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Youngsters can power India into a defence technology leader: Dr Satheesh Reddy

By Anantha Krishnan M

Lucknow: The Defence Research and Development Organisation (DRDO) has been under increased spotlight and scrutiny in the last few years, with the current government demanding an increased pace of self reliance. DRDO Chairman Dr Gundra Satheesh Reddy, who took charge of DRDO in August 2018, reveals DRDO's new line of thought and focus areas. Excerpts from an exclusive interview with Onmanorama on the sidelines of Defence Expo.

DefExpo 2020

We had around 40 labs displaying more than 500 systems at DefExpo2020 making it the largest ever participation by a single organisation in any expo held in India. Our focus was to showcase our capabilities and matured systems along with the industries. We are committed to the vision of the government which has given defence export mandate of \$5 billion in the next five years. We have taken several steps to reduce the import content in defence manufacturing by looking at various means to boost the indigenous contribution.



At DefExpo, we have handed over 15 transfer of technology (ToT) licenses to 17 industries in the areas of electronics, laser technology, sensors, combat vehicles, armaments, life sciences, aeronautics, materials science and naval systems. We are focused on enhancing self-reliance and operational capabilities of our Services. As a result, there will be new collaborations in R&D for futuristic systems so that India becomes a net exporter in the next five to 10 years.

AI, Space, Cyber

DRDO has taken great strides in the areas of space, cyber, artificial intelligence (AI) and related technologies. With space and cyber being the fourth and fifth dimensions of warfare, DRDO has taken big steps in these directions. Work on AI has been taken up specifically by two labs.

In the coming years, I believe every weapon and equipment will be driven by AI. We need to put lot of young talent to meet the challenges. A road map on AI will be in place.

There is a dearth of young talent in DRDO. It is one thing we need to work on. We are seriously looking at a mechanism how young talent can be taken in large numbers. I feel youngsters can contribute a lot on cyber technology. We have already started work on this area.

On the space front, we have already demonstrated ASAT capabilities. We are not going to weaponise space, but we also want to ensure that our space is secure.

Road Ahead

Our road map for next five years is very clear. We are working on LCA MK-2, AMCA and Naval LCA. We are strong in the areas of missiles, radars, torpedoes, electronic warfare systems and sonars. In these areas we want to have complete self-reliance.

Meanwhile, we are looking at the areas of concern and are taking the help of academic institutions. We want to bring industries to the level of build-to-specification, so that we can offload production to them and concentrate on design and development of large systems. The synergy between DRDO, academia and industry is the key.

Young Scientists

We have recently created five DRDO Young Scientist Laboratories (DYSLs) in Bengaluru, Mumbai, Chennai, Kolkata and Hyderabad. These labs are working on advanced technology areas such as AI, quantum technologies, cognitive technologies, asymmetric technologies and smart materials.

All scientists working here are below 35 years including the Director, who has the same powers as any other DRDO lab director. We are keen to have a vibrant environment in these labs.

In the next one year, they will be able to come up with substantial state-of-the-art technologies of value to defence applications.

Missile Matters

In the last one year we saw multiple success on the missile front. Various trials of Astra, quick reaction surface to air missile (QRSAM), Nag and Pinaka were successfully completed.

This year the user trials of HELINA missile and man portable anti tank guided missile (MPATGM) will be completed. Development trials of new generation anti radiation missile (NGARM) will be taken up this year. We are also working on Astra Mk-2 long range air-to-air missile. There are several other missiles that are in the pipeline.

On the weapons front, we have developed the Advanced Towed Artillery Gun System (ATAGS) in collaboration with Tatas and Bharat Forge. This year the system will undergo user trials. We are also developing the Joint Venture Protective Carbine (JVPC) and smart anti-airfield weapon (SAAW) bomb.

I am confident that SAAW will complete its trials this year and enter into production. There are many other weapons also being developed simultaneously.

Delays & Deadlocks

We are addressing this issue where ever we are encountering delays. We are getting into the depth of the matter to trace the cause of delays.

But, I must tell you that multiple changes are happening in DRDO and speed is the new mantra. We have become very aggressive with our time frames. Development trials of QRSAM, guided Pinaka missile and SAAW also have been completed. These are all completed as per exacting global standards and tight schedules.

We have laid down an aggressive schedule for LCA Mk-II (MWF: Medium Weight Fighter) and Advanced Medium Combat Aircraft (AMCA). I am sure of developing these systems in a record time.

Everyone is motivated in DRDO today, especially the youngsters. Youngsters are coming with many new ideas in the area of defence technologies. Many youngsters are doing wonders in these areas, even outside DRDO. My advice to youngsters is that whether you work with DRDO or any private industry in India, work to develop globally best in class systems. Let's prove that India is not only good at Internet and communications technology (ICT) areas alone, but in the field of defence technology as well.

<https://english.manoramaonline.com/news/nation/2020/02/14/youngsters-india-defence-technology-satheesh-reddy.html>

HAL to provide IAF with 83 Tejas fighters in Rs 39k cr deal

By Rajat Pandit

New Delhi: The biggest deal in the indigenous military aviation sector has been finalised, with the overall cost of IAF acquiring 83 single-engine Tejas fighters and their support package from defence PSU Hindustan Aeronautics Limited (HAL) being slashed from the earlier around Rs 56,500 crore to Rs 39,000 crore.

