

# समाचार पत्रों से चयित अंश Newspapers Clippings

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## **Trials for indigenous cochlear implants developed by DRDO begin at PGIMER, Chandigarh**

*A three-day conference will be held from February 14, which will give a platform to further strengthen the links to other professionals and to facilitate multicentre research*

*By Amanjeet Singh Salyal*

Chandigarh: The Post Graduate Institute of Medical Education and Research is among five other national institutes to begin trials for indigenous cochlear implants developed by the Defence Research and Development Organisation (DRDO).

Cochlear implants are electronic hearing devices, implanted onto people with severe to profound hearing loss, in order to produce useful hearing sensations. The aim of the project is to decrease the cost of the device, which at present is somewhere between ₹ 5-7 lakh, and is supplied by three companies approved by the United States Food and Drug Administration.



“The former president of India APJ Abdul Kalam envisioned to make cheap cochlear implants available and told DRDO in 2005 to develop the technology. PGIMER was also a part of that plan,” said Naresh K Panda, Head of Otolaryngology (ENT) department, PGIMER.

### **Three years of research**

Dr Panda said that a good amount of time had been invested on the process of planning, assessment and development of the prototype.

“In the last three years, many rounds of meetings have been held with the people involved. Many suggestions have been included and after the prototype was tested, it has been made ready for trials on patients,” Dr Panda said.

In the initial phase, five hospitals namely Apollo Hospital in Bangalore, Armed Forces Medical College, CMC Vellore, All India Institute of Medical Sciences and PGIMER have been provided with the prototype and at least 10 trial implants will be conducted by each institute.

Four trials have been conducted in other hospitals while PGIMER is waiting for suitable patients for making their first implant. “We will monitor each case and then come up with a study on it,” Dr Panda said. Regarding the drop in prices, Dr Panda said that it should cost around ₹ 1 lakh, however, the price has not been decided yet, but it will be cheaper.

### **Conference on speech and hearing**

While holding a press meet here on Tuesday, doctors of the speech and hearing unit, department of otolaryngology, along with Chandigarh chapter of Indian Speech and Hearing Association, said they are organising a conference ‘Beyond 2020’, which will focus on recent and forthcoming advances in the field of speech and hearing.

“We will be organising three parallel pre-conference workshops in audiology, speech pathology and language, with a scientific focus on vestibular assessment and management, paediatric dysphagia and neuroimaging in communication disorders,” the doctors said.

A three-day conference will be held from February 14, which will give a platform to further strengthen the links to other professionals and to facilitate multicentre research.

<https://www.hindustantimes.com/chandigarh/trials-for-indigenous-cochlear-implants-developed-by-drdo-begin-at-pgimer-chandigarh/story-F2eAHRU7HNaZJJmE5on8VJ.html>

## Blood samples of LWO employees collected to check pesticide levels

Jodhpur: A team of technicians from Defence Research and Development Organisation (DRDO) took blood samples of 81 employees of the Locust Warning Organisation (LWO) who have been engaged in anti-locust operations in the desert of Rajasthan for the past 9 months.

“A team of technicians of the DRDO remained in Jodhpur for two days and took blood samples of 81 employees to check if they did not have residue of the pesticide Organo-Phosphate, which has been sprayed to eliminate the swarms of locusts,” said the deputy director of LWO K L Gurjar.

He, however, claimed that it was a routine precautionary exercise and none of the employees has developed any negative impact of the chemical so far.

The team will take the samples along and test them to confirm if any of them has suffered any ill-effects of the pesticide.

“Based on the report, further steps will be taken and if required, medication would be provided to the affected ones,” Gurjar said.

According to medical practitioners, if the residues of this chemical, which is harmful for human beings, enter the body, it may result in paralysis, coma, vision-loss or memory loss.

It may be noted that on May 19 last year, the first swarm of locust had been reported in Rajasthan and since then over 3 lakh litres of the pesticide has been sprayed in the fields by the employees of LWO.

<https://timesofindia.indiatimes.com/city/jaipur/blood-samples-of-lwo-employees-collected-to-check-pesticide-levels/articleshow/74090136.cms>

## Lessons from Def Expo 2020

*By Harsha Kakar*

The Def Expo held last week at Lucknow provided a glimpse of the strides made by the Indian private sector in defence research and development. It was less than two decades ago that this sector was opened for private industries and entrepreneurs. Till then, defence was considered a holy cow with research, development and production controlled by the Defence Research and Development Organization (DRDO), Defence Public Sector Undertakings and the Ordnance Factory Board (OFB). Presently, with the government concentrating on Make in India, it is the private sector which was most keenly observed in the Def Expo.

