus” among the leaders of the two countries, and ensure that “differences do not escalate into disputes”.

The Chinese spokesperson had said that both sides had maintained “close” communication; in today’s statement, the spokesperson said there was “effective communication” — signalling a forward movement in the negotiations.

The movement at the border has been perceived as the first possible sign of de-escalation along the LAC. However, Indian officials have cautioned that it should be seen as a “first step” towards a long, phased and gradual process of disengagement, and there should be no expectation of immediate or quick withdrawal of troops and weaponry.

The disengagement process may take weeks. “Physical verification as well as satellite imagery will help us in complete disengagement,” sources said. Deployments by both sides took place over the last one month, and it will take them time to step back.

Army sources have confirmed that troops moved back on either side after the meeting between XIV Corps Commander Lt General Harinder Singh and South Xinjiang Military District Commander Major General Liu Lin at the Chushul-Moldo border point on June 6.

It was decided that officers at division, brigade and battalion levels would hold discussions to settle local issues for further de-escalation. Resolution of the Pangong Tso standoff may require another meeting at the level of Corps or Division Commanders, sources had said.

The two sides were involved in faceoffs at five locations: Patrol Points 14, 15 and 17, Finger area of Pangong Tso and Chushul. While troops are stepping back in other areas, the standoff continues in the contested Fingers area on the north bank of Pangong Tso where Chinese troops are



not allowing Indian patrols beyond Finger 4 — it is 8 km west of Finger 8 which India says denotes the LAC.

After the meeting of the Indian and Chinese army commanders, the Ministry of External Affairs had said on Sunday: “Both sides agreed to peacefully resolve the situation in the border areas in accordance with various bilateral agreements and keeping in view the agreement between the leaders that peace and tranquility in the India-China border regions is essential for the overall development of bilateral relations.” There has been no statement from the Indian government since then. *(With inputs from Krishn Kaushik, New Delhi)*

<https://indianexpress.com/article/india/chinese-troops-india-china-relations-border-dispute-lac-face-off-6453244/>



Thu, 11 June 2020

## Major Generals exchange ideas, more talks lined up on Sino-Indian stand-off

*The Indian Army retaliated, leading to injuries to large number of personnel from both sides*

*By Mayank Singhand Pushkar Banakar*

New Delhi: A day after Indian and Chinese troops partially retreated along the Line of Actual Control (LAC), bilateral Major General-level talks were held on Wednesday, a senior Army official said.

According to sources, both sides exchanged views, which would be reviewed at a senior level. Wednesday's meeting went on for more than four-and-a-half hours, sources said.

“More meetings are lined up in future both at the Division Commander and Sector Commander levels to flesh out specific details and arrive at a de-escalation plan. These meetings will culminate in the Corps Commander-level meeting,” sources added.

Meanwhile, the Chinese foreign ministry said that both sides were trying to ease the situation following diplomatic and military talks. “Recently, India and China held effective communication through diplomatic and military channels and reached a positive consensus. The two sides are following this consensus to take actions to ease the situation along the borders,” Chinese Foreign Ministry spokesperson Hua Chunying said.

Indian and Chinese troops have been involved in a stand-off since the intervening night of May 5 and 6 after troops from the People's Liberation Army (PLA) attacked Indian soldiers between Finger 4 and Finger 5 positions near the LAC. The Indian Army retaliated, leading to injuries to large number of personnel from both sides.

Following the escalation of tensions, Corps Commander-level talks were held on June 6. The dialogue was held between Lt General Harinder Singh, commander of the 14 Corps and Major General Liu Lin, commander of the South Xinjiang Military Region, at Moldo on the Chinese side. The Chinese foreign ministry last week had said the situation along the LAC was stable and controllable.

<https://www.newindianexpress.com/nation/2020/jun/11/major-generals-exchange-ideas-more-talks-lined-up-on-sino-indian-stand-off-2155108.html>

## Russia does not want to interfere in India-China stand-off: Top lawmaker

*Konstantin Kosachev, the Chair of Russia's Federation Council Committee on Foreign Affairs, "We understand the sovereignty of India, we understand the sovereignty of China. I really believe Russia should not interfere in these kinds of disputes, but our role is well required in many other situations comparable to the one you mentioned," he said in response to a question on the ongoing standoff*

*By Dipanjan Roy Chaudhury*

New Delhi: Russia should not interfere in disputes like the current border standoff between India and China and two countries should use their bilateral mechanisms, but its mission is to be an 'honest broker' to deter any use of military force, according to a top Russian lawmaker.

Konstantin Kosachev, the Chair of Russia's Federation Council Committee on Foreign Affairs, "We understand the sovereignty of India, we understand the sovereignty of China. I really believe Russia should not interfere in these kinds of disputes, but our role is well required in many other situations comparable to the one you mentioned," he said in response to a question on the ongoing standoff.

"Our mission is to be an honest broker to contribute to a dialogue and to prevent and avoid any solutions connected with the use of military force. This is what we all the time transfer as political messages both to our Chinese and Indian friends," said Kosachev.

"...I believe the anti-Russian campaign in the West has additionally contributed to closer relations between Russia and China. I would like to stress that our bilateral relations are never aimed against any other country," he said, adding, "Good relations between Russia and China and good relationship between Russia and India are two factors which provide a good opportunity for finding solutions to problems that exist between China and India."

He also said US President Donald Trump's move to select Russia, India, Australia and South Korea was not a move to expand the G-7 as these four countries will be invitees and not part of the Summit.

Speaking from Moscow with a group of Indian journalists via video conferencing, Kosachev said Russia has asked for explanations from the US over Trump's statement extending the G7 invitation to the four countries, but is yet to receive a response. Therefore, a final decision has not yet being taken, he said.

On a question on India's participation in the Afghan peace process and the issue of involvement of the Taliban, he said in Russia, the Taliban is classified as an extremist movement, but is not prohibited and it has to be recognised that it is an important part in the ongoing peace dialogue.

"India is a neighbouring state to Afghanistan and I am absolutely in favour of having India has an important participant in the ongoing dialogue. I would recommend Russia to take efforts to involve India as much as possible," he said.

<https://economictimes.indiatimes.com/news/defence/russia-does-not-want-to-interfere-in-india-china-stand-off-top-lawmaker/articleshow/76309365.cms>

## Army plans to expand roles for elite special and airborne forces known for surgical strikes

*Army has proposed to change the way volunteers are selected and trained for special forces under Parachute Regiment, wants a maximum of 500 personnel trained in every course*

*By Amrita Nayak Dutta*

New Delhi: The Army is reviewing the selection process of its personnel volunteering for the elite special forces and airborne battalions, which are known for conducting cross-border surgical strikes and other covert operations, to expand their role in multiple operational theatres.

