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THE ECONOMIC TIMES
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Sat, 23 Nov 2019

After Balakot show, government to have more desi eyes in the sky

The 'eye in the sky' project — an aircraft-mounted radar that can look deep into enemy territory and direct combat assets for a strike — is set to get a boost with the defence ministry likely to clear next week the acquisition of two Airbus A330 p...

By Manu Pubby

New Delhi: Impressed with the performance of home-developed early warning aircraft during the Balakot air strikes earlier this year, the government is set to speed up the indigenous programme with the acquisition of two larger platforms that will give wider radar and surveillance coverage.

The 'eye in the sky' project — an aircraft-mounted radar that can look deep into enemy territory and direct combat assets for a strike — is set to get a boost with the defence ministry likely to clear next week the acquisition of two Airbus A330 platforms that will be modified by the Defence Research and Development Organisation (DRDO).

India currently operates the domestically developed 'Netra' airborne early warning and control aircraft, two of which were used during the Balakot strikes. The Netra aircraft were used to safely guide Mirage 2000 fighter jets into Pakistani airspace to drop smart bombs that targeted the terror training camp at Balakot.

However, subsequent operations and the stand-off with Pakistan that lasted several weeks brought out the severe shortage of such aerial platforms that can be used to detect incoming enemy aircraft from well within Indian airspace. India currently operates two of the Netra aircraft and three IL76 'Phalcon' systems that were jointly developed with Israel and Russia.

Officials said the air force has been unimpressed with the loitering time of the Phalcons. Though the aircraft have a wider range of coverage than the Netra, it is unable to stay airborne long enough to meet operational requirements.

Pakistan has six of the Saab 2000 early warning aircraft that were extensively used in the February 27 aerial battle to direct and control 25 fighter jets toward Indian targets. The active participation of

these aircraft in the air skirmish gave Pakistan an extensive view of the battlefield and Indian air deployment that enabled it to direct fighters to the target zone. Indian early warning aircraft were outnumbered by the Pakistani air force.

The strategic programme to develop next-generation airborne warning and control systems (AWACS) that will act as a major force multiplier for the air force was cleared in 2015 for an estimated Rs 5,200 crore but orders have not yet been placed for the platform. As reported by ET, DRDO requires a wide-bodied aircraft for the AWACS and the only response DRDO got to a tender for the project was from Airbus for A330.

DRDO will oversee structural modifications and adaptations for a 10m rotodome that will be mounted on the aircraft. The system will have an electronically scanned array radar that will give 360 degree radar coverage. The air force estimates that the two indigenous AWACS will be inducted into service by 2025 and will be a major force multiplier over the coming years.

https://economictimes.indiatimes.com/news/defence/after-balakot-show-government-to-have-more-desi-eyes-in-the-sky/articleshow/72177176.cms

THE ECONOMIC TIMES
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Sat, 23 Nov 2019

Rajnath Singh calls for increased synergy between DRDO, domestic defence industry

Addressing the DRDO Industry Synergy Summit 2019 at Hyderabad through video conferencing, Rajnath Singh said defence public sector units (DPSUs), industry, research institutes and armed forces need to work in tandem to achieve the target of incorp...

New Delhi: Defence Research and Development Organisation (DRDO) and domestic defence industry should explore new ways for enhancing synergy to achieve the goal of self-sufficiency, Defence Minister Rajnath Singh said on Friday.

Addressing the DRDO Industry Synergy Summit 2019 at Hyderabad through video conferencing, Singh said defence public sector units (DPSUs), industry, research institutes and armed forces need to work in tandem to achieve the target of incorporating at least 25 artificial intelligence based products into defence in near future.

"Raksha Mantri appreciated that DRDO has nurtured more than 1,800 industries which are actively working together to produce defence systems. He asked the DRDO and industry to explore new ways for enhancing synergy to achieve the goal of self-sufficiency," a government press release said.

Singh said under the Defence Production Policy, the Ministry of Defence (MoD) has set the target of USD 26 billion for aerospace, defence services and goods by 2025.

"In this, approximately USD 10 billion is targeted for creating job opportunities for 20-30 lakh people," the release said.

In his address, G Satheesh Reddy, Secretary, Department of Defence, Research and Development, who also holds the charge of Chairman of DRDO, elaborated about latest policies of the DRDO like zero fees for Transfer of Technology (ToT) and zero royalty for Development-cum-Production Partners (DcPP) and free usage of DRDO patents by domestic Industry.