The theme for current Def Expo was ‘India: the emerging defence manufacturing hub’ and was focused on ‘digital transformation of defence’. India is currently the world’s second largest importer of defence equipment, after Saudi Arabia, hence major companies are keen to invest in the Indian defence market.

By projecting India as the emerging defence manufacturing hub, the government hopes to transfer latest technology from across the globe to Indian manufacturers, expand ‘make in India’ and turn India into a net defence equipment exporter, rather than an importer. Digital Transformation of Defence

implies the importance of technology in future warfare. The event also showcased Indian military power in live demonstrations and fly past of air power.

Indian MSME products on display included modern fencing for securing Indian borders linked with sensors and camera to artillery guns developed in house to sniper rifles and drones. Army establishments like the College of Military Engineering displayed their own designed and presently under production bullet proof jackets with the capability to withstand a sniper bullet to the Electrical and Mechanical Engineering School at Baroda, which proudly projected its own fault finding system incorporated into the newly inducted Vajra artillery gun.

The DRDO and OFB had their own products on display including the BrahMos missiles, Anti Satellite systems, remote controlled vehicles, newly inducted Dhanush guns, Akash air defence systems and upgraded combat vehicles. Many products under development were also displayed. Foreign vendors cutting across countries had brought forth their latest designed and developed equipment, hoping to enhance their foray into Indian and other developing country defence markets. Defence Research and Development (R&D) is capital intensive with limited guarantees of success. Not many private players are willing to get involved with it on a large scale. However, the success of smaller vendors in their limited fields was laudable.

Def Expo was an eye opener for those seeking to observe strides made by smaller Indian companies and organizations. Senior defence officials, including the Chief of Defence Staff and the Army Chief, spent immense time at Indian industry pavilions with the intention of encouraging small entrepreneurs and even accepting to provide them an opportunity to trial evaluate their products, which could then be considered for induction.

It was also an opportunity for foreign vendors to observe Indian research and development, seek to enhance inter-company cooperation and sign tie-ups. Multiple tie-ups were signed. States which had created defence corridors saw keen interest by industries seeking to invest in the corridors. Seminars highlighting cooperation between countries and on products under development witnessed keen attendance.

The presence of international delegates added to the flavour of the Def Expo. Companies, Indian and foreign, had an opportunity to display their products globally and thereby expand their markets beyond Indian shores. Foreign delegates displayed keen interest in available systems and sought trials in their own countries.

There are multiple lessons which could be drawn from the Def Expo. The foremost is observing that in some fields, the Indian product was matching known international brands in quality, while being far lower in price. They may have some shortcomings, but being home developed and produced, they could be considered for procurement and defects rectified even during the induction phase. It also indicated the technological breakthrough Indian entrepreneurs have achieved in some fields. The encouragement and opportunity provided to these vendors would push them further for enhancing quality of their products.

On the contrary, in a few cases there has been an over reliance on imported components. While they have claimed that there is a high percentage of indigenization, these have not been in critical components. This implies that costs can never come down and dependence on foreign manufacturers would continue. In such instances, the armed forces need to intervene, re-evaluate their off-set policy and seek to procure critical technologies which the Indian industry desires, rather than just investment into the Indian market.

Large Indian private defence production units displayed their products which were being manufactured for foreign defence manufacturing concerns. This would need to be encouraged as India seeks to enhance defence manufacturing exports. There would also be near similar equipment from different vendors which the armed forces would not need. An example are artillery guns under development by the Kalyani Group, Bharat 52 and Garuda V2, on which the Saudi delegation

envisaged keen interest, not the Indian armed forces. Encouraging and supporting their export and trials should be undertaken by the government.

The Indian armed forces need to realise that some Indian products may not be technologically superior to those available in the international market, but unless these are considered favourably, the fledgling Indian defence industry may not be encouraged to invest in defence. Once inducted the manufacturer will be willing to improve his product by investing in R&D. Further, the prototypes displayed, if suitable for Indian armed forces' needs, could be centrally financed for further R & D to enhance quality. This would boost the Indian defence manufacturing capability.

Finally, the armed forces need to lay down their future technological requirements. They should issue a road map of developing the same by means of a strategic white paper. This would guide major private and government manufacturers to concentrate on Indian military demands. Logically, this should flow from an analysis of the armed forces role, emanating from the national security strategy.