Top defence sources said it is being proposed that there should be a centralised training-based selection process of volunteers at the Special Forces Training School (SFTS) at Nahan in Himachal Pradesh. The school may also shift to Bakloh in the same state.

Currently, this rigorous training-based selection process, called probation, is conducted by different units of the Parachute Regiment.

The Parachute Regiment, under which come the special forces and airborne battalions, comprises specially trained personnel who volunteer from all arms and services of the Army. Officers and all other ranks can volunteer to join the regiment and the special forces.

The volunteers are put through a difficult probation of three months, and are inducted into the regiment or the special forces once they qualify.

### **Why the change?**

According to sources, the current selection to the Parachute Regiment is conducted by the units in line with their operational requirements based on fixed theatres.

“So if a person is selected for operating in the deserts, he usually continues to operate in that theatre. But with changing operational requirements, each special forces unit may be needed to perform its role in more than one theatre,” a top defence source explained.

The source added that there is a requirement to multitask and also work in conjunction with other special forces units, and thus the need to expand the spectrum of training.

“Each soldier, after his probation, should expect and be prepared for operations in any terrain and operational environment,” the source said.

“The new system will standardise the selection and training procedures.”

A second source said the need to revisit the selection process also arose to address the shortfall of volunteers with the expansion of Parachute Regiment and special forces.

### **What is the current process?**

According to the current process, officers who volunteer first go to the Parachute Regimental Training Centre (PRTC) in Bengaluru and are subsequently sent to the Parachute Regiment units for the probation period. However, other ranks directly go to the units for the probation.

No one organisation conducts the probation, instead it is handled by the special forces unit taking in the volunteers.

“Each special forces unit prides itself in certain traditions and ethos ... the probation is to ensure that the soldier is mentally adapted to these and willing to accept them,” said the first source quoted.

Officers who volunteer directly from the Army training academies — such as the Indian Military Academy in Dehradun and the Officers Training Academy in Chennai — or after a few years of service undergo an initial month-long training at the PRTC in Bengaluru.

The Military Secretary’s Branch assigns volunteers to airborne or special forces units during the phase 1 probation based on a battalion’s officer strength.

On clearing phase 1, officers move to the phase 2 of probation for three months.

In case of jawans, new recruits go to the PRTC and undergo the entire process. Those who volunteer from other regiments directly go to the units they are detailed for, and undergo the three-month probation there.

The Parachute Regiment units are allotted by infantry directorate based on deficiencies.

Most Army personnel volunteer for the special forces within the first two years of their career.

### **What is the new proposal?**

The Army has proposed that volunteers for the special forces and the Parachute Regiment be given a two-month notice before the selection process begins, after which a week-long preparatory phase of orientation will take place.

Once the orientation is done, the first phase of training will include a four-week selection and screening process at Special Forces Training School.

After screening, they will be allotted to Parachute or special forces battalions through a board of officers.

Once allotted a battalion, volunteers will undergo phase 2 of probation — three months of training in basic skills. This will be different for special forces and airborne volunteers.

Subsequently, the selected group will go through a third level of training, which will include four weeks of the para basic course at the Parachute Training School in Agra.

The proposal says four courses can be held throughout the year — in March, June, September and December — with a maximum of 500 volunteers per course, including officers.

<https://theprint.in/defence/army-plans-to-expand-roles-for-elite-special-and-airborne-forces-known-for-surgical-strikes/438995/>

# अमर उजाला

Thu, 11 June 2020

## भारतीय सेना को मिले 21 हेलीकॉप्टर पायलट

पांच महीने के चुनौतीपूर्ण जमीनी प्रशिक्षण एवं कुशल उड़ान के अभ्यास के बाद भारतीय सेना को 21 हेलीकॉप्टर पायलट मिले। बुधवार को बेसिक फ्लाईंग ट्रेनिंग स्कूल ( बीएफटीएस ) की ओर से वायु सेना स्टेशन बम्हरोली में हुए विदाई समारोह में इन जाबांज हेलीकॉप्टर पायलट को सम्मानित किया गया।

कार्यक्रम में बतौर समीक्षा अधिकारी शामिल हुए सेंट्रल एयर कमान बम्हरोली के एयर कमांडर केएच सुरेश ने सफलता प्राप्त प्रशिक्षु अफसरों को प्रमाणपत्र प्रदान किया। साथ ही अक्ल आने वाले अफसरों को ट्राफी से नवाजा। इस दौरान उड़ान में प्रथम आने वाले कैप्टन शुभम बिल्लौर, जमीनी पाठ्यक्रम में अक्ल आने वाले कैप्टन दिवाकर ब्रह्मचारी और ओवरऑल बेस्ट प्रदर्शन के लिए कैप्टन बी प्रभुदेवन को ट्राफी देकर सम्मानित किया गया।



बीएफटीएस के प्रशिक्षकों में स्कवाड्रन लीटर चंद्रजीत शेखावत को सर्वश्रेष्ठ प्रशिक्षक घोषित किया गया। उन्हें ट्राफी भी दी गई। इस अवसर पर एयर कमांडर केएच सुरेश ने सभी अफसरों को शुभकामनाएं दीं। उन्होंने बदलती तकनीक पर भी चर्चा की। कहा कि सैन्य हेलीकॉप्टर वैमानिक के कार्य में किसी भी प्रकार की त्रुटि के लिए कोई स्थान नहीं होता। खासतौर से तब जब हम मुश्किल में फंसे देशवासियों को बचाने के कार्य में हो। बतौर समीक्षा अधिकारी उन्होंने सभी से भविष्य में युद्ध कला के लिए तैयार रहने को कहा।

<https://www.amarujala.com/uttar-pradesh/allahabad/indian-air-force-news-indian-air-force-gets-21-helicopters>

# Gunjan Saxena Biography: Early life, education, carrer, awards and unknown facts

*Gunjan Saxena Biography: Flight Lieutenant Gunjan Saxena is the first woman IAF officer to enter a war zone. During the Kargil war in 1999, Gunjan flew Cheetah helicopter in the combat zone and rescued several soldiers*

*By Arfa Javaid*

Flight Lieutenant Gunjan Saxena is the first woman Indian Air Force (IAF) officer to enter a war zone. In 1999, during Kargil War, Gunjan Saxena along with her fellow Lieutenant Srividya Rajan flew a Cheetah helicopter in the combat zone and rescued several soldiers. Film Director Karan Johar took to Twitter to release the teaser of his upcoming film 'Gunjan Saxena: The Kargil Girl' which is the biopic of lieutenant Gunjan Saxena. Actress Janhvi Kapoor is roped in for the role.