Expressing confidence in defence industry, Reddy said healthy scenario needs to be fostered for closer interactions between industry and the DRDO to overcome the gaps.

https://economictimes.indiatimes.com/news/defence/rajnath-singh-calls-for-increased-synergy-between-drdo-domestic-defence-industry/articleshow/72187718.cms?from=mdr

दैनिक जागरण

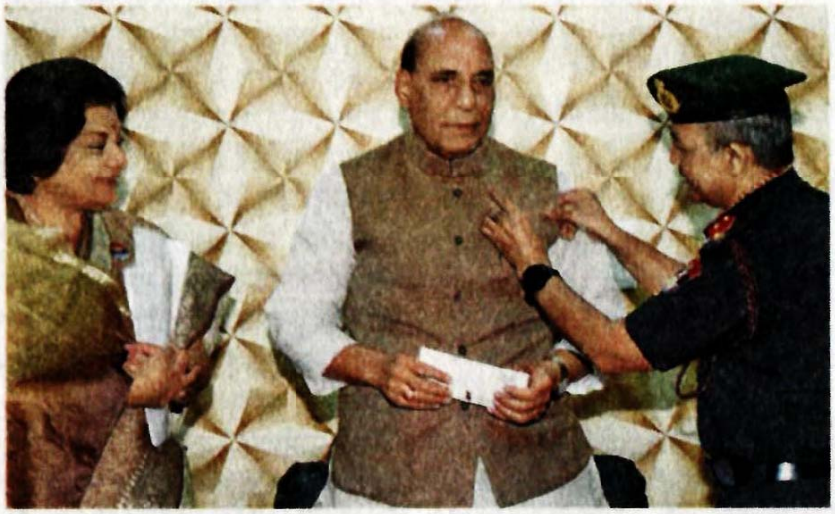
Sat, 23 Nov 2019

रक्षा मंत्री का डीआरडीओ और घरेलू रक्षा उद्योग के बीच तालमेल पर जोर

नई दिल्ली, प्रेट्र : रक्षा मंत्री राजनाथ सिंह ने शुक्रवार को कहा कि रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) और घरेलू रक्षा उद्योगों को आत्मनिर्भरता का लक्ष्य हासिल करने के लिए साथ मिल कर नए तरीके तलाशने चाहिए।

हैदराबाद में आयोजित 'डीआरडीओ उद्योग समन्वय बैठक 2019' को वीडियो कांफ्रेंसिंग के जरिए संबोधित करते हुए रक्षामंत्री ने रक्षा प्रणालियों एवं प्रौद्योगिकी के स्वदेशी विकास को प्रोत्साहित करने के लिए किए जा रहे समन्वय का स्वागत किया। उन्होंने कहा कि डीआरडीओ रक्षा प्रणाली विकास के क्षेत्र में आत्मनिर्भरता प्राप्त करने के लिए महत्वपूर्ण कदम उठा रहा है। डीआरडीओ ने प्रक्षेपास्त्र, लड़ाकू विमान, नौसना प्रणाली, राडार, 'सोनार' तथा शस्त्र प्रणाली के क्षेत्र में अनुसंधान, डिजाइन और विकास की दिशा में योगदान किया है।

रक्षामंत्री ने कहा कि रक्षा उत्पादन की नीति के अन्तर्गत रक्षा मंत्रालय ने 2025 तक एयरोस्पेस, रक्षा सेवाओं और सामग्रियों के लिए 26 अरब डॉलर खर्च (लगभग 1.82 लाख करोड़ रुपये) करने का लक्ष्य निर्धारित किया है। इसमें से लगभग 10 अरब डॉलर (लगभग 70 हजार करोड़ रुपये) का उपयोग 20-30 लाख लोगों के लिए रोजगार के अवसर पैदा करने में किया जाएगा। रक्षा क्षेत्र में नवाचार और आत्मनिर्भरता को प्रोत्साहित करने के सरकार के कार्यक्रमों की चर्चा करते हुए सिंह ने रक्षा नवाचार और उन्हें अपनाने में उत्कृष्टता की आवश्यकता पर बल दिया। उन्होंने कहा कि निकट भविष्य में 25 'आर्टिफिशियल इंटेलीजेंस' आधारित उत्पादों को शामिल करने के लिए सार्वजनिक क्षेत्र की रक्षा इकाइयों, उद्योग, अनुसंधान संस्थानों और सेवाओं को एक साथ मिलकर काम करने की आवश्यकता है। रक्षा मंत्री ने 1,800 से अधिक उद्योगों के फूलने-फलने में योगदान देने को लेकर डीआरडीओ की सराहना की।