The Prime Minister in his opening address remarked that his aim is that Indian defence exports should touch the USD 5 billion mark in the next five years. This would only be possible if the armed forces and private entrepreneurs, large and small, work together. Financial support and firm orders would be of major benefit. It is only then that reliance on foreign products would reduce and India would become a net exporter, rather than remain an importer of defence equipment. *(The author is Major General (Retd))*

<https://www.dailyexcelsior.com/lessons-from-def-expo-2020/>



Wed, 12 Feb 2020

## **HAL seeking to export Su-30MKI and MiG-29 engine spares to 'friendly countries'**

*By Rahul Bedi*

New Delhi: India's state-owned Hindustan Aeronautics Limited (HAL) plans to export assorted spares and accessories for the engines that power the Indian Air Force's Sukhoi Su-30MKI and Mikoyan MiG-29 combat aircraft to foreign air forces that also operate the two Russian-developed fighter types. A memorandum of understanding (MoU) signed by HAL on 7 February with Russia's defence export agency Rosoboronexport envisages the export of Saturn AL-31FP and Klimov RD-33 engine components and services to "friendly countries".

"The parties will subsequently sign an agreement on mutually agreed terms and conditions," the MoU states, without elaborating further.

HAL officials told *Jane's* that possible customers for AL-31FP-related spares include Algeria, Angola, Armenia, Indonesia, Kazakhstan, Malaysia, and Vietnam, while those for RD-33-related parts comprise Algeria, Bangladesh, Kazakhstan, Malaysia, Mongolia, Myanmar, and Serbia.

HAL licence-builds the AL-31FP engine at its Nashik facility in western India and the RD-33 at Koraput in India's eastern Odisha state.

<https://janes.ihf.com/Janes/Display/1993885>

## Domestic firms eye defence sector with focus on import substitution

ADITI DIVEKAR

Mumbai, 11 February

Despite a marginal 6 per cent rise in defence allocation for FY21, domestic companies — Jindal Defence and L&T Defence — are actively looking at participating in the defence growth story, currently dominated by imports.

Recently, Larsen & Toubro (L&T) and Europe-based MBDA, a world leader in missile systems, formed a joint venture (JV) to set up a missile integration facility in Tamil Nadu. Delhi-based Jindal Defence, part of O P Jindal Group, also announced its foray into small arms manufacturing in India via a JV with Taurus Armas S A, of Brazil.

"At present, foreign players supply almost 50 per cent of the total requirement of India's defence equipment. The small arms market in India is estimated to be \$10-12 billion by

2035. This gives enough opportunity for domestic firms like us (Jindal Defence) to venture into defence manufacturing," Abhyuday Jindal, promoter of Jindal Defence told *Business Standard*.

The ministry of defence has set a goal of \$26 billion, including export of \$7 billion for the industry by 2025-26 through its Defence Production Policy 2018.

"Due to this, the cumulative anticipated capex spend for domestic industry over the next six years would be about ₹10 trillion. With Make in India initiative kicking in, the indigenisation in defence sector should go up from the 35-40 per cent to 70-75 per cent. So, there is ample scope for domestic players," said J D Patil, director and senior executive vice-president (defence & smart technologies) at L&T (defence business).

L&T's JV will build complete missile systems for the armed forces, exploring prospects under the Buy (Indian - IDDM

### AT A GLANCE

- Defence sector has mid- to long-term potential to be a major contributor to Make in India
- Small arms market in India estimated at \$12 billion by 2035
- Anticipated capex spend for domestic industry over next 6 years at ₹10 trillion

(Indigenously Designed, Developed and Manufactured), Buy (Indian), and Buy & Make (Indian) categories for defence procurement. Meanwhile, new entrant Jindal Defence plans an initial investment of \$5 million for its small arms unit in Hisar.

The company aims at a private investment in the initial stage and will explore funding

opportunities later. Jindal wants to position itself as an import substitution in the long term.

"Our major competition will be imports from global firearms manufacturers. There are a few other Indian private companies in this (small arms) space. However, they lack significant capacities to meet the demand. Our focus will be import substitution," said Jindal.

India ranks among the world's top five countries, with the highest expenditure in defence sector, said experts.

"The sector has a healthy mid- to long-term potential to be a major contributor to 'Make in India' and modernising of armed forces through indigenisation. Given long-term strategic independence, the government has little choice but to refocus and promote building indigenous platforms right from the development of technologies and concepts," said Patil.