THE DELAYED DESI FIGHTER

TIMELINE:

Aug 1983: Govt approves LCA project, with initial Rs 560 crore, to replace ageing MiG-21s

Jan 2001: First prototype flies


Dec 2013: Single-engine Tejas gets Initial Operational Clearance (IOC)

Jan 2015: IAF gets 1st jet (in IOC configuration)

July 2016: IAF raises first squadron (Flying Daggers) with only 2 jets

Feb 2019: Tejas gets final operational clearance (FOC)

Feb 2020: Only 16 jets (IOC) inducted by IAF till now (trainers yet to get FOC)



TOTAL COST: OVER ₹65,000 CRORE TILL NOW

Development of IAF/Naval variants, trainers & failed Kaveri engine: ₹17,269cr	March 2006 contract for 20 Tejas for IAF in IOC configuration: ₹2,813cr
Dec 2010 contract for 20 Tejas for IAF in FOC configuration: ₹5,989cr	Impending contract for 83 Mark-1A Tejas for IAF: ₹39,000cr

FUTURE PLANS

- Delivery of 83 Tejas Mark-1A jets to begin 3 years after contract inked. Total of 123 Mark-1 & Mark-1A jets
- Development of Tejas Mark-II or Medium Weight Fighter (MWF), with more powerful engines & advanced avionics. First test-flight planned for 2023. IAF wants 170 of them
- Get sanction this year to develop stealth fifth-generation fighter aircraft, the advanced medium combat aircraft (AMCA). First test-flight by 2025-2026. IAF wants at least 126 (seven squadrons) of them

The over Rs 17,000 crore reduction in overall cost has come after hardnosed negotiations spread over a year. The defence ministry and IAF were initially shocked at the “exorbitant price” being

demanding by HAL to produce the 83 Tejas Mark-1A jets along with the maintenance and infrastructure package.

“With the contract price now settled at Rs 39,000 crore, the procurement file is being sent to the Cabinet Committee on Security for final nod. It should be cleared before this fiscal ends on March 31. Once the contract is inked, HAL promises to begin deliveries of the Mark-1A jets in three years,” said a source.

It was in November 2016 that the Defence Acquisitions Council had first approved the procurement of 83 Tejas jets at a cost of Rs 49,797 crore. But HAL had responded with a quote of around Rs 56,500 crore, which led to protracted cost negotiations. “HAL, for instance, was even charging profit on imported components. Item by item, the cost was brought down. IAF also cut down some of its support requirements,” said the source.

Down to just 30 fighter squadrons (each has 18 jets) when at least 42 are required for the requisite deterrence against Pakistan and China, the IAF is banking upon the long-delayed light combat aircraft Tejas to make up the free fall in numbers.

The first four Rafale fighters will touch down at Ambala airbase in May, with the remaining 32 following in batches by April 2022 under the Rs 59,000 crore deal inked with France in September 2016. But the slow production rate of the home-grown Tejas fighters by HAL, much like its protracted development saga, remains a major concern for IAF.

The IAF’s ‘Flying Daggers’ squadron at Sullur has till now inducted only 16 of the original 40 Tejas Mark-1 fighters, which were all slated for delivery by December 2016 under two contracts worth Rs 8,802 crore inked earlier.

The 83 Tejas Mark-1A fighters are slated to have 43 “improvements” over the Mark-1 jets to improve maintainability, AESA (active electronically scanned array) radar to replace existing mechanically-steered radar, air-to-air refuelling, long-range BVR (beyond visual range) missiles and advanced electronic warfare to jam enemy radars and missiles.

“The flight testing for Tejas Mark-1A will hopefully be completed by 2022. After these 123 fighters, the IAF is also looking to induct 170 Tejas Mark-2 or the MWF (medium weight fighter) jets with more powerful engines and advanced avionics,” another source said.

But the Tejas Mark-2 and the indigenous stealth fifth-generation fighter aircraft called the advanced medium combat aircraft (AMCA) will take several years to fructify. For now, IAF is keeping its fingers crossed the Tejas Mark-1A does not get delayed any further.

<https://timesofindia.indiatimes.com/india/hal-to-provide-iaf-with-83-tejas-fighters-in-rs-39k-cr-deal/articleshow/74166367.cms>

Bipin Rawat headed-DMA will give preference to domain experts like DRDO and ISRO

The Gen Rawat-headed Department of Military Affairs is currently operating with an interim structure as govt is yet to accord final sanction

By Amrita Nayak Dutta

New Delhi: The newly-created Department of Military Affairs (DMA) headed by General Bipin Rawat, who is also the first Chief of Defence Staff (CDS), will give preference to domain experts just like in organisations such as the Ministry of External Affairs (MEA), Defence Research and Development Organisation (DRDO) and Indian Space Research Organisation (ISRO), a top officer said Friday.

“We are taking lessons from DRDO and ISRO where there are specialists, and based on that the final structure of DMA will be firmed up,” Major General Mukesh Aggarwal, defence advisor to CDS, said.

It will be a mix of civil and military personnel and will have a lean structure, the officer said.