रक्षा मंत्री को लगाया झंडा : नई दिल्ली में शुक्रवार को सशस्त्र सेना झंडा दिवस के उपलक्ष्य में केंद्रीय सैनिक बोर्ड के सचिव ब्रिगेडियर मृगेंद्र कुमार ने रक्षा मंत्री राजनाथ सिंह को झंडा लगाया। इस दिवस पर सशस्त्र बलों के कर्मियों के कल्याण के लिए जनता से धन संग्रह किया जाता है। प्रतिवर्ष सात दिसंबर को यह दिवस मनाया जाता है ● एएनआइ

Sat, 23 Nov 2019

Daksha: Country's first anti-terror Robot

'Daksha' a Remotely Operated Vehicle (ROV) is a robot built for anti-terror activities. 'Daksha' is an electrically powered robot that can be controlled from a distance of 500 meters and can be used continuously for 3 hours after a single recharge. There are around 500 'Daksha' going to be included in the Indian Army

By Hemant Singh

The war or cold war is a worldwide phenomenon. Almost every country of the world have some border and economic disputes with its neighbour country. This warlike situation turns into real war and the soldiers of both sides die in this tussle.

So every rich country in the world is building a robotic army so that loss of life and property can be reduced.

The Defense Research and Development Organization (DRDO) has created India's first anti-terror robot named; Daksha.

About Daksha Robot

The battery-powered robot 'Daksha' is primarily designed for the safe handling and destruction or detection of IEDs using multiple cameras, X-ray devices. It has a shotgun, which can break the closed doors. The scanner installed in it can scan cars to check explosives.

The Remotely Operated Vehicle can be controlled either by wireless communication over 500m line of sight or by fibre optic communication over 100m distance. It can work continuously for 3 hours in just a single recharge.

Daksha can be used to detect IEDs and other explosive elements at the border, which can save the lives of many Indian soldiers during patrolling.

Manufacturing of Daksh Robot

This ROV has been developed indigenously. There are 20 units of Daksha have been awarded to DRDO's Research and Development Establishment (R&DE – Engineers) in September 2010.

The Daksha robot has been developed by R&DE – Engineers in collaboration with Tata Motors, Theta Controls, Bharat Electronics (BE) and Dynalog (I).

As per some media reports; there are 500 more units of Daksha are going to be included in the Indian Army soon.

Features of Daksha Robot

1. It is fully automatic

2. It can destroy biological, chemical and radiological weapons.

3. It has a radio frequency shield that can jam the signal and prevent it from exploding.

4. It can detect any suspicious luggage at the airport and destroy it by taking it out of the airport or away from the crowd.

5. It can lift any object with the help of its robotic arm. If, it is IED or bomb; then it can diffuse it with its water jet disrupter.

6. It has X-ray devices that can scan any car/vehicle for explosive materials.

7. It also has slotted wheels, which help it in climbing the stairs at the time of requirements.

Indian Army's director-general major general Rakesh Bassi said the robot will be an important asset for the anti-terrorist operations and special gift to the army's bomb disposal units.

Therefore, the inclusion of skilled robots in the army will increase the security of India's border, along with the reduction of incidents of IED blasts during patrolling and ultimately reduction in terror activities.

https://www.jagranjosh.com/general-knowledge/daksha-countrys-first-anti-terror-robot-1574428779-1

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Sat, 23 Nov 2019

Pinaka: India's highly successful guided weapon system

Pinaka is an indigenous multi-barrel rocket launch (MBRL) system, which has been developed by the Defence Research and Development Organisation (DRDO) for the Indian Army. Its weapon system has a state-of-the-art guidance kit bolstered by an advan...

Thrust into the action during the 1999 Kargil War, the Pinaka rocket system quickly proved its worth for the Indian Army with its precision and devastating strikes, neutralising enemies sitting on mountain tops.