## OFB supplied banned anti-aircraft ammunition to Army in Aug 2015: CAG in LS

*As an accident had taken place with ammunition "K" at Gopalpur firing range in November 2014, the Army Headquarters had asked the OFB to stop its production from Dec 2014 onward*

Indian Army "received" banned anti-aircraft ammunition worth around Rs 39 crore from the Ordnance Factory Board (OFB) in August 2015, the Comptroller and Auditor General of India (CAG) said in its latest report that was tabled in Lok Sabha.

As an accident had taken place with this ammunition "K" at Gopalpur firing range in November 2014, the Army Headquarters (AHQ) had asked the OFB to stop its production from December 2014 onward, the report noted.

This ban was lifted in September 2015 when a recommendation by a board of officers regarding improvements in the ammunition "K" were accepted by the AHQ, the CAG noted.

The AHQ, however, had "intimated" the OFB that the ammunition "K" produced between December 2014 to September 2015 will not be accepted.

According to the CAG report, which was tabled in the lower house recently, the OFB had supplied 52,369 numbers of the ammunition "K" worth around Rs 39 crore to Army's Central Ammunition Depot (CAD) in Pulgaon in August 2015, "when the ban had still not been revoked".

"The OFB justified continuation of production even after December 2014 on the ground that ammunition were under various states of assembly or finishing i.e. work in progress (WIP) stage as on date of receipt of AHQ's directions," the CAG report stated.

The CAG mentioned that the AHQ is reviewing use of ammunition "K" that was supplied during the ban period.

"Audit is of the view that the OFB should not have supplied ammunition during the ban period, the CAD Pulgaon should not have received the supply and, even if the supply had been received, it should have been isolated and not issued to the user units," the report stated.

The replacement of balance holding of affected ammunition "K" had not been carried out by the OFB as of July 2018, even as "three years" have passed since the CAD Pulgaon received it, the CAG noted.

"Further, the proposal for replacement by the AHQ was an indication that the same (ammunition "K") cannot be used for intended purpose," the CAG stated.

The AHQ had "intimated" the OFB that the ammunition "K" produced between Dec 2014 to Septe 2015 will not be accepted.

[https://www.business-standard.com/article/pti-stories/army-received-banned-anti-aircraft-ammunition-worth-rs-39-cr-from-ofb-in-aug-2015-cag-120021101397\\_1.html](https://www.business-standard.com/article/pti-stories/army-received-banned-anti-aircraft-ammunition-worth-rs-39-cr-from-ofb-in-aug-2015-cag-120021101397_1.html)

## THE ECONOMIC TIMES

Wed, 12 Feb 2020

### Trump's visit may firm up defence, space plans

*Trump will attend official engagements in Delhi & Gujarat; interact with a wide cross-section of people*

*By Dipanjan Roy Chaudhury*

New Delhi: India and the United States are likely to conclude road maps for defence and space partnerships, as well as possibly a limited scope trade deal, during President Donald Trump's maiden state visit to the country on February 24-25.

The key outcomes from the visit could include a deal for an Integrated Air Defence Weapon System (IADWS) worth \$1.86 billion, according to people aware of the matter. This system is also known as the National Advanced Surface-to-Air Missile System-II or NASAMS-II.

"Donald J. Trump, President of the United States, accompanied by First Lady Melania Trump, will pay a state visit to India on 24-25 February... During the visit, President Trump and the First Lady will attend official engagements in New Delhi and Gujarat, and interact with a wide cross-section of Indian society," India's external affairs ministry said in a statement, announcing President Trump's visit. "The relationship has further evolved under the leadership of Prime Minister Modi and President Trump, with significant progress in all areas including trade, defence, counter-terrorism, energy, coordination on regional and global issues as well as people-to-people ties," said the ministry.

The US Defence Security Cooperation Agency (DSCA) last week delivered the certification required for notifying the American Congress about the possibility of the military hardware sale to India.

“The proposed sale of this equipment and support will not alter the basic military balance in the region,” the Trump administration conveyed to the US Congress. The visit of India’s foreign and defence ministers to Washington for the second edition of 2+2 ministerial dialogue in December 2019 had laid the foundation for President Trump’s visit.

The two sides signed the Industrial Security Annex (ISA) and three agreements under the Defence Technology and Trade Initiative to secure technology transfer and co-produce critical technologies. They also inked a number of agreements ranging from greater interaction between elected representatives to collaboration in space, science and technology, water and people-to-people exchange.