While the MEA is headed and has a majority of Indian Foreign Service (IFS) officers, the DRDO has scientists and technocrats and ISRO has scientists at all decision-making levels.

The DMA structure

The DMA is currently operating with an interim structure as the government is yet to accord a final sanction on the structure of the department, which falls under the Ministry of Defence.

As a result, only Rawat, who is both the secretary of the DMA and the CDS, has financial powers in the entire department.

The present structure of the DMA has the secretary at the helm. Under him, there is a secretary (transformation and coordination), a position currently held by Vice Admiral R. Hari Kumar, who is also the current Chief of Integrated Defence Staff (CISC).

There will be an additional secretary who will be a military personnel and five joint secretaries.

Of the five joint secretaries, three will be military personnel from the Army, Navy and Indian Air Force. The remaining two joint secretaries have been appointed and are from the Indian Administrative Services (IAS) — Rajeev Singh Thakur, a 1995-batch of the Rajasthan cadre and Shantanu, a 1997-batch officer of Tripura cadre.

The Army joint secretary will be responsible for the Army and the Territorial Army, the Navy joint secretary will be responsible for Defence Staff and IAF joint secretary will be responsible for staff duty.

The other two joint secretaries will be responsible for works, coordination and legal and vigilance and establishment, respectively.

The Army will also have 10 directors/deputy secretaries under it, while the Navy and the IAF will have five-six directors/deputy secretaries under it. There will also be two independent directors, including director (statutory complaints and complaints) and director (personnel). The independent directors will report to the additional secretary.

“The structure has been made in sync with how the government works,” Aggarwal said.

The DMA secretariat

The DMA secretariat will have the CDS, a Defence Advisor with three deputies and two aides-de-camp (ADC) among other staff.

The DMA will review for the selection board on matters of promotions of Brigadiers to Major Generals and equivalents. Earlier, it used to go to the Department of Defence (DoD) for review. But now all armed forces have been moved under DMA. Similarly, all statutory complaints, promotions and postings of senior armed forces officers will go to the DMA.

The DMA will also be in charge of revenue procurement and will have a say in the prioritisation of capital procurement. Cases prioritised by the CDS will go to the Defence Acquisition Council (DAC).

The DMA will also oversee supply of arms and ammunition to friendly neighbouring countries such as Sri Lanka, Nepal and the Maldives and monitor developments in the Indian Ocean region, Afghanistan, West Asia and SouthEast Asia.

The DMA will be responsible for key matters relating to India's neighbouring countries including border disputes and incidents, development of infrastructure in forward areas and deployment of forces.

The DMA is the fifth vertical in the defence ministry, the other four being the departments of defence, defence production, defence research and development and ex-service welfare.

<https://theprint.in/india/bipin-rawat-headed-dma-will-give-preference-to-domain-experts-like-drdo-and-isro/365781/>

THE ASIAN AGE

Mon, 17 Feb 2020

CDS to prioritise weapons acquisition

The last DAC had met on January 21 and had accorded approval for procurement of equipment worth over Rs 5,100 crore from indigenous sources

By Pawan Bali

New Delhi: The Defence Acquisition Council (DAC) headed by Defence minister Rajnath Singh from now on will take up arms and ammunition proposals which are prioritised by the chief of defence staff (CDS).

This means that chiefs of Army, Navy and Air Force will have to co-ordinate and discuss their proposals with CDS and the chief in consultation with them will set priority of which arms or ammunition are needed and should be acquired.

Interestingly, according to the new rules the capital acquisitions still comes defence secretary Dr Ajay Kumar and revenue comes under the department of military affairs headed by CDS. But, even then it is the chief of defence staff who will set the priority of capital acquisitions.

“In the last DAC meeting which was also attended by CDS the old proposals on which had some work had been done were cleared. However, from now on proposals which are prioritised by the CDS will be taken,” said a senior official.

The last DAC had met on January 21 and had accorded approval for procurement of equipment worth over Rs 5,100 crore from indigenous sources.

CDS General Bipin Rawat has already indicated that he may not be in favour of Indian Navy's proposal to have a 3rd aircraft carrier and he may not like Air Force to buy another 100 fighter jets at one go.

Based on change battlefield dynamics, CDS is expected to cancel approvals granted for acquisition of equipment that are now obsolete, said the official. “The technology is changing fast. The old Acceptance of Necessity (AoNs) which don't meet the changed battlefield dynamics will be cancelled. Anyway AoNs are there only for 2 years and after which they themselves expire,” said the official.

AoN clears the way for the tendering process for acquisitions to start after which the next step is the issuance of the Request for Proposal (RFP). CDS is the permanent member of DAC and Defence Planning Committee chaired by National Security Adviser (NSA).