Since then, the system has seen major upgrades and is now one of the most reliable and effective weapon systems of the Indian Army's artillery wing.

Pinaka is an indigenous multi-barrel rocket launch (MBRL) system, which has been developed by the Defence Research and Development Organisation (DRDO) for the Indian Army. Its weapon system has a state-of-the-art guidance kit bolstered by an advanced navigation and control system.

Here is a look at the features that make Pinaka truly special:

1. How and why Pinaka came into being?

Named after the bow of Lord Shiva, the idea of Pinaka was first conceived in 1981, as an answer to the Indian Army's requirement for a long range artillery system. Initially, the Ministry of Defence approved two confidence building projects and the actual development could only begin in 1986 with a sanctioned project-budget of Rs 26.47 crore. After it proved its combat capabilities in 1999, a dedicated Pinaka MBRL regiment was raised in February 2000.

2. How does Pinaka weapon system work?

The complete MBRL system of Pinaka is comprised of six launcher vehicles, each having 12 rockets with six loader-replenishment vehicles, two command post vehicles with fire control computer and a DIGICORA MET radar. Each Pinaka launcher can work independently, as it is controlled by its own computer. The launch system of Pinaka is comprised up of two pods, which are mounted side-by-side to each other on a Tatra launcher vehicle. Each launcher has the ability to fire all the rockets in one go or only a few - in a different direction than others with the help of its control computer. The Pinaka launcher can operate in different modes — autonomous, standalone, remote and manual.

3. What kind of firepower does Pinaka possess?

The launch system of Pinaka can fire a salvo of 12 rockets within 40 seconds and a single battery of six launchers can take care of an area of 1,000 m × 800 m.

4. What is the range of Pinaka weapon system?

The initial version of weapon system was called Mark I, which had a range of 40 km. The upgraded version or Pinaka Mark II has an extended range of 70 to 80 km.

5. What kind of warhead variations can be used in Pinaka?

The rockets of Pinaka can use a wide range of warheads comprised of pre-fragmented high explosive, anti-tank bomblet, anti-tank minelet warhead, anti-personnel mines, incendiary practice and pilot shot. The pre-fragmented warhead is used to inflict 25% to 30% more damage than the conventional warhead. The HMX-based composition is primarily used in anti-tank bomblets while minelets warhed is used to achieve 150mm armour penetration.

https://economictimes.indiatimes.com/news/defence/pinaka-indias-highly-successful-guided-weapon-system/articleshow/72184970.cms

the pioneer

Mon, 25 Nov 2019

HAL's Light Utility Helicopter ready

By Kestur Vasuki

Unperturbed by the tremors within and outside Indian desi military aviation company Hindustan Aeronautics Limited (HAL) is ready with its three ton class Light Utility Helicopter (LUH) and eagerly waiting for the orders from its clients Indian Defence forces.

A senior executive on the condition anonymity told The Pioneer that the company is wholly depending on Indian Defence forces for the orders on LUH. He said " We are confident that Indian Defence forces will certainly buy this three ton class very agile LUH to replace its ageing choppers like Cheetah and Chetak. We are surely depending on more orders for Tejus and LUH from the Defence Ministry. This is a make in India product and will be produced in Tumukur factory near Bengaluru."

He said the LUH would be used for Reconnaissance & Surveillance, reconnaissance, Aerial Photography, Airborne Forward Air Controller, Casualty Evacuation and to provide assistance in emergency to civil authorities etc.,

Light Utilty Helicopter (LUH) indigenously built by Hindustan Aeronautics Limited is 3-ton class helicopter with 4 Bladed Composite Main Rotor System, Main Rotor Blade Folding, 4 Bladed Tail Rotor System, Single Engine with dual channel automatic fuel control (FADEC) with additional backup control, Night Flying Capability, Glass Cockpit with Smart Cockpit Display Systems (SCDS), Skid Landing Gear, Fuselage to accommodate 2 pilots in side by side configuration and 6 passengers and Crashworthy Crew Seats.

According to available information thr Indian Army and Indian Air Force together are operating about 400 Cheetah (France Design Alouette III helicopter) and Chetak (France Design LAMA helicopter) helicopters supplied by HAL (Licence produced at HAL, Bengaluru) starting from 1960s. These helicopter fleet have served the country for nearly four decades, need to be replaced in a phased manner with a more efficient and state-of- the- art technology based helicopter.