Gunjan Saxena

## Gunjan Saxena: Early Life and Education

Gunjan Saxena was born in an Army officer family in the year 1975 and is currently 44 years old. Her father and brother served the Indian Army. Gunjan Saxena completed her graduation from Hansraj College, University of Delhi. She joined Safdarjung Flying Club, New Delhi to learn the basics of flying during her college days.

## Gunjan Saxena: Personal Life

Gunjan Saxena is married to an IAF officer who is a pilot by profession and flies IAF Mi-17 Helicopter. The couple has a daughter Pragma who was born in the year 2004.

## Gunjan Saxena: Career

Flight Lieutenant Gunjan Saxena got selected in the Indian Air Force along with 25 other women trainee pilots in the year 1994. This was the first batch of women IAF trainee pilots. She was posted in Udhampur, Jammu and Kashmir.

During the Kargil War between India and Pakistan in 1999, Gunjan along with her fellow lieutenant Srividya Rajan got an opportunity to serve the nation. Indian Army carried out two major operations during Kargil War-- Operation Vijay and Operation Safed Sagar. Flight Lieutenant Gunjan Saxena was associated with Operation Vijay. She was tasked to evacuate injured soldiers, surveillance of Pakistani soldiers' positions in the war zone and supplying crucial types of equipment to the Indian army units at Dras and Batalik sectors.

In an interview, Gunjan Saxena stated that she had to face Pakistani gunfire and missiles while evacuating the injured soldiers from the war zone.

Women in the 19th century were not allowed to fly in the war zone due to the extreme physical and mental pressure but at the time of Kargil War, India desperately needed all the pilots to attain victory in Pakistan. Thus, all male and female pilots were called in to serve the nation.

## Gunjan Saxena: Awards

Flight Lieutenant Gunjan Saxena was the first woman to receive the 'Shaurya Chakra Award'. She was awarded for her courage and determination in the Kargil War zone.

## Gunjan Saxena: Unknown Facts

1. While evacuating the dead and injured officers from the war zone, Gunjan's aircraft was fired upon by the Pakistani troops and she has a narrow escape in the steep valleys of Kargil.

2. Flight Lieutenant Gunjan Saxena is also known as the 'Kargil Girl'.
3. During the Kargil War nearly 500 Indian Army officers, soldiers and jawans were killed.
4. In 2004, after serving for 7 years as a Chopper Pilot, Gunjan Saxena's service with Indian Military ended.

<https://www.jagranjosh.com/general-knowledge/gunjan-saxena-biography-1591793632-1>



Thu, 11 June 2020

## Commodore Neeraj Uday takes over command of INS Kalinga

*By Summit Bhattacharjee*

Visakhapatnam: Commodore Neeraj Uday has assumed the office of the Commanding Officer of INS Kalinga, the premier missile base of Indian Navy, an official release said here on Wednesday.

Commodore Neeraj Uday took charge from Commodore Rajesh Debnath at an impressive ceremonial parade on Tuesday. He also assumed the office of the Station Commander of Naval Station at Bheemunipatnam. Commissioned in the Indian Navy on November 30, 1991, Cmde. Neeraj Uday is an alumnus of 4th Naval Engineering Course. He has done his masters in power system engineering from the Indian Institute of Technology, Kharagpur, where he was awarded a silver medal for academic excellence.

Cmde. Neeraj Uday has been commended by the Chief of the Naval Staff in 2003 and FOC-in-C (East) in 2013. He is also the recipient of the VK Jain Gold Medal.

His major shore appointments include AGM (PP) at Naval Dockyard Visakhapatnam, Principal Director PMG CMS and Director Fleet Maintenance at IHQ MoD (N) New Delhi. He has also served on frontline warships Rajput, Talwar and Ranjit.

<https://www.thehindu.com/news/national/andhra-pradesh/commodore-neeraj-uday-takes-over-command-of-ins-kalinga/article31798547.ece>



Commodore Neeraj Uday (right) taking charge as the Commanding Officer of INS Kalinga from Commodore Rajesh Debnath in Visakhapatnam.

## Deep Submergence Rescue Vehicle Complex opened in Vizag

*It will accommodate submarine rescue system and other assets*

*By Summit Bhattacharjee*

Visakhapatnam: A Deep Submergence Rescue Vehicle (DSRV) Complex was inaugurated by Vice Admiral Atul Kumar Jain, Flag Officer Commanding-in-Chief of Eastern Naval Command (ENC) in Visakhapatnam on Wednesday.

Equipped with the state-of-the-art facilities, the complex is designed to accommodate the newly inducted submarine rescue system and store the DSRV assets in the rescue-ready state. The DSRV system consists of a submarine rescue vessel, a remote operations vehicle and side scan sonar and associated equipment. It has diver decompression chambers and hyperbaric medical equipment to decompress submariners after being rescued from sunken submarines. It can be mobilised by air or road to facilitate submarine rescue operationseven at distant locations.

The Indian Navy has inducted two such systems which will provide rescue cover to submarines on the east and west coast of India.

Currently, there are about 40 nations that operate submarines, of which only a few have submarine rescue capability in any form. The third generation submarine rescue capability of Indian Navy can be sought by the other navies for assistance during contingencies in the Indian Ocean Region.

<https://www.thehindu.com/news/national/andhra-pradesh/deep-submergence-rescue-vehicle-complex-opened-in-vizag/article31798505.ece>



The DSRV Complex in Visakhapatnam has been designed to store the assets in a rescue-ready state.



Thu, 11 June 2020

## Army Chief to be Chief guest at IMA passing out parade taking place under COVID-19 shadow

Army Chief General Manoj Mukund Naravane will be the chief guest at the Indian Military Academy's (IMA) passing out parade on June 13, where apparently for the first time when parents and relatives of the cadets would not be allowed due to the COVID-19 pandemic. The parents or relatives of cadets usually pip-in the ranks on the shoulders of cadets after the passing out parade and they become commissioned officers in the Indian Army.

Due to the restrictions, the ranks would be put on the shoulders of cadets by the instructors and their families who are staying inside the academy premises. Adjusting to the situation, the academy has also made arrangements for broadcasting the parade on social media so that



the families can see their wards getting commissioned. Due to the coronavirus threat, the cadets would also not get an opportunity to go on leave before joining their respective units.

Around 400 cadets including some from friendly foreign countries would be passing out from the academy in this term. Every six months, the IMA organises a passing out parade for its cadets who join different arms and services of the Indian Army while the foreign cadets go onto join the armies in their respective countries.

<https://idr.w.org/army-chief-to-be-chief-guest-at-ima-passing-out-parade-taking-place-under-covid-19-shadow/#more-228960>

## modern diplomacy

Thu, 11 June 2020

# India defense cooperation: A South Asian puzzle

By Muhammad Shakir Baacha

In pursuit of military modernization, India has expanded the scope and range of its defence and strategic cooperation even with countries that are geographically distant. Indo-French defence cooperation is one instance of India's growing strategic partnerships which have significantly undermined the regional security environment of the entire South Asian region.