<https://www.asianage.com/india/all-india/170220/cds-to-prioritise-weapons-acquisition.html>

अमर उजाला

Sun, 16 Feb 2020

सीडीएस जनरल बिपिन रावत जल्द करेंगे एयर डिफेंस कमांड की स्थापना, वायु सेना का अधिकारी करेगा नेतृत्व

चीफ ऑफ डिफेंस स्टाफ (सीडीएस) जनरल बिपिन रावत ने इस साल जून तक पहली एकीकृत त्रि-सेवा कमान स्थापित करने का लक्ष्य रखा है, जिसका प्रमुख भारतीय वायु सेना (आईएएफ) का एक अधिकारी होगा।

सरकारी सूत्रों ने एएनआई को बताया कि सैन्य मामलों के विभाग को दिए गए जनादेश के तहत बनाया जाने वाला पहला एकीकृत सैन्य गठन एक एयर डिफेंस कमांड होगा, जिसका नेतृत्व एक एयर मार्शल करेगा जिसमें सेना और वायु सेना के साथ वायु रक्षा संपत्ति भी शामिल होगी।

सीडीएस ने सेना प्रमुख जनरल मनोज मुकुंद नरवणे और वायु सेना प्रमुख आरकेएस भदौरिया के साथ एकीकृत वायु रक्षा कमान की संरचना और संपत्ति को अंतिम रूप देने के लिए चर्चा शुरू कर दी है।

सैन्य मामलों के विभाग को थिएटर कमांड के साथ संयुक्त सैन्य कमांड बनाने के लिए जनादेश दिया गया है जो तीन सेनाओं को शामिल करने वाला एक बड़ा पुनर्गठन अभ्यास होगा। जनरल रावत थिएटर कमांड के अलावा संयुक्त प्रायद्वीप कमान और एक लॉजिस्टिक्स कमांड के निर्माण पर भी काम कर रहे हैं।

सूत्रों ने कहा कि थिएटर कमांड या अन्य एकीकृत कमांडों के नेतृत्व के लिए जनरल-रैंक पोस्ट का निर्माण नहीं होगा और इनकी अध्यक्षता तीनों सेवाओं के लेफ्टिनेंट जनरल-रैंक के अधिकारी करेंगे।

प्रत्येक सेना की अपनी व्यक्तिगत वायु रक्षा सेट-अप है। वायु रक्षा कमांड, वायु सेना और नौसेना की वायु रक्षा और परिसंपत्तियों को एकीकृत करेगा और साथ ही संयुक्त रूप से देश को वायु रक्षा कवर प्रदान करेगा। वायु सेना और थल सेना अपनी वायु रक्षा परिसंपत्तियों के एकीकरण और पाकिस्तान के साथ सीमावर्ती क्षेत्रों में फिर से तैनाती के लिए एक दूसरे के साथ बातचीत कर रहे हैं।

<https://www.amarujala.com/india-news/air-defence-command-to-be-set-up-first-by-cds-bipin-rawat-headed-by-3-star-iaf-officer>



Despite indigenous guns' success, country plans imports from Israel

By Ajay Banerjee

New Delhi: Despite the recent success of indigenously made artillery guns, the process of acquiring some 1,580 pieces from a foreign supplier is progressing and is now at the stage of cost negotiation.

According to sources, so far there is no indication to have locally made guns to fill in the numbers for which negotiation is on. "Cost negotiation is on get 400 pieces from Elbit of Israel in a ready-to-use condition and the remaining 1,180 will be assembled here in India by the foreign supplier in a partnership with Indian partner Bharat Forge," the source said.

So far there is no discussion on restricting foreign supplies to a particular number and then filling in gaps by making more of the indigenous Advanced Towed Artillery Gun System (ATAGS) and the Dhanush.

The ATAGS is undergoing user trials — a nomenclature for Army trying out the weapon. It is developed by the DRDO in partnership with Tata Power SED and Bharat Forge. The Defence Acquisition Council has okayed 150 ATAGS, but a contract is yet to be signed.



The Dhanush, a gun made by the Ordnance Factory Board (OFB), is already being inducted in phases. A total of 114 pieces are on order.

The induction of 'Sharang' upgraded artillery pieces has commenced at the just concluded def-expo. A total of 300 of the 130 mm guns of Soviet parentage are being up-gunned to 155 mm by the Ordnance Factory Board (OFB). The entire lot will be supplied by 2022.

India has some 1,000 of the 130 mm M-46 artillery guns. Around 180 guns were upgraded by Israeli firm Soltam in 2008.

The Army's Field Artillery Rationalisation Plan, drawn in 1999, is aimed at acquiring 2,800-3,000 155 mm/52-calibre guns of all kinds and 155 mm/39-calibre lightweight howitzers by 2027.

The projection includes 814 truck-mounted guns, 1,580 towed guns, 100 tracked self-propelled guns, 180 wheeled self-propelled guns and 145 ultra-light howitzers.

Elbit Systems has won a bid to ATHOS (Autonomous Towed Howitzer Ordnance System) 2052 to the Indian Army, in a deal that could go up to Rs 9,000- 10,000 crore.

The DRDO is pushing to increase local production over import.

1,180 pieces to be assembled in India

- According to sources, cost negotiation is on get 400 pieces from Elbit of Israel in a ready-to-use condition and the remaining 1,180 will be assembled here in India by the foreign supplier in a partnership with Indian partner Bharat Forge. So far there is no discussion on restricting foreign supplies to a particular number and then filling in gaps by making more of the indigenous Advanced Towed Artillery Gun System or the Dhanush.