It is in this backdrop, the Indian Army and Indian Air Force finalised the requirement of a Reconnaissance and Surveillance Helicopter (to replace Cheetah and Chetak helicopter) and issued a

GSQR in the year 2008. The total projected quantity required by Armed Forces is 384 helicopters, of which, 197 helicopters are earmarked for direct global purchase and remaining 187 helicopters are classified under make category, to be indigenously manufactured by HAL based on Design and Development of Light Utility Helicopter (LUH).

The GOI accorded approval to HAL, in February 2009 to go-ahead with design and development of Light Utility Helicopter. The time given to HAL was 6 years, including a buffer of one year to accommodate delays in Design and Development.

"We have done everything possible to meet the expectations of the Indian armed forces matching with global standards. LUH is being designed to provide excellent performance at high altitude operations.

These features make LUH to stand out in comparison to other contemporary helicopter in its class. The USP of LUH designed by HAL is its capability to hover at 6 km altitude (Hover performance) with considerable payload", he added.

https://www.dailypioneer.com/2019/india/hal---s-light-utility-helicopter-ready.html

DefenceNews

Sun, 24 Nov 2019

'It is almost as if there is a death wish for the Tejas'

Equipping the Tejas Mark 1A with Elta's ELM-2052 radar will ensure the fighter never carries the world-beating Meteor 'beyond visual range' air-to-air missile.

The MBDA, the European consortium that builds the Meteor, has repeatedly told the Indian Air Force that it would only fit that missile onto a fighter with a European airborne radar.

On October 26, the ministry of defence and the IAF watched from the sidelines as Hindustan Aeronautics signed two contracts with Israel Aerospace Industries which will condemn the Tejas Light Combat Aircraft to a marginal presence in the IAF's future fleet.

The contracts signed were for two major avionics systems that will determine the combat capability of an improved Tejas fighter called the Tejas Mark 1A.

One was for the ELM-2052 'active electronically scanned array' radar, developed by an IAI subsidiary, Elta.

The other was for Elta's 'electronic warfare' system.

Choosing an Elta AESA radar for the Tejas Mark 1A, therefore, rules out the Meteor and, with it, any hope that the IAF will buy the Mark 1A in significant numbers.

Why the Meteor?

The IAF has ordered 40 Tejas fighter of the current Mark 1 version, but it believes their Israeli radar and missiles do not provide a decisive combat edge.

In September 2015, the IAF, the HAL and the MoD agreed on specifications for a new improved version called the Tejas Mark 1A, with five specific improvements — including AESA radar and the Meteor missile.

Last December, the MoD sanctioned the purchase of 83 new Tejas Mark 1A fighters for Rs 330 billion.

MBDA's Meteor BVR missile has the matchless ability to engage enemy fighters 200 to 250 km away, before the adversaries can fire their own missiles.

For shooting down aircraft at closer ranges, the IAF wants the Tejas Mark 1A to also carry MBDA's eponymous Advanced Short Range Air-to-Air Missile.

In 2017, the IAF issued a formal tender to HAL — termed request for proposal — stipulating that the Tejas Mark 1A must have the Meteor and ASRAAM.

Why a European radar?

All through this year, the IAF has known that MBDA would allow the Meteor missile to be integrated only with European (or, conditionally Indian) AESA radars.

Yet, the IAF remained silent while HAL‘s tendering processes resulted in the selection of the Israeli ELM 2052 AESA radar — and the rejection of two European AESA radars offered by French firm Thales, and Swedish firm Saab.

The Thales radar and the Meteor missile have already been integrated into Dassault‘s Rafale fighter, which the IAF rates highly.

Likewise, the Meteor is already integrated with the Saab radar in the Gripen E fighter.

In making it clear to the IAF that selecting an Israeli radar would mean ruling out the Meteor, the MBDA has written five letters to the IAF this year, explaining why it would only integrate the Meteor with European radar.

A BVR missile like the Meteor must be tightly integrated with the fighter‘s radar.

At the time the missile is fired, its on-board seeker cannot lock onto the target, which is too far away.

During the initial period of the missile‘s flight, the aircraft‘s radar tracks the adversary fighter and transmits directions to the missile through two-way data links.

Only when the Meteor reaches a few tens of kilometres from the enemy fighter does its on-board seeker get activated and homes onto the target.