Indo-French defence cooperation gained new momentum when, in 2016, the Modi government signed a problem deal with France for the sale of 36 Rafale medium multi-role combat aircraft (MMRCA). The deal came under immense political scrutiny within India, where opposition parties accused the government of having overpaid for the combat jets and of promoting crony capitalism. Under the agreement, France's Dassault Aviation agreed to invest 50 percent of the 7.8 billion euro Rafale contract in India to manufacture aircraft components with Indian billionaire Anil Ambani's Reliance Defense, who is known to be a close friend of PM Modi.

France's supply of the assault jet that the French Air Force successfully used to rehearse a nuclear strike mission, is dangerous and worrisome for South Asian stability. According to the military sources, "France tested all phases of a nuclear strike with an 11-hour mission that saw a Rafale fighter jet refuel and fire an unarmed missile capable of carrying a nuclear warhead." The sale to India ticks all criteria for fueling regional tensions, particularly with Pakistan. French decision to sell nuclear capable aircrafts is to fuel the regional arms race something a responsible permanent member of U.N Security Council should avoid.

Ironically, in a similar situation, France cancelled the Mistral deal with Russia as a result of immense pressure from its European allies, including Poland and other East-European NATO members. According to a transcript from the French Senate's International Affairs Committee, "Eastern European NATO member states have put "significant pressure" to scrap the USD\$ 1.3 billion deal with Russia." Mistral is the French Navy's new 21,300t amphibious assault, command and power projection ship with a payload capacity and the versatility to carry up to 16 heavy helicopters as well as one-third of a mechanized regiment. One wonders how the long-cherished "principle and terms of the purchase" that actually allowed France to scrap this deal with Russia, lost relevance while selling nuclear-capable jets to India. It also leads all civilized nations to the question of what kind of end-user agreement France has attached with the Rafale sale; and what if India, under its 'Make in India' plan, replicates Rafale technology and exports it to other states that threaten France's security in the future?

France's sale of Rafale jets to India would not be just another piece of military gear for the Indian Air Force. Instead, it would constitute the acquisition of a state-of-the-art nuclear capable combat weapon to a militarily revisionist and fascist state.

South Asia is considered to be one of the most volatile regions of the world. Strategic communities around the world are unanimous in their views that India and Pakistan's animus relationship has the potential to trigger a nuclear war; more importantly, the massive influx of



deadly weapons in the region without taking care of regional anxiety is worrisome. For a few dollars more, France has become a direct party in fueling regional nuclear instability and nuclear risk with this transaction.

Unfortunately, France's defence cooperation with India is not limited to fighter jets. Both countries have extended their defence partnership to the maritime domain. The Indian defence ministry has already awarded the French Shipbuilder Naval Group a \$4.16 billion contract for the construction of six Scorpene-class (Kalvari-class) SSKs in partnership with Mazagon Dock Limited. The French Defence Minister termed naval cooperation with India as a "shining illustration of the exemplary nature of our technological and industrial cooperation."

French cooperation with India in multiple domains of defence may be driven by the lucrative Indian market, but its regional ramifications are disastrous in the long run. India, under the Modi rule, is emerging as a revisionist power, which in itself is a real threat for global peace. In this regard, France must consider the regional security environment before selling the latest military equipment to India, as hostilities and regional anxieties have directly been affected by the defence deal for economic gains. If France can even scrap a whole defence deal to address its European allies' concerns, it is also plausible to consider Pakistan's security concerns with respect to French weaponry in Indian arsenal. France must accept the fact that such a trade with India is at the cost of Pakistan's security. Unlike other regions, South Asia is considered to be a nuclear flashpoint, and France's contribution to the Indian defence forces is virtually leading the region towards more instability. Therefore, as a civilized country, France must re-think before arming India.

<https://moderndiplomacy.eu/2020/06/11/india-defense-cooperation-a-south-asian-puzzle/>

**TIMESNOWNEWS.COM**

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## **India keeping a close eye on ongoing Pakistan air force wargames 'High Mark'**

*The Pakistani aircraft also have been practising drills like defending against night-time raids like the Balakot aerial strikes by the Indian Air Force in February last year, government sources said*

New Delhi: India is keeping a close eye on the ongoing Pakistan Air Force war games code-named 'High Mark' involving its fighter and other aircraft fleets. The wargames are being held over Pakistan air space and a Notice to Airmen (NOTAM) had been issued by the Pakistan Air Force to inform about its aerial drills, government sources told ANI.

A close watch is being kept on their activities by the Indian Air Force as the Pakistani jets have been carrying out different manoeuvres including night-time flying by its combat aircraft including Chinese JF-17, F-16s, and Mirage-3s, sources said.

The Pakistani aircraft also have been practising drills like defending against night-time raids like the Balakot aerial strikes by the Indian Air Force in February last year, they said.

The Pakistani jets also flew extensively over Karachi city last night in practice missions. Last month also, Pakistan had started flying night time sorties anticipating a retaliation by Indian Air Force after the death of a Colonel in an encounter in Handwara in Kashmir.

<https://www.timesnownews.com/india/article/india-keeping-a-close-eye-on-ongoing-pakistan-air-force-wargames-high-mark/604283>



Thu, 11 June 2020

# HKUST scientists develop world's first spherical artificial eye with 3D retina

An international team led by scientists at the Hong Kong University of Science and Technology (HKUST) has recently developed the world's first 3D artificial eye with capabilities better than existing bionic eyes and in some cases, even exceed those of the human eyes, bringing vision to humanoid robots and new hope to patients with visual impairment.

Scientists have spent decades trying to replicate the structure and clarity of a biological eye, but vision provided by existing prosthetic eyes - largely in the form of spectacles attached with external cables, are still in poor resolution with 2D flat image sensors. The Electrochemical Eye (EC-Eye) developed at HKUST, however, not only replicates the structure of a natural eye for the first time, but may actually offer sharper vision than a human eye in the future, with extra functions such as the ability to detect infrared radiation in darkness.

The key feature allowing such breakthroughs is a 3D artificial retina - made of an array of nanowire light sensors which mimic the photoreceptors in human retinas. Developed by Prof. FAN Zhiyong and Dr. GU Leilei from the Department of Electronic and Computer Engineering at HKUST, the team connected the nanowire light sensors to a bundle of liquid-metal wires serving as nerves behind the man-made hemispherical retina during the experiment, and successfully replicated the visual signal transmission to reflect what the eye sees onto the computer screen.