<https://www.tribuneindia.com/news/despite-indigenous-guns-success-country-plans-imports-from-israel-42678>

11 Interesting & unknown facts about APJ Abdul Kalam

Here are some interesting and lesser-known facts about the Missile Man of India

By Omair Iqbal

Dr APJ Abdul Kalam was an aerospace scientist. He also served as the 11th President of India from 2002 to 2007. He was born on 15 October 1931 in Rameshwaram, Tamil Nadu and studied physics and aerospace engineering.

Dr APJ Abdul Kalam spent over 40 years as a scientist and science administrator, mostly at the Defence Research and Development Organisation (DRDO) and Indian Space Research Organisation (ISRO) and was intimately involved in India's civilian space programme and military missile development efforts.

Abdul Kalam was regarded as the Missile Man of India for his outstanding work on the development of ballistic missile and launch vehicle technology. There are plenty of things about Dr APJ Abdul Kalam that people do not know. That's the reason why we have decided to share some unknown facts about the Missile Man of India.

Here are 11 Interesting Facts About Former President Dr APJ Abdul Kalam:

- Kalam was born on 15th October 1931 in Rameswaram, Tamil Nadu. He graduated in science from St. Joseph's College, Trichy in 1954 and specialised in Aeronautical Engineering from Madras Institute of Technology (MIT) in 1957.
- Kalam presided over the development of India's first satellite launch vehicle, SLV III, which was used for launching the Rohini satellite into the Earth's orbit. This feat marked India's entry into the Space club.
- After working for two decades in ISRO, Kalam took up the responsibility of developing indigenous guided missiles at the Defence Research and Development Organisation (DRDO).
- He was responsible for the development and operationalisation of Agni and Prithvi missiles, which made him popular as the 'Missile Man of India'.
- Abdul Kalam engineered the Pokhran-II nuclear tests which catapulted India into the club of Nuclear Powers, which were till then only exclusive to five countries- USA, China, UK, France and Russia. In the 2018 movie 'Parmanu: The Story of Pokhran', John Abraham was inspired by Kalam.
- He received honorary doctorates from 48 universities and institutions from India and abroad.
- Abdul Kalam was awarded the coveted civilian awards – Padma Bhushan (1981), Padma Vibhushan (1990) and the highest civilian award of India- Bharat Ratna (1997).
- Apart from physics and defence, Kalam also left his fingerprints on efforts to improve healthcare in rural India. Together with cardiologist Soma Raju, he developed a low-cost stent which was thereafter christened the Kalam-Raju stent.
- For seven years (1992-1999) Kalam remained the Chief Scientific Adviser to the PM and Secretary of the DRDO.
- In 2002, he defeated Lakshmi Sahgal to become the 11th President of India. He has been immortalised in the country's history as the 'People's President'.
- On 27 July 2015, Dr Kalam passed away due to sudden cardiac arrest in Shillong.

<https://www.thelivemirror.com/unknown-apj-abdul-kalam-facts/>

'Risk-sharing' model for Indian medium lift chopper likely

Looking at a 'risksharing' model to develop an indigenous medium lift helicopter that will replace all imports in that class for the armed forces, India's leading aerospace manufacturer has requested the government for permissions to go ahead on the ambitious project

By Manu Pubby

New Delhi: Looking at a 'risksharing' model to develop an indigenous medium lift helicopter that will replace all imports in that class for the armed forces, India's leading aerospace manufacturer has requested the government for permissions to go ahead on the ambitious project. The Indian Multi Role Helicopter (IMRH) plan, project costs for which are expected to breach the Rs 10,000 crore mark, will have several unique aspects, including a design that will allow it to operate with two different engines so that it does not remain dependent on any one source.

The scale of initial investments needed is particularly high as the programme will include multiple destruction tests to prove the sturdiness of the design before it can be certified for military use and it has to match up at least to the Russian origin Mi 17V5 that is intended to be replaced. There is an urgency to process the permissions by this year, given that a six-year developmental timeline is expected. This would ensure that the Indian made chopper will be ready by 2027, when the air force has to start replacing its fleet of imported Mi 17s that will reach the end of service life. Hindustan Aeronautics Limited (HAL) CMD R Madhavan has told ET that a different developmental model is in the works for the most ambitious Indian helicopter plan yet. "For the IMRH, we are looking at having two separate engine options. The power requirement is high but manufacturers in France, Russia and the US have suitable engines," he said, adding that the idea is not to remain captive to just one source that can drive up prices later once the chopper is ready for service.

Hi-tech Venture

Indian Multi Role Helicopter to have a design that will allow it to operate with two different engines

Programme will include multiple destruction tests to prove the sturdiness of the design

HAL will also need foreign collaboration for the project

Air force has to start replacing its fleet of imported Mi 17s by 2027

The programme will require a heavy duty engine in the 2500 horsepower range that will need to be manufactured locally, given the potential orders in mind. The leading Indian aeronautical company will also need foreign collaboration for the project and will be going in for a risk-sharing model where vendors will help during the developmental project.