<https://economictimes.indiatimes.com/news/politics-and-nation/trumps-visit-may-firm-up-defence-space-plans/articleshow/74091476.cms>

# THE ECONOMIC TIMES

Wed, 12 Feb 2020

## Strategic Convergence on the Cards

Defence cooperation will be at the top of the agenda during President Donald Trump visit. The partnership has moved ahead in the past few years to include key pacts on secure communication and sharing of military logistics that open the possibility of joint operations in the near future. The Navy-Navy cooperation in particular has taken the front seat. On the acquisition side, India has procured the C 17 'Globemaster' and C 139J Hercules transporters, the Apache and Chinook helicopters among other equipment from the US. The following are in an advanced stage of discussion in the near future, reports **Manu Pubby**

**Naval Guns:** The Indian side is moving towards signing a deal to acquire 127 mm calibre ship mounted guns from the US under a government deal. The US Congress has approved the procurement of 13 of these for an estimated \$ 1 billion. The project is being seen as a priority for the Navy that needs these for under construction destroyers. This deal, to be signed with BAE Systems, could be inked in the coming financial year.

**Apache** In addition to the air force, which is inducting 22 of the Apache attack helicopters, the Army too is in line to acquire at least six, under a deal that is estimated at close to \$ 930 million. The contract can be inked when budgetary provision are made available to the Army.

**NASAMS II**  
The National Advanced Surface to Air Missile System (NASAMS) is designed to protect the national capital from all incoming air threats. The US State Department has this week notified its Congress of a possible sale to India, valued at **\$ 1.8 billion**. The only hitch will be the price as the Indian side expected it to be below the **\$ 1 billion** mark

**Naval Multi Role Helicopters (NMRH)**  
The proposal to purchase 24 of the advanced MH 60 'Romeo' choppers, which can be deployed from warships, is in the final stages of signing. The Navy considers these choppers extremely essential as their absence poses serious operational risks to warships at sea. The deal is valued at **\$ 2.6 billion**

**The Fighters' Pitch**

US may pitch its combat jets for two major upcoming Indian acquisitions.  
**Indian Air Force:** The US will be pitching its F 21 (a variant of the F 16) as well as the F/A 18 Super Hornet for an upcoming contest to supply 114 fighters under a Make in India deal.

**Indian Navy:** The requirement for 57 of modern aircraft carrier borne jets has seen a keen interest from the US that has its F/A 18 Super Hornet on offer.

**P 8is** The Navy has got permission to go ahead with a multi-billion dollar acquisition of six additional Boeing P8 I maritime patrol aircraft that will add to its surveillance capabilities in the Indian Ocean Region.



## Missile shield over Delhi: India may buy NASAMS-II air defence system from US

India has got one step closer to deploying a new missile shield over its Capital, with US state department notifying its Congress of the impending sale of an integrated air defence weapon system (IADWS) to New Delhi for \$1.86 billion.

TOI in July 2018 had first reported that India was moving swiftly ahead to acquire the IADWS or the National Advanced Surface to Air Missile System-II (NASAMS-II) from the US, which will be used along with indigenous, Russian and Israeli systems to erect an ambitious multi-layered missile shield over the National Capital Territory of Delhi against aerial threats ranging from drones to ballistic missiles.

India and the US have already held several rounds of negotiations, including selection of sites for deployment of the missile batteries around Delhi, for the proposed sale under the American foreign military sales (FMS) programme, as was reported earlier by TOI.

Once the deal is inked, the NASAMS-II deliveries will take place in two to four years, say sources. Though the US was also mounting pressure on India to also consider its Terminal High Altitude Area Defense (THAAD) and Patriot Advanced Capability (PAC-3) missile defence systems, New Delhi went ahead to ink the \$5.43 billion (almost Rs 40,000 crore) deal with Russia for five squadrons of the advanced S-400 Triumph surface-to-air missile systems in October 2018.

As per the proposed overall air defence plan for Delhi, the innermost layer of protection will be through the NASAMS. It will be a combination of different weapons like Stinger surface-to-air missiles, gun systems and AIM-120C-7 AMRAAMs (advanced medium-range air-to-air missiles), backed by three-dimensional Sentinel radars, fire-distribution centers and command-and-control units. "The networked system, capable of even shooting around buildings, will take care of 9/11-like and other close-in threats," said the source.