In the future, those nanowire light sensors could be directly connected to the nerves of the visually impaired patients. Unlike in a human eye where bundles of optic nerve fibers (for signal transmission) need to route through the retina via a pore - from the front side of the retina to the backside (thus creating a blind spot in human vision) before reaching the brain; the light sensors that now scatters across the entire man-made retina could each feed signals through its own liquid-metal wire at the back, thereby eliminating the blind spot issue as they do not have to route through a single spot.

Apart from that, as nanowires have even higher density than photoreceptors in human retina, the artificial retina can thus receive more light signals and potentially attain a higher image resolution than human retina - if the back contacts to individual nanowires are made in the future. With different materials used to boost the sensors' sensitivity and spectral range, the artificial eye may also achieve other functions such as night vision.

"I have always been a big fan of science fiction, and I believe many technologies featured in stories such as those of intergalactic travel, will one day become reality. However, regardless of image resolution, angle of views or user-friendliness, the current bionic eyes are still of no match to their natural human counterpart. A new technology to address these problems is in urgent need, and it gives me a strong motivation to start this unconventional project," said Prof. Fan, whose team has spent nine years to complete the current study from idea inception.

The team collaborated with the University of California, Berkeley on this project and their findings were recently published in the prestigious scientific journal *Nature*.

"In the next step, we plan to further improve the performance, stability and biocompatibility of our device. For prosthesis application, we look forward to collaborating with medical research experts who have the relevant expertise on optometry and ocular prosthesis," Prof. Fan added.

The working principle of the artificial eye involves an electrochemical process which is adopted from a type of solar cell. In principle, each photo sensor on the artificial retina can serve as a nanoscale solar cell. With further modification, the EC-Eye can be a self-powered image sensor, so there is no need for external power source nor circuitry when used for ocular prosthesis, which will be much more user-friendly as compared with the current technology.

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[https://www.eurekalert.org/pub\\_releases/2020-06/hkuo-hsd061020.php](https://www.eurekalert.org/pub_releases/2020-06/hkuo-hsd061020.php)



Thu, 11 June 2020

## Scientists present new method for remote sensing of atmospheric dynamics

Physicists from the Moscow Institute of Physics and Technology have developed a new method for wind speed remote measurements. It may complement the widely employed lidar and radar sensing techniques. The paper came out in *Atmospheric Measurement Techniques*.

Wind speed measurements are essential for many applications. For example, assimilation of these data is required for fine-tuning climatological and meteorological models, including those used for weather forecasting. Despite the progress made in remote sensing over recent decades, measuring the movement of air masses is still a challenge. Most of the data are collected by means of traditional contact methods: via sensors installed on weather stations or sounding balloons. Lidar or sonar anemometers are commonly used for local measurements at distances of several hundred meters or less. Weather radars can help at distances of up to tens of kilometers. However, the latter are normally ineffective outside the troposphere -- the Earth's closest atmospheric layer, which is 10 to 18 kilometers thick. Satellite-based direct measurements of the movement of air masses are rare, only occasional experiments have been accomplished.

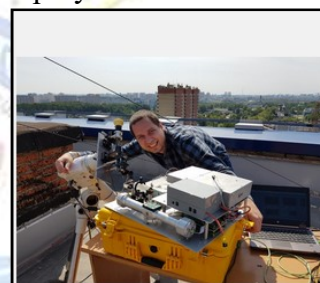


Image: Graduate student Sergei Zenevich, a co-author of the study, is setting up a heterodyne spectrometer for observations on the roof of the Applied Mathematics Building of the Moscow Institute.

"Information on atmospheric dynamics is still fairly hard to obtain through direct observations. As of today, the most reliable way to remotely measure wind speeds is using Doppler radars. This technique involves sounding the environment with a powerful source of radiation and therefore takes considerable resources, including power, equipment mass, size, and cost. Our instrument offers an advantage in terms of these parameters: It's compact, inexpensive, and involves commercial components available in the telecom market," commented the study's lead author Alexander Rodin, who heads the Applied Infrared Spectroscopy Lab at MIPT.

The instrument is based on the principle of heterodyne detection, which is at work in many radio engineering applications. However, it should be noted that the instrument operates in the optical, or to be more precise, the near infrared range -- at a wavelength of 1.65 micrometers. The operating principle is based on combining the received signal (in this case, solar radiation that has passed through the atmosphere) and an etalon source (local oscillator), namely a tunable diode laser. Since the laws of electromagnetic wave propagation are the same for all spectral ranges, the principle of heterodyning is equally applicable to both radio signals and infrared radiation.

However, heterodyning faces certain difficulties if applied to the optical range. For instance, highly accurate matching of wave fronts is required, as displacement by even a fraction of a wavelength is unacceptable. The MIPT team employed a simple solution, applying a single-mode optical fiber.

A further challenge is the need for extremely precise frequency control of the local oscillator, with an error of no more than 1 MHz, a tiny quantity compared to the optical radiation frequency. To address this, the team had to employ a tricky approach and delve deep into the processes of diode laser emission. These efforts have resulted in a new instrument -- an experimental laser heterodyne spectroradiometer -- characterized by an unprecedented spectral resolution in the near infrared range. It measures the infrared atmospheric absorption spectrum with an ultra-high spectral resolution, making it possible to retrieve wind speeds with an accuracy of 3 to 5 meters per second.

"Building an instrument, even with record characteristics, is only half of the story," Rodin commented. "To retrieve wind speed at various altitudes up to the stratosphere using the measured spectra, you need a special algorithm that solves the inverse problem."

"We decided not to use machine learning but to implement a classical approach based on Tikhonov regularization. Despite the fact that this method is known for more than half a century, it is widely used all over the world, and its capabilities are far from being exhausted," the scientist insisted.

The calculations will enable vertical wind profile retrieval from the surface up to about 50 kilometers. Based on the relatively simple and affordable spectroradiometer, in the future one may create extensive networks for atmospheric monitoring.

The Applied Infrared Spectroscopy Lab at MIPT is planning to carry out an observational campaign to measure the stratosphere polar vortex as well as greenhouse gas concentration in the Russian Arctic with their newly developed instrument. In addition to that, in cooperation with the Space Research Institute of the Russian Academy of Sciences, the lab is developing an instrument for the studies of Venus atmosphere based on the same principle. The instrument is supposed to be installed onboard India's Venus orbiter in the framework of international cooperation.

In developing their novel tool, the MIPT researchers were joined by colleagues from the Space Research Institute and Prokhorov General Physics Institute of the Russian Academy of Sciences, and Samsung R&D Institute Russia.

The study reported in this story is supported by the Russian Foundation for Basic Research.