<https://economictimes.indiatimes.com/news/defence/risk-sharing-model-for-indian-medium-lift-chopper-likely/articleshow/74144167.cms>

India inks 14 MoUs with Russia for defence support, spares

They cover modern T-90 tanks, Pechora air defence systems

DINAKAR PERI
NEW DELHI

In a step forward towards addressing the issue of regular spares and support for Russian military equipment with the armed forces, 14 MoUs were signed between Indian and Russian companies for setting up joint ventures covering a range of equipment from modern T-90 tanks to legacy Pechora air defence systems.

The MoUs were signed during the 5th India Russia military industry conference held during the Defexpo 2020 in Lucknow. They come under the Intergovernmental Agreement (IGA) on joint manufacturing of spares in India signed last September for mutual cooperation in manufacturing of spares, components, aggregates and other material related to Russian or Soviet-origin arms and defence equipment.

Lack of timely spares and support has been a constant issue faced by the military, a major part of which consists



Military assistance: T-90 Tank Bhisma during the 2018 Republic Day parade rehearsal in New Delhi. *FILE PHOTO

of Russian defence hardware.

"The first 'Request for Proposal' for manufacturing of parts in India under the provision of IGA was also handed over by the Navy to the identified Indian industry," the Defence Ministry said in a statement. The conference was co-chaired by Dr. Ajay Kumar, Defence Secretary and Oleg Ryazantsev, Deputy Minister of Industry and Trade of Russia.

One important MoU was signed between the Bharat Dynamics Limited and the Almaz Antey of Russia for ex-

ploring the feasibility of a joint venture in India for the production of various sub systems of "air defence missile systems like Tunguska, Kavadrat, the OSA-AKA, Pechora air defence system as well as the Shilka self-propelled air defence gun system".

There are also agreements on emerging technologies – Artificial Intelligence, Internet of Things, blockchain and robotics based on Russian technologies under the proposed Indo-Russian Joint Venture ICE Center of Excellence.

अमेरिकी मिसाइल सुरक्षा प्रणाली की ऊंची कीमत से भारत चिंतित, अब सुरक्षा के दूसरे विकल्पों पर विचार

भारत सरकार अमेरिकी मिसाइल सुरक्षा प्रणाली की ऊंची कीमत को देखते

हुए राजधानी दिल्ली की सुरक्षा के लिए दूसरे विकल्पों पर विचार कर रही है।

नई दिल्ली: भारत सरकार अमेरिकी मिसाइल सुरक्षा प्रणाली की अत्यधिक ऊंची कीमत को लेकर चिंतित है। लड़ाकू विमानों, क्रूज मिसाइलों और ड्रोन जैसे हथियारों के हमलों से राष्ट्रीय राजधानी दिल्ली की सुरक्षा को अभेद्य बनाने के लिए सरकार इस सुरक्षा कवच को खरीदना चाहती है। अमेरिका की सरकार ने पिछले हफ्ते एकीकृत वायु रक्षा हथियार प्रणाली (आइएडीडब्ल्यूएस) भारत को बेचने की मंजूरी दी थी। अमेरिका की तरफ से इस सौदे की कीमत 1.9 अरब डॉलर (लगभग 13000 करोड़ रुपये) तय की गई है। इसके तहत भारतीय वायुसेना को विभिन्न तरह के रडार और मिसाइल प्रणाली मिलेगी।

सरकारी सूत्रों ने बताया कि भारत को अनुमान था कि यह सौदा एक अरब डॉलर यानी लगभग सात हजार करोड़ रुपये में हो जाएगा। इस तरह कीमतों में लगभग दोगुना का अंतर है। सूत्रों के मुताबिक भारत सरकार सौदे की ऊंची कीमत को देखते हुए दूसरे विकल्पों पर भी विचार कर रही है। रक्षा अधिग्रहण परिषद ने भी जुलाई, 2018 में इस प्रोजेक्ट की कीमत लगभग एक अरब डॉलर तय की थी। भारत ने रूस की मिसाइल सुरक्षा प्रणाली के स्थान पर इस सुरक्षा प्रणाली को खरीदने में दिलचस्पी दिखाई थी। इसे दिल्ली की सुरक्षा के लिए वायु सेना के दिल्ली कमान में तैनात किया जाना है, जहां अभी रूसी सुरक्षा प्रणाली को तैनात किया गया है।

सूत्रों ने बताया कि राष्ट्रपति डोनाल्ड ट्रंप की आगामी भारत यात्रा के दौरान यह मुद्दा उठ सकता है। ट्रंप 24-26 फरवरी को भारत की यात्रा पर आ रहे हैं। ट्रंप की यात्रा के दौरान भारतीय नौसेना के लिए दो दर्जन सीहॉक हेलीकॉप्टर और सेना के लिए पांच अपाचे हेलीकॉप्टर के सौदे पर भी बातचीत आगे बढ़ने की उम्मीद है। सूत्रों ने बताया कि अमेरिका से 30 प्रीडेटर ड्रोन जैसे अन्य सैन्य सौदों में ऊंची कीमत सबसे बड़ी चिंता की बात है। इसमें प्रत्येक ड्रोन की कीमत 10 करोड़ डॉलर (लगभग 700 करोड़ रुपये) है। इसमें ड्रोन का इस्तेमाल हथियार गिराने के साथ ही निगरानी के लिए करने का विकल्प भी है।