Given the missile‘s tight relationship with the radar, there is a need for deep integration and sharing of source codes.

In its letters to the IAF, the MBDA has cited technology security concerns that integrating the Meteor with Israeli radar would endanger secret source codes and technologies.

The MBDA, a consortium of firms from six European countries, also believes getting clearances from six capitals would be complicated.

In a February 19, 2018 letter to IAF chief Air Chief Marshal Birender Singh Dhanoa, the MBDA pointed out that the Meteor ‘has already been successfully integrated with 3 major European platforms and sensors. The risks inherent to such a demanding Tejas integration programme will be significantly minimised by the selection of a European radar similar to those with which we have already qualified Meteor‘.

On May 17, 2018, the MBDA wrote again to the IAF chief that with six nations involved in the MBDA, clearing the Meteor‘s integration with a non-European radar would be complicated. ‘Therefore, from a purely technical point of view, and considering the required clearances, Meteor on LCA may only be considered with a European radar,‘ MBDA stated.

On May 29, 2018, the MBDA wrote yet again to the IAF chief, stating: ‘As design authority and OEM (original equipment manufacturer) of the Meteor missile, we wish to confirm to you that integration of this missile can only be possible with a European radar and our proprietary data link.‘

Ruling out any possibility of the Israeli firm carrying out the integration, the MBDA categorically stated: ‘No other mode of integration is possible and any other suggestion from third parties is misinformed.‘

In yet another letter to the IAF deputy chief on June 21, 2018, the MBDA wrote: ‘The MBDA will not be able to offer Meteor for (Tejas) LCA, if a non-European radar is chosen for that platform — we will not be able to gain 6 Partner Nation clearance. Furthermore, the integration of Meteor is only possible using MBDA‘s proprietary datalink technology. No other 3rd party is capable of carrying out Meteor integration.‘

Then, in response to an IAF query whether the Meteor could be integrated onto the Uttam AESA radar the Defence R&D Organisation was developing, the MBDA gave conditional acceptance on July 13, 2018.

Writing to the deputy chief, the MBDA wrote: ‘integration would be perfectly feasible (provided) this DRDO ‘UTTAM‘ radar would need to be shown to be completely indigenous.‘

Making its security concerns clear, the MBDA wrote: ‘Security concerns (for all parties) over the implementation, architecture and day to day operation would need to be addressed (and) the 6 partner nations would need to obtain access to full working prototypes (of the Uttam radar) before progressing to the next stage.‘

Despite these repeated cautions from the MBDA, the IAF and the MoD allowed HAL to choose the lowest-priced AESA radar that could be integrated onto the Tejas.

Asked how it had chosen the Elta ELM 2052 AESA radar for the Tejas Mark 1A and ruled out the Thales and Saab radars, HAL chief R Madhavan stated: ‘The contract has been finalised as per HAL‘s techno-commercial (procurement) procedures and the lowest bidder was chosen.‘

The IAF and the MoD did not respond to a request for comments.

In most fighter aircraft programmes, the airborne radar — which is key to the fighter‘s combat capability — is chosen by the air force concerned, not left to the OEM.

Yet, the HAL was allowed to choose — a selection that could unknowingly leave the Tejas Mark 1A without a Meteor missile.

“It is almost as if there is a death wish for the Tejas. Now the IAF will fault the Tejas Mark 1A for not being integrated with the Meteor,” says a retired air marshal who closely oversaw the Tejas programme.

From HAL‘s perspective, Elta‘s ELM 2052 AESA is the logical choice of radar.

The Israeli firm developed this radar specifically for the IAF‘s ongoing upgrade of 61 Jaguars.

For that upgrade — which involves fitting AESA radar to enhance the Jaguar‘s capability — Elta developed the ELM 2052 AESA radar at its own cost, apparently in the expectation that it would also find place in future Tejas upgrades.

With the IAF poised to clear the Jaguar upgrade, the ELM 2052 radar could quickly go into production in India in an IAI-HAL joint venture.

With the ELM 2052 AESA radar being built for two fighter programmes — the Jaguar upgrade and the Tejas Mark 1A — it would work out significantly cheaper than the Thales and Saab radars, making Elta‘s price bid the most attractive.