The outermost layer of Delhi's missile shield, in turn, will be provided by the indigenous two-tier ballistic missile defence (BMD) system being developed by DRDO. This system's AAD (advanced air defence) and PAD (Prithvi air defence) interceptor missiles are currently geared to intercept enemy missiles, in the 2,000-km class, at altitudes from 15-25 km and 80-100 km respectively.

The second layer will be through the highly automated and mobile S-400 systems, which will have missiles with interception ranges of 120, 200, 250 and 380 kms, backed by their associated battle-management system of command posts and launchers, long-range acquisition and engagement radars.

Then will come the Barak-8 medium-range surface-to-air missile systems, jointly developed by Israeli Aerospace Industries and DRDO, which have a 70-100 km interception range. The indigenous Akash area defence missile systems, with a 25-km range, in turn, will form the layer over the NASAMS.

<https://www.defencenews.in/article/Missile-shield-over-Delhi-India-may-buy-NASAMS-II-air-defence-system-from-US-809274>

## LPU sets up ‘Center for space research with mission control facility’

*By Surinder Vyas*

Jalandhar: Center inaugurated by Dr Sudhir Mishra, the Distinguished Scientist and Director General (BrahMos), DRDO, Ministry of Defence. LPU has set an ambitious goal of developing a satellite “LPUSAT-1”, which will be launched next year (2021).

The Center will enable students and researchers to communicate with the International Space Station (ISS), download live satellite images, and receive telemetry, science/engineering data from nano-satellites and larger spacecrafts.

The Center will act as a key facility in the field of space research for LPU as well as a virtual lab for Universities, Colleges and Schools in India and the neighboring countries of India.

Man behind BrahMos Missile Dr Sudhir Mishra also honored LPU’s 554 Scientists and Researchers.

The Man behind Super Sonic BrahMos Missile of the country, Dr Sudhir Mishra reached Lovely Professional University, today, where he honored LPU’s 554 Scientists and Researchers for their illustrious achievements. The occasion was ‘Anusandhaan Samaroh’ and an elaborated ‘Interaction Session’ with LPU Engineering students. Distinguished Scientist & Director General (BrahMos), DRDO, Ministry of Defence; Dr Sudhir Mishra is also CEO & MD of BrahMos Aerospace (an India-Russia Joint Venture). Never been to any foreign university for learning, Dr Mishra is a supreme example of being “Home Grown”, and exhibiting an excellent education system of the country. Dr Sudhir Mishra also inspired LPU students to keep on imbibing positivism, confidence, energy and charm that they are seen possessing now.

The highlight of the event remained inauguration of “Center for Space Research with space mission control facility” by Dr Mishra at LPU Campus with hammering the bell as a clarion call for all the scientists at LPU and the country. The student trainees under this the center will be engaged in satellite system design and system engineering; satellite payload and sub-system design and development; satellite assembly, integration, and testing; satellite launch and operation; payload data processing and application; HAM activities; Participating in Space Competitions; Ground station networking; and, Scientific extension activities.

While appreciating LPU environ for providing research-oriented education as a leader, and addressing faculty and students, Dr Mishra invoked all to work on novel and noble ideas to generate wealth. He shared: “In the present time most of the jobs are for knowledge, innovation and new technologies. When one creates a new-wealth, it is not at the cost of someone else. New ideas must have the potential to generate wealth. Research for research's sake is not sufficient. New wealth generation is for the help of the society as a whole. It needs ‘Grey-Power’-an ability to think and somebody to facilitate that unique idea. I feel that LPU and the country has all the elements available towards what all is possible in the country alone. I am happy that LPU has taken a commendable initiative on these lines.” He also talked about the future of defense technologies in the form of high powered micro and laser powers. He invoked all to avail opportunities with unique ideas and work hard.

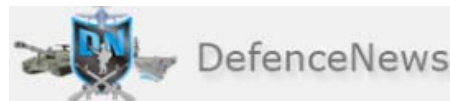
In fact, In the 106th Indian Science Congress held at LPU, Prime Minister of India Shri Narendra Modi ji added “Jai Anusandhan (Research)” to the slogan “Jai Jawan, Jai Kisan, Jai Vigyan”. Reflecting PM Modi’s thoughts, “Anusandhan Samaroh” is organized at LPU, where exemplary

scientists and researchers at the university are recognized for their illustrious attainments and are rewarded. During the ‘Samaroh’, 354 faculty members and 200 students were given merit-based research rewards for their contribution to research and development. Here, the amount of incentives disbursed is Rs 58,76,833 (More than a half-crore of Rupees).