अमेरिका ने भारत को जो मिसाइल सुरक्षा प्रणाली देने को मंजूरी दी है, उसे नसम्स (एनएसएस/एएमएस) मिसाइल सुरक्षा प्रणाली के नाम से जाना जाता है। इसमें पांच एन/एमपीक्यू-64एफ1 सेंटिनल रडार प्रणाली, फायर डिस्ट्रिब्यूशन सेंटर, 118 एमराम एआइएम-120सी-7/सी-8 मिसाइल भी शामिल है। साल 2018 में भारतीय टीम वाशिंगटन गई थी। टीम ने नसम्स सुरक्षा प्रणाली के कामकाज को देखने की इच्छा जताई थी, लेकिन अमेरिका ने अनुमति नहीं दी, क्योंकि इस सुरक्षा प्रणाली को अमेरिका के एक सैन्य अड्डे के मध्य में तैनात किया गया था।

<https://www.jagran.com/news/national-india-concerned-over-high-price-of-american-missile-defence-system-for-delhi-20036492.html>

Focus on real-time social issues: PM to Scientists

New Delhi: Prime Minister Narendra Modi on Saturday urged the scientists to work on the aspirational needs of India and focus on present social issues like malnutrition by focusing on the agriculture products and water conservation.

Chairing a meeting of Council of Scientific and Industrial Research Society (CSIR) here, he also suggested the scientists to focus on emerging challenges like 5G, artificial intelligence and affordable and durable batteries needed for renewable energy to make the society a better place to live.

During the meeting, the Prime Minister was given an overview of the work done by CSIR, a premier research organization under the Union Ministry of Science and Technology. He appreciated the tasks undertaken and also gave his suggestions to chart out a future road map, according to a statement from the Prime Minister's Office.

The Prime Minister exhorted the scientific community at CSIR to work towards improving the quality of life of the common man and highlighted the need to combine traditional knowledge and modern science to develop world-class products.

He also spoke about the importance of the commercialization of innovations. The Prime Minister stressed the importance of developing virtual labs so that science can further be taken to all students in each and every corner of the country, as per the statement.

Modi also stressed on the need to attract young students toward science and further strengthen scientific acumen in the next generation. He also suggested measures to enhance collaboration in research and development projects amongst Indians working in different parts of the world.

According to the statement, the Prime Minister spoke on the need to attract young students toward science and further strengthen scientific acumen in the next generation.

He also suggested measures to enhance collaboration in research and development projects among Indians working in different parts of the world.

<https://www.dailypioneer.com/2020/india/focus-on-real-time-social-issues--pm-to-scientists.html>

THE TIMES OF INDIA

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With India's security in mind, ISRO plans to launch 10 surveillance satellites in 2020-21

By Surendra Singh

New Delhi: With the country's security in mind, Indian Space Research Organisation (Isro) is gearing up to launch an unprecedented 10 earth observation satellites with space surveillance feature during 2020-21, according to the annual report of the Department of Space. In comparison to 10 earth observation (EO) satellites, only three communication satellites and two navigation satellites are scheduled to be launched in the next financial year starting April this year. In the past, Isro had never given so much impetus in boosting its surveillance powers and the focus was more on communication satellites. A huge number of EO satellites suggests ISRO's priority is to boost space surveillance in order to keep an eye on terror launch pads along the borders, checking infiltration and keeping an eye on China's naval activities in the Indian Ocean Region.

For the current fiscal year 2019-20, Isro has planned 17 missions. Of these, six are yet to be completed and are expected to be launched by March 31. Of the six EO satellites planned, four have been launched and two are likely by the end of the current fiscal. In fiscal year 2021-22, the space agency will target to add eight more EO satellites.

Besides their widespread use for civil applications related to land, water and environment like agriculture, forestry and water resource management, EO satellites are actually “eyes in the sky” that provide constant surveillance.

The 10 earth observation (EO) satellites include the high-tech Geo Imaging Satellite Gisat-1 that has the capability to do real-time earth imaging. “Gisat-1 will do a full rotation of the Earth and come to the same point after every 2 hours. It is really good for fast imaging of the Earth and can perform constant and rapid surveillance. If needed, the satellite can observe a point for a longer duration,” says a source in ISRO.

The other EO satellites include highly advanced radar imaging satellites RISAT-2BR2, RISAT- 1A and 2A (with high agility X-band synthetic aperture radar), Oceansat-3 and Resourcesat-3/3A & SA. Risat satellites with high-spatial resolution will provide all weather, day and night imaging services from space. They will be good for space surveillance and will mainly be used by security forces.

According to the annual report, Isro has planned in all 36 missions, including satellites and launchers, in 2020-21. These missions include the launch of three space science satellites, one technology demonstrator test, two small satellite launch vehicle demonstration tests, 10 PSLVs, three GSLV Mk-II, one GSLV-MkIII and one unmanned flight of Gaganyaan in 2020-21.

ISRO is also planning to launch a new series of high-resolution satellites (HRSATs) that will be a constellation of three satellites packed together in a PSLV. These three satellites will be placed in space to provide systematic coverage of high resolution panchromatic and multispectral data. They will provide images with better than 1.0 m resolution with 15 km swath. The constellation is meant for large-scale land mapping.