The MIPT Applied Infrared Spectroscopy Lab has been founded by Vladimir Krasnopolsky in the framework of the Russian Government's "Megagrant" program. The lab conducts research and development in the field of spectral analysis of natural and technogenic environments, meteorology, ecology, and climate of the Earth and other planets. The laboratory is participating in the international ExoMars mission, and a Roscosmos-NASA effort to explore Venus. Alexander Rodin ([alexander.rodin@phystech.edu](mailto:alexander.rodin@phystech.edu)) has headed the laboratory since 2016.

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[https://www.eurekalert.org/pub\\_releases/2020-06/miop-spn061020.php](https://www.eurekalert.org/pub_releases/2020-06/miop-spn061020.php)

### **COVID-19 research in Europe could lead to first doses of vaccine 'by autumn-winter': Italian expert**

*Europe is on the global frontline in terms of developing a COVID-19 vaccine, and the results of an ongoing research could lead to first doses of the vaccine by autumn-winter.*

Rome: Europe is on the global frontline in terms of developing a COVID-19 vaccine, and the results of an ongoing research could lead to first doses of the vaccine "by autumn-winter", a prominent Italian health expert said on Wednesday.

"Europe is far ahead of the United States in terms of new coronavirus vaccine, and we are getting ready for having a consistent part of it produced in Italy," Walter Ricciardi, adviser to the Italian Health Ministry for the COVID-19 emergency, told public TV RAI 3.

Ricciardi, who is also director of Department of Public Health and deputy head of the Faculty of Medicine at the Rome-based Catholic University of the Sacred Heart, and Italian representative in the executive committee of the World Health Organization (WHO), explained that a vaccine research project conducted by an Anglo-Italian partnership was "in a more advanced development phase" compared with others.

"With respect to the timing, if all goes well, we might have the first doses of the vaccine in Europe, and of course in Italy, by autumn-winter," he said.

The Anglo-Italian COVID-19 vaccine research that Ricciardi referred to was being carried out by Italian private company Advent-IRBM -- based in Pomezia near Rome -- and the Jenner Institute, which is part of the Oxford University in the United Kingdom.

In April, the Anglo-Italian team announced the start of the human testing of the vaccine at the end of that month in the UK.

At the time, Advent-IRBM also suggested that, in the best scenario, its potential vaccine could be ready for human use as early as in September.

"We are getting ready for Italy to be among the leading countries on this front," Ricciardi noted on Wednesday.

<https://www.timesnownews.com/health/article/covid-19-research-in-europe-could-lead-to-first-doses-of-vaccine-by-autumn-winter-italian-expert/604637>

## **Explained: New study indicates Covid-19 may have been circulating in Wuhan since August last year**

*The authors of the study say that they observed an upward trend in hospital traffic and search volume for disease-related terms beginning in late summer and early fall of 2019, implying that the virus may have already been circulating before the identification of the Huanan market cluster in Wuhan late November, early December.*

A new study carried out by researchers from the Harvard Medical School, Boston University of Public Health and Boston children's hospital used satellite imagery of parking lots and disease-related search engine queries to investigate the possibility that [coronavirus](#) may have been circulating in Wuhan since August last year.

### **What does the study say?**

The authors of the study say that they observed an upward trend in hospital traffic and search volume for disease-related terms beginning in late summer and early fall of 2019, implying that the virus may have already been circulating before the identification of the Huanan market cluster in Wuhan late November, early December.

“This hypothesis is supported by emerging epidemiologic and phylogenetic evidence indicating that the virus emerged in southern [China](#) and may have already spread internationally, and adapted for efficient human transmission by the time it was detected in late December,” the study says.

Significantly, the study say that while queries for the respiratory symptom “cough” show seasonal fluctuations that coincide with yearly influenza seasons, the search for the term “diarrhea”, which is a more [COVID-19](#) specific symptom showed an association with the current epidemic only.

For the study, researchers collected over 111 satellite images of Wuhan from January 9, 2018 to April 30, 2020 resulting in 140 successful daily extractions of parking lot volume from hospitals. As per their analysis, between 2018 and 2020 there was a general upward trend of increased hospital occupancy and a “steep increase” in volume starting August 2019. Further, while individual hospitals have days of high relative volume in both Fall and Winter 2019, between September and October 2019, five of the six hospitals show their highest relative daily volume, which coincides with elevated search queries for the term “diarrhea” and “cough”.

Searches for “diarrhea” showed elevated traffic starting in late 2019, “cough” shows yearly peaks that coincide with the influenza season. Both the search terms show a large increase approximately three weeks preceding the large spike in confirmed COVID-19 cases in early 2020. The researchers observed a “large decrease” in hospital volume and search query data following the public health lockdown of Wuhan on January 23, 2020.

### **So what does this mean?**

Essentially, the researchers are saying that while it cannot be confirmed if the increase in the volume of hospital traffic and symptom search data in Wuhan was directly related to the coronavirus, they say that there is some evidence to believe that the disease might have been spreading before its identification at the Huanan seafood market.

“In August, we identify a unique increase in searches for diarrhea which was neither seen in previous flu seasons or mirrored in the cough search data. While surprising, this finding lines up with the recent recognition that gastrointestinal (GI) symptoms are a unique feature of COVID19 disease and may be the chief complaint of a significant proportion of presenting patients,” the study says. The authors have cited a study carried out by the Wuhan Union Hospital and Wuhan

Tongji Medical University, which says that while respiratory symptoms are common indicators of COVID-19, a “potentially large” segment of patients with digestive symptoms, such as diarrhea play an important role in community transmission.

It is also possible that the initial rise in GI symptoms may have been ignored as an early signal of COVID-19 since the surveillance systems were looking for a respiratory pathogen, that are generally associated with symptoms such as fever, sore throat and cough.

### **What are some theories about the origins of coronavirus?**

Over the last month, conversations about the origins of the virus have picked up pace. Three weeks ago, China and the WHO agreed to allow an independent international investigation into the origins of the coronavirus. In April, US President Donald Trump called the WHO’s response to the [pandemic](#), “Chinacentric” and has repeatedly blamed the body for supporting China in their efforts to under-represent the severity of the outbreak. Trump and Secretary of State Mike Pompeo have also claimed that the virus originated from the Wuhan Institute of Virology in Hubei province.

China, on the other hand, has maintained that there was no delay or cover-up in the Chinese government’s response to the outbreak of the disease and has rebutted all other accusations suggesting the virus may have originated from the lab, saying that it’s a “smear” campaign. In late April, the head of the virology lab told Reuters there is no basis to claims that suggest the virus originated in the lab, adding that there still are no conclusive answers as to where the disease started.

A press release issued by the State Council Information Office of the People’s Republic of China on Monday said that, “China timely notified the international community of virus data and information about the epidemic, and made significant contributions to the global prevention and control...”. Significantly, a June 4 Associated Press report stated that China delayed sharing the virus’ genomic sequence.