Welcoming the distinguished guest, LPU Chancellor Ashok Mittal shared, “This center will not only act as a resource for LPU but also as a virtual lab for Universities, colleges, schools in India and neighboring countries. The goal of the space mission control facility is to lower financial and engineering barriers that hinder access to science and engineering data from orbit. My best wishes to all faculty and student members who are involved in our satellite project. I wish our satellite is in orbit next year.” Chancellor also referred that faculty and students working in this center will also be developing a satellite “LPUSAT-1” – one of the dream projects of LPU.

Head, Division of Research and Development at LPU, Prof Dr Geetha informed that LPU students and researchers want to communicate with the International Space Station (ISS); download live satellite images; and, receive telemetry, science/engineering data from nano-satellites and larger spacecrafts. Ground station at LPU will meet this need with an internet-to-orbit gateway Mission control center available for public use. This gateway virtually connects participating internet clients around the world to a remote satellite ground station (at LPU), providing a broad community for multinational cooperation.

<http://www.punjabnewsexpress.com/punjab/news/lpu-sets-up-center-for-space-research-with-mission-control-facility-104800.aspx>



*Wed, 12 Feb 2020*

## **In a first, Ananth tech will build 6 satellites for foreign customers**

Aerospace firm Ananth Technologies has signed deals to build six foreign-owned satellites in India, a first by a private firm as it taps the country's low-cost base to make satellites for global customers.

The Hyderabad-based Ananth, a supplier of systems for the Indian Space Research Organisation's (Isro) satellites, is opening a fullfledged satellite-making facility later this month in Bengaluru, where it will build satellites weighing between 50 kg and 250 kg for customers in Sweden and France, chairman and managing director Subba Rao Pavuluri told ET.

“We can fully integrate satellites at around 30% lower costs (than in the West),” said Pavuluri. “We will also help them launch from Indian soil.”

He did not name the customers citing confidentiality agreements.

Ananth Technologies has been a supplier of satellite systems and sub-systems for India's space agency and has also integrated the solar panels for these satellites. Its new facility is designed to fully integrate satellites for both local and overseas customers.

India's decades-long expertise in building satellites has helped create a critical talent base, giving it an edge in tapping outsourcing avenues. The country has an opportunity to integrate medium-sized satellites, Pavuluri said, because they are designed to last for over five years and companies invest huge sums in building them. “We are offering end-to-end service. Integrating the satellite, identifying the rocket and launching them from Indian soil,” he said.

India's Polar Satellite Launch Vehicle (PSLV) has emerged as the preferred rocket to hurl small and medium satellites into space. In the five years to fiscal year 2019, Isro earned Rs 1,254.19 crore from launching satellites for global customers from the US, UK, Japan and Germany, among others.

Isro is developing a small satellite launch vehicle (SSLV), a rocket that can be turned around every two days and designed to hurl 400 kg satellites into low-earth orbit.

Antrix Corp, the commercial arm of Isro, had signed a contract in the past with EADS Astrium to build a communication satellite for British media firm Avanti Screenmedia Group.

Isro has formed New Space India, a new entity to engage with the industry to build and launch satellites on Indian soil.

Other upcoming full-fledged satellite production initiatives include the proposed production facility to be built jointly by Berlin Space Technologies and Ahmedabadbased Azista Aerospace.

Analysts said "a lot of companies are planning to follow this model", but it could be more interesting if the production of full-fledged satellites brings in a satellite services industry.

"These companies can be an outsourcing hub for manufacturing satellites for certain global companies and take advantage of the lowcosts in (India)," said Narayan Prasad, an industry analyst and cofounder of satsearch.com. "What is going to be more exciting is that if service providers in the field of communication or imaging emerge as a result of such satellite producing facilities."

<https://www.defencenews.in/article/In-a-first,-Ananth-Tech-will-build-6-satellites-for-foreign-customers-809270>



*Wed, 12 Feb 2020*

## **Four Indian pilots begin astronaut training in Russia**

The four Indian pilots chosen as candidate-astronauts on Monday began their 12-month training at the Gagarin Research and Test Cosmonaut Training Centre (GCTC) in Moscow, Russian space business company Glavkosmos has announced.

Much of the training will take place at the GCTC facilities, a statement issued in Moscow said. The full programme includes basic or generic astronaut training followed by activities specific to the first Indian human space mission, Gaganyaan.