A budget of Rs 13,480 crore has been proposed for the next fiscal in the recent budget for the Department of Space. Of it, Rs 265 has been allocated under the Space Sciences category and Rs 750 crore under the Insat Satellite System category. Most of the EO satellites to be launched in 2020-21 will be funded from the money allocated under these two categories.

<https://timesofindia.indiatimes.com/india/with-indias-security-in-mind-isro-plans-to-launch-10-surveillance-satellites-in-2020-21/articleshow/74166548.cms>

ISRO making preparations to launch GISAT-1 in March

This satellite will keep a constant watch on borders: official

FIROZ ROZINDAR
VIJAYAPURA

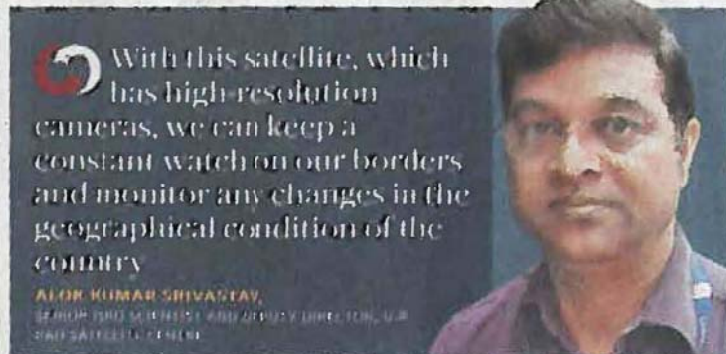
The Indian Space Research Organisation (ISRO) is preparing to launch GISAT-1, a new earth observation satellite, in the first week of March.

GISAT-1 – Geo Imaging Satellite – will be the first of two planned Indian EO spacecraft to be placed in a geostationary orbit of around 36,000 km. It will apparently be in a fixed spot looking over the Indian continent at all times.

All Indian EOs have been placed so far in a 600-odd-km orbits and circle the earth pole to pole. GISAT-1 will be launched from the Sriharikota satellite launch centre. “With this satellite, which has high-resolution cameras, we can keep a constant watch on our borders, monitor any changes in the geographical condition of the country, etc.,” said Alok Kumar Srivastav, Senior ISRO scientist and Deputy Director, U.R. Rao Satellite Centre, Bengaluru.

Chandrayaan-3

On Chandrayaan-2, he said that after the failed lunar landing of the project owing



to technical reasons, ISRO had planned to repeat the project. “The government has already approved the [Chandrayaan-3] project. We are working on it. We are planning to relaunch the project within a year. I am hopeful that this time we will be successful in our endeavour to land our rover near the lunar southern where no rover has landed so far,” he said.

Space station

ISRO is expected to develop its own space station within a decade. “ISRO scientists are making every effort to develop our own space station. Hopefully, in the next ten years, India will have its own space station like the U.S. and China,” Dr. Srivastav said. To achieve this gigantic target, preparations

are already under way at ISRO. He said ISRO had planned to first send two unmanned spacecraft within a couple of years, and later a crewed mission in the third phase.

“Our astronauts are already undergoing training in Russia. After the completion of their training, they will be part of the first manned mission. The success of the mission will open new avenues for the setting up of our own space station, which will be possible within a decade from now,” he said.

Dr. Srivastav said that as a space scientist, he was hopeful that life existed in some or the other form somewhere in the galaxy. “We are searching for them, and possibly they are searching for us, and hopefully some day we will meet.”

Sat, 15 Feb 2020

High profile women's conclave to be held on Feb 20

Hyderabad: Cyberabad Police and Society for Cyberabad Security Council (SCSC) will organise High Profile Women's Conclave at HICC on February 20.

Announcing this at a press conference here on Friday, Cyberabad Police Commissioner V C Sajjanar said that Dr Tessy Thomas, Director General of Aeronautical Systems, DRDO will be the Chief Guest.

Mr Jayesh Ranjan, Principal Secretary, IT, Govt of Telangana and Ms. Sai Pallavi, Actress will be the guest of honour.

Ms Shailee Basnet, Mountaineer who was part of the seven member team, the first women's team in the world to climb the highest peak on each of the seven continents, SS Rajamouli, the Bahubali fame Director, Seema Rao, also known as India's Wonder Woman who is India's first woman commando trainer, having trained Special Forces of India for 18 years without compensation among many will grace the conclave, he said.

Mr Sajjanar said that it is the second edition of Annual SCSC Women's Conclave.

SCSC acts as a bridge between the IT industry and Cyberabad Police to meet the safety and security needs of IT corridor since its inception in 2006. She M Power was launched last year at the first Women's Conclave with a vision that in the true sense Women can be empowered when their counterpart male will Respect them, create an opportunity for their Rise and help them Reach their goals, Mr Sajjanar said.

1200 participants including few police officials from across Telangana & other states will be participating, the Commissioner said..

The SCSC is the joint collaboration between Cyberabad Police Commissionerate and IT industry to promote Hyderabad as the preferred IT destination, SCSC Vice Chairman Bharani Kumar said. UNI VV ASN 2016

<http://www.uniindia.com/high-profile-women-s-conclave-to-be-held-on-feb-20/south/news/1888016.html>