However, given MBDA‘s concerns, that would leave the Tejas without the Meteor missile, and therefore without the IAF‘s buy-in.

The choice of radar would not impact the integration of ASRAAM.

Being a short-range missile, ASRAAM is guided by its own seeker from launch onwards, and so does not require integration with the on-board radar.

https://www.defencenews.in/article/%e2%80%98It-is-almost-as-if-there-is-a-death-wish-for-the-Tejas%e2%80%98-768123

THE Sun
www.sunnewsonline.com

Sat, 23 Nov 2019

Boko Haram: Nigeria, India sign MoU to produce IED detectors

The Defence Research and Development Bureau (DRDB), friday signed a Memorandum of Understanding (MoU), with the Defence Research and Development Organisation (DRDO), India, to produce the Ramon Improvised Explosive Device(IED), materials detector with standoff at distance

By Molly Kilete, Abuja

Abuja: With the agreement, the DRDB is free to make use of the DRDO's photonics laboratory in India to produce the IED, detector which in turn be deployed to troops fighting the counter insurgency war in the north east.

The MoU was signed on behalf of the Federal government by the Director General, of the bureau, Air Vice Marshall Osahor, and the Indian High Commissioner to Nigeria, Abhay Thakur, at the agency's headquarters in Abuja.

In his address at the occasion, Osahor, while noting that the Sucess of a modern day military forces is measured by its ability to develop and employ unique technologies to emerging security challenges, said it was for this reason that the DRDB, was set up to provide defence solution for the Nigerian armed forces through research and development.

He pointed out that even though the boko haram and other terrorists group have been seriously degraded, their continuous use of IEDs against troops and other innocent Nigerians has remained a great threats.

He said "the ability of a nation to wage war and deter potential adversaries depends to a large extent on the nation's level of technological sophistication.

"Similarly, the success of modern day military forces is measured by the ability to develop and employ unique technologies to efficiently confront unique security challenges.

"It is inline with its mandate, DRBD, was tasked in early 2018, to design and develop IED detectors with standoff distance of 50-200 meters.

"The team worked tirelessly for six months after which they came up with standoff range of 50 meters.

"The team also identified all the components, softwares and equipment required for the actualization of these softwares and components, the only challenge in actualizing this noble project was the lack of photonics lab within the country for integrating and testing the components.

"It was at this stage that we approached the DRDO, India for the use of their photonics lab. DRDO, responded by asking for our conceit note which we in turn sent to them which we in turn sent to them"

https://www.sunnewsonline.com/boko-haram-nigeria-india-sign-mou-to-produce-ied-detectors/

DefenceNews

Mon, 25 Nov 2019

India will get 6 more advance conventional submarines for Rs 40,000 crore

The Indian Navy currently has a submarine fleet consisting of 9 Russian-origin Kilo-class vessels; 4 German-origin HDW boats; 6 French-origin Scorpene submarines being built by Mazagon Dock Ltd.

The ministry of defence on Thursday, January 31, cleared the procurement of 6 advanced submarines for 'over Rs 40,000 crore' (Rs 400 billion). This acquisition, codenamed Project 75-I, has been in the pipeline for a decade.

The 6 submarines will have 'air independent propulsion', which will allow them to remain submerged for up to 14 days, during which it is difficult to detect them. Conventional diesel-electric submarines must surface every 48 to 72 hours to charge their batteries, when they become vulnerable to detection.

'This is the second project under the MoD's ambitious Strategic Partnership model that envisages indigenous manufacturing of major defence platforms by an Indian SP who will collaborate with a foreign original equipment manufacturer to set up production facilities in the country,' stated the MoD.

'Today's Defence Acquisition Council approval would be the second such (SP model) project following indigenous production of 111 naval utility helicopters that was approved in August 2018,' the MoD pointed out.

In 2017, the navy sent out 'requests for information' to a number of global OEMs, soliciting interest in Project 75-I. The navy chief, Admiral Sunil Lanba, stated in December 2017 that four vendors had come forward: ThyssenKrupp Marine Systems from Germany, Kockums from Sweden, Naval Group from France and Rosoboronexport from Russia.

This has opened the door for a two-track process: Floating a global tender to select the OEM, while simultaneously going ahead with shortlisting prospective Indian SP firms. Once that is done, the SPs will bid in partnership with their chosen OEMs.

The selection and contracting process and the actual building of 6 submarines could take another decade.