### **From IAF team**

The four candidates are fighter pilots from the Indian Air Force and were chosen from among hundreds of applicants over the last few months. At the end of all training modules in India and Russia, one or two of the four will be finally named to circle the earth in the first crewed Gaganyaan, which is planned around 2022.

### **12-month module**

In June 2019, the Human Space Flight Centre of the Indian Space Research Organisation and the Russian government-owned Glavkosmos signed a contract for the training, which includes Russian support in the selection of candidates, their medical examination, and space training.

Glavkosmos said, "The 12-month training programme includes comprehensive and biomedical training of the Indian candidates, combined with regular physical practices. They will study in detail the systems of the Soyuz manned spaceship, as well as be trained in short-term weightlessness mode aboard the Il-76MDK aircraft."

The Il-76MDK is an Ilyushin-78 military transport plane specially re-designed for parabolic flights of trainee astronauts and space tourists. The candidates will also be trained to take appropriate actions during emergencies — for example should the spacecraft make an abnormal landing in (unplanned) climate and geographic zones.

<https://www.defencenews.in/article/Four-Indian-pilots-begin-astronaut-training-in-Russia-809263>

## दैनिक जागरण

Wed, 12 Feb 2020

### मॉस्को में भारतीय वायुसेना के चार पायलटों का प्रशिक्षण शुरू, गगनयान के लिए हो रही खास तैयारी

**भारतीय अंतरिक्ष अनुसंधान संगठन (ISRO) के एक अधिकारी ने बताया कि जिन चार पायलटों का चयन किया गया है अभी उनका पद और नाम सार्वजनिक नहीं किया जा रहा है।**

**बेंगलुरु:** रूस की राजधानी मॉस्को स्थित गैगरीन रिसर्च एंड टेस्ट कॉस्मोनॉट ट्रेनिंग सेंटर (GCTC) में इसरो के पहले मानव मिशन गगनयान के लिए भारतीय वायुसेना के चार पायलटों का प्रशिक्षण शुरू हो गया है। 2022 में पृथ्वी की कक्षा में यह अंतरिक्ष यान चक्कर लगाएगा। इसी मिशन के लिए भारतीय पायलटों को अंतरिक्ष यात्री का प्रशिक्षण दिया जा रहा है।

#### भारहीनता मोड का भी होगा प्रशिक्षण

एक अधिकारी ने मंगलवार को बताया कि एक साल चलने वाले इस प्रशिक्षण में बायोमैडिकल, शारीरिक अभ्यास, मानव मिशन ले जा चुके रूसी अंतरिक्ष यान सोयुज का अध्ययन और विशेष यान इल्यूशिन-76 एडीके में भारहीनता मोड का प्रशिक्षण दिया जाएगा।

#### पायलटों की पहचान अभी सार्वजनिक नहीं

भारतीय अंतरिक्ष अनुसंधान संगठन (ISRO) के एक अधिकारी ने बताया कि जिन चार पायलटों का चयन किया गया है, अभी उनका पद और नाम सार्वजनिक नहीं किया जा रहा है। भारतीय वायुसेना के इन पायलटों को एक हफ्ते तक माइक्रो-गैविटी में रहने और बायो साइंस का प्रशिक्षण दिया जा रहा है। रूसी लांच सर्विस प्रोवाइडर ग्लावकॉसमास के अनुसार कुल 12 महीने सुनियोजित तरीके से ट्रेनिंग प्रोग्राम चलेगा।

#### इसरो से हुए करार के तहत प्रशिक्षण

ग्लावकॉसमास की वेबसाइट पर जारी बयान में बताया गया कि गैगरीन रिसर्च एंड टेस्ट कॉस्मोनॉट ट्रेनिंग सेंटर (GCTC) ने इसरो से हुए करार के तहत सोमवार को प्रशिक्षण कार्य शुरू कर दिया है। अधिकांश प्रशिक्षण को जीसीटीसी में ही अंजाम दिया जाएगा। ग्लावकॉसमास के अनुसार 12 महीने के प्रशिक्षण कार्यक्रम में भारतीय अंतरिक्ष यात्रियों को विभिन्न मौसमों और भौगोलिक क्षेत्रों में असामान्य लैंडिंग होने के हालात में सुरक्षित आने का भी प्रशिक्षण दिया जाएगा।

<https://www.jagran.com/news/national-training-of-four-indian-air-force-pilots-begins-in-moscow-special-preparations-for-gaganyaan-20021710.html>