China reported a cluster of cases of pneumonia in Wuhan to the WHO on December 31, 2019 and on March 11, the body characterised the disease outbreak as a pandemic. The scientific consensus is dominated by the view that the virus evolved naturally. WHO says on its website that the possible animal source of COVID-19 has not yet been confirmed. There is also a theory that the most trafficked mammals in the world, pangolins, maybe an intermediate host for transmission of the virus between bats and humans, however, research on this is still emerging.

<https://indianexpress.com/article/explained/19study-covid-19-wuhan-august-last-year-6452538/>

## Levels of SARS-CoV-2 RNA in sewage rose with COVID-19 cases in Dutch cities

Scientists have detected RNA from the new coronavirus, SARS-CoV-2, in the feces of people with COVID-19. So it stands to reason that the viral RNA could end up in city sewage, where it could be used to monitor prevalence of the disease. Now, researchers reporting in ACS' *Environmental Science & Technology Letters* have detected rising SARS-CoV-2 RNA levels in sewage from several cities in the Netherlands at early stages of the pandemic.

Although infectious SARS-CoV-2 has been detected in stool samples, the virus spreads primarily through respiratory droplets when an infected person coughs, sneezes, laughs, speaks or breathes, according to recent studies. However, if the new coronavirus is present at high levels in sewage at treatment plants, it could pose risks to workers at the facilities. Gertjan Medema and colleagues wanted to see if they could detect SARS-CoV-2 in the domestic wastewater of cities in the early stages of the COVID-19 pandemic in the Netherlands. They also wanted to determine if levels of the virus's RNA correlated with the COVID-19 prevalence in each city. If so, sewage surveillance could be a helpful tool to monitor the circulation of SARS-CoV-2 in communities, especially since clinical testing likely underestimates the actual number of people infected with the virus.

As the new coronavirus took hold in other parts of the world, the researchers collected sewage samples from wastewater treatment plants that serve six cities in the Netherlands to see if the virus could be detected in this way. Samples were taken 3 weeks before the first reported COVID-19 case in the Netherlands, and then at 1, 2.5 and 4 weeks after the first case. The team measured SARS-CoV-2 levels in the sewage using a technique called quantitative reverse transcriptase-polymerase chain reaction (qRT-PCR). Then, the researchers correlated viral RNA levels with the number of COVID-19 cases reported in each city on the day of sampling. SARS-CoV-2 was undetectable in sewage from all cities 3 weeks before the first reported case, but as the outbreak progressed, the concentration of SARS-CoV-2 RNA in sewage increased with the number of reported COVID-19 cases in each city. Although more research is needed, this study and similar ones in different locations suggest that sewage surveillance of SARS-CoV-2 RNA could serve as a sensitive early warning system for increased virus circulation in the population, the researchers say.

The authors acknowledge funding from the [KWR Water Research Institute](#).

The paper is freely available as an ACS AuthorChoice article [here](#).

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[https://www.eurekaalert.org/pub\\_releases/2020-06/acs-los061020.php](https://www.eurekaalert.org/pub_releases/2020-06/acs-los061020.php)



## **IIT गांधीनगर की रिसर्च / भारत में नाले के गंदे पानी में कोरोनावायरस होने के प्रमाण मिले, देश में इस तरह की यह पहली रिसर्च हुई**

- आईआईटी गांधीनगर ने 51 विश्वविद्यालयों के साथ मिलकर की रिसर्च, शोधकर्ताओं ने कहा - नाले के पानी की जांच जरूरी
- अब तक ऑस्ट्रेलिया, नीदरलैंड्स, फ्रांस और अमेरिका में लिए गए गंदे पानी के सैंपल में भी कोरोनावायरस के कण मिले हैं

भारतीय शोधकर्ताओं को नाले के गंदे पानी में भी कोरोनावायरस होने के प्रमाण मिले हैं। यह दावा आईआईटी गांधीनगर के शोधकर्ताओं ने किया है। शोधकर्ताओं का कहना है नाले से लिए गए पानी के सैंपल में कोरोनावायरस के जीन मिले हैं जिनसे संक्रमण का खतरा नहीं है। नाले के पानी को भी जांचने की जरूरत है ताकि कोविड-19 के संक्रमण को फैलने से रोका जा सके। खासकर देश हॉटस्पॉट क्षेत्र के नालों की मॉनिटरिंग जरूरी है।

### **फ्रांस और अमेरिका समेत कई देशों में भी हुई टेस्टिंग**

अब तक ऑस्ट्रेलिया, नीदरलैंड्स, फ्रांस और अमेरिका में लिए गए गंदे पानी के सैंपल में कोरोनावायरस के कण मिले हैं। आईआईटी गांधीनगर ने अप्रैल में 51 विश्वविद्यालयों के साथ रिसर्च शुरू की थी ताकि कोरोना के संक्रमण को लेकर लोगों को अलर्ट किया जा सके।

### **लक्षण और बिना लक्षण वाले मरीजों का मल यहां पहुंच रहा**

आईआईटी गांधीनगर के प्रोफेसर और प्रमुख शोधकर्ता मनीष कुमार का कहना है कि वेस्ट वाटर की मॉनिटरिंग बेहद जरूरी है। ऐसे मरीज जिनमें लक्षण दिख रहे हैं या जिनमें नहीं दिख रहे (एसिम्प्टोमैटिक), दोनों के शरीर से निकलकर वायरस नाले में पहुंच रहे हैं। भारत में इस तरह की यह पहली रिसर्च है।

### **सैंपल में कोरोना के तीन जीन मिले**

शोधकर्ता मनीष कुमार के मुताबिक, रिसर्च में गुजरात पॉल्यूशन कंट्रोल बोर्ड भी शामिल था। 8 से 27 मई के बीच नालों से 100 एमएल के सैंपल लिए गए। जिसकी पीसीआर जांच की गई। इनमें कोरोनावायरस का आरएनए मिला, हालांकि यह मृत था। इसके अलावा सैंपल में कोरोना के तीन जीन (ORF1ab, S and N) भी मिले।

### **गंदे पानी में रोटावायरस की जांच ऐसे ही हुई थी**

भारत समेत कई देशों में इस समय गंदे पानी से वायरस का पता लगाकर महामारी के असर को समझा जा रहा है। पोलियो का कारण बनने वाले रोटावायरस को भी ऐसे ही जांच गया था। शोधकर्ता मनीष कुमार के मुताबिक, ऐसे गंदे पानी में 1 हजार से लेकर 10 हजार लोगों तक का मल इकट्ठा होता है। देश में मौजूद हर इंसान की टेस्टिंग संभव नहीं है, ऐसे में गंदे पानी की जांच महामारी के ग्राफ को समझने में मदद करती है।

<https://www.bhaskar.com/happylife/news/american-wash-food-items-with-bleachto-avoid-coronavirus-centers-for-disease-control-and-prevention-cdc-survey-127394907.html?art=next>

## Is the freeze on DA till next June unfair?

*With 'living wages' hard to get in these Covid times, the freeze appears justified. Moreover, the 'basic pay' is attractive*

*By TS Ramakrishnan*

The Union Government, on April 23, decided to freeze the hike in Dearness Allowance (DA) that was announced in March 2020 till June 2021. Although the arrears will not be paid during this time and any hike in DA due to revision on July 1, 2021, will consider the previous hikes as well. It was commented that this is inhuman and would bring hardships to government employees

Before we examine their views, let us look at how the salaries of Central government employees in independent India have changed. The Second Pay Commission (PC) in 1959 increased the minimum Basic Pay (BP) to ₹80 and the maximum BP to ₹3,000 with an average of 50 per cent increase over the BP fixed by the first PC.

Continuing the legacy of the British government in India, the first two PCs maintained the ratio of maximum BP to minimum BP at 1:36.

The Third PC, in 1973, increased the minimum BP by 145 per cent to ₹196 from ₹80 although it increased the maximum BP by 17 per cent to only ₹3,500. The ratio between minimum BP and maximum BP was reduced to 1:18 from 1:36 by the Third PC as this was the time when India was aggressively pursuing socialism.

The Fourth PC in 1986 increased the minimum BP by 283 per cent to ₹750 from ₹196 and increased the maximum BP by 129 per cent to ₹8,000 from ₹3,500 and thereby brought down the ratio between minimum BP and maximum BP to 1:11 from 1:18. Once again the socialistic thought of increasing the salary more for lower cadres and less for higher cadres prevailed, although not as bad as in the Third PC.

The Third and Fourth PCs increased the minimum BP of government employees much more than the inflation and the economic development India achieved between 1947 and 1986. As a result, the salary for Group IV and Group III employees of the government reached a level even in 1986 that even if they switch over to the private sector, their remuneration was only to be a fraction of what they would get from government employment.

The Fifth PC recommendations, which were implemented from January 1996, took a stand that the benefits of economic reforms introduced in India since 1991 should get reflected in the revised pay scales of employees too. It evenly increased the minimum BP by 240 per cent to ₹2,550 from ₹750 and the maximum pay by 225 per cent to ₹26,000 from ₹8,000. Although the Fifth PC instructed to reduce the number of employees by 30 per cent, it never happened.

### **MNC impact**

It is indeed true that the Fifth PC increased the salary and pension of employees across the board significantly. However, the arrival of MNCs in India and their hefty pay packages in the beginning years of 21st century, which was not based on socialistic norms but based on value addition an employee brought to the table, attracted technocrats, scientists, engineers and top bureaucrats who had upgraded themselves to take up key roles in MNCs from government services, especially from scientific institutions such as ISRO and DRDO.

India witnessed only the bright side of the private sector and MNCs with their huge salary package till the global economic crisis hit in 2008. Hence the Sixth PC had to be more generous in terms of pay package to the highly skilled employees.

Considering all this, the Sixth PC increased the minimum BP by 175 per cent to ₹7,000 and maximum BP by 208 per cent to ₹80,000. As the ratio of minimum BP to maximum BP was retained at about 1:11, the salary hike for those who have not equipped themselves was also almost on par with those who equipped themselves, which did not augur well for improving the delivery of government administration.

The salary hike by the Sixth PC was extremely competitive for three reasons, even for the higher cadres, let alone lower cadres. The first reason is that the hike *per se* was so substantial that those who moved to MNCs from government agencies before Sixth PC wanted to come back to government scientific institutions such as ISRO and DRDO.

The second reason is that after the global economic crisis in 2008, the private sector did not increase the salary even to compensate for the huge inflation India witnessed between 2009 and 2014, the second tenure of UPA. The third reason is the extravagant frills for the pensioners that the Sixth PC recommended made pension enormously attractive but causing huge burden to the government exchequer.

In this backdrop, the constitution of one more PC should not have occurred at all. But the unprecedented inflation India witnessed during the UPA-II regime forced the government to increase the DA from 0 per cent in January 2006 to 100 per cent in Jan 2014. With DA reaching 100 per cent, the Modi 1.0 government had no other way than to constitute the Seventh PC.

### **State finances**

The Seventh PC increased the minimum BP by 157 per cent to ₹18,000 from ₹7,000 and maximum BP by over 200 per cent to ₹2,50,000 from ₹80,000. Since almost all the State governments follow the Central PCs in revising their salary and increase of DA as announced by the Union government, the recommendations of PCs dent the finances of the State governments as most of the States have been adding government servants with no restraint. If the Sixth PC pushed the finances of the State governments to ICU, the Seventh PC forced it to use a ventilator for survival.

The upward revision recommended by all the PCs have been applicable for pensions and family pensions too. This, coupled with frills added and increased life expectancy raised the expenditure on pensions much more than the pay itself. One of the frills is that pensioners/family pensioners in the age bracket of 80-84, 85-89, 90-94, 95-99 and 100 plus would get 20 per cent, 30 per cent, 40 per cent, 50 per cent and 100 per cent more pension than their regular pension.

For instance, it was estimated that 48 lakh Central government employees would receive salary to the tune of ₹1.74 lakh crore and 65 lakh central government pensioners (including family pensioners) receive pension to the tune of ₹1.84 lakh crore during FY 2020-21.

A new entrant in the lowest pay scale of government employment receives more salary than a reasonably qualified engineer and Group IV (now Group III) pensioner receives pension on par with the salary of a reasonably qualified engineer working in a well-known company.

This is not to say that the government should backtrack from its commitment to salary and pension. However, if the government will have to pay salary and pension/family pension for 35 years and 30 years respectively, the salary and pension are to be very moderate, which is not the case after the Seventh PC.

The decision to stop the DA rise till June 2021 is to be seen in this backdrop. The undercurrent of all the PCs so far is “Living Wages”. The minimum BP has been fixed liberally based on the Living Wages calculated by the PCs from time to time. Even during ordinary times, a sizeable population of India has not been getting “Living Wages” as prescribed by the various PCs.

In this time of slowdown arising out of Covid-19, it is tough for sections of the population even in developed countries to get “Living Wages”. Given this, is it appropriate to say that the stopping of DA would be unfair to the government employees?

*(The writer is a Public Policy Analyst)*

<https://www.thehindubusinessline.com/opinion/is-the-freeze-on-da-till-next-june-unfair/article31797670.ece>