Meanwhile, the navy will make do with a depleted conventional submarine fleet that consists of 9 Russian-origin Kilo-class vessels; 4 German-origin HDW boats; 6 French-origin Scorpene submarines being built by Mazagon Dock Ltd, Mumbai.

In addition, the Indian Navy operates one Akula-class nuclear submarine leased from Russia, and plans to build 6 indigenous nuclear attack submarines.

There will also be 4 to 6 Arihant-class nuclear ballistic missile submarines. These will be a part of India's nuclear deterrent, with no role in conventional naval warfighting.

https://www.defencenews.in/article/India-will-get-6-more-advance-conventional-submarines-for-Rs-40,000-crore-768142

The Tribune
VOICE OF THE PEOPLE

Sun, 24 Nov 2019

Lessons in defence management

By Vijay Mohan

In the age of information, 20 years is a long enough time to dissect and lay bare a military operation which, though confined to a small corner of the country, had wide ranging implications at the strategic and geopolitical levels.

The Kargil War was fought along the Line of Control in the remote, icy heights in northern Jammu and Kashmir. While it brought out some serious shortcomings in higher defence management and intra-government interplay, it reaffirmed the grit, valour and legacy of our soldiers. The conflict that had taken the nation by surprise also set the ball rolling for implementing much-needed defence reforms, some of which have still not been implemented.

Every war, conflict and operation has many secrets and untold stories. The Kargil conflict is no different. In the past two decades much has been written and deliberated on this subject, yet, there are a few facets that may still be not known to public.

This book talks about some lesser known facts and accounts of the intrusions and the counter-action, known as Operation Vijay, under various commanders and officers. Some of these officers had held key military appointments during the conflict, while others had served in important positions or are pursuing military matters.

Containing 20 essays, the book is divided into five parts. The first section, Blood, Guts and Glory, briefly discusses the battles fought in Dras, Mushkoh, Batalik, Kaksar and the Turtuk sub-sectors, to evict the Pakistani intruders from the heights dominating National Highway 1-A, the crucial link to Ladakh.

The second part analyses the supporting forces which synergised the effort to victory, with writers discussing operations by the Air Force and the Navy as well as the role played by the artillery, engineers, army aviation, air defence, signals and logistics.

The section on perceptions and opinions deals with personal experiences. The then Army Chief, Gen VP Malik, shares his views on the military strategy adopted during the conflict, the build-up and subsequent operations and the lessons learnt.

Lt Gen Mohinder Puri, under whose command 8 Mountain Division had played a crucial role at that time, reminiscences about those days. Colonel BM Carriappa, who was in command of a Parachute battalion, details some operations carried by paratroopers in Batalik.

War heroes like Capt Vikram Batra and Lt Manoj Pandey, the two posthumous awardees of the nation's highest gallantry award, Param Vir Chakra, find a place in the section on Motivation.

The last section deals with the emerging challenges that the nation faces and the way ahead that needs to be defined in the emerging world order. Former GOC-in-C, Central Command and at present Director, Centre for Land Warfare Studies, Lt Gen VK Ahluwalia, along with Colonel Rajeev Kapur, a veteran of Op Vijay, puts it succinctly that lasting peace with Pakistan seems unlikely. At best what can be expected is an armed truce dictated by Pakistan's internal fault lines and economic constraints.

The message being sent out by the writers is that considering future threats and challenges, India must build up its comprehensive national power whose edifice should be sustained through economic growth.

Simultaneously, it should progressively build capabilities of hard military power, soft power and demonstrated power which can deter threats to internal security, stability and territorial integrity from potential adversaries. Cosmetic changes will not help and the military should have the ability for swift and devastating riposte to an adversary's misadventure.

The Kargil War had stirred patriotic fervour across the country but is gradually fading away from public memory, with the new generation having little or no idea of what had happened. It was institutional amnesia, lethargy and a situational disconnect that led to the conflict and the book underlines the need to be prepared at all times and look at national security with a national outlook.

https://www.tribuneindia.com/news/lessons-in-defence-management/865228.html

THE TIMES OF INDIA

Sun, 23 Nov 2019

Snoop fears: Army asks staff to avoid WhatsApp and FB

HIGHLIGHTS

- ***The Indian armed forces, the Army has directed its personnel to avoid the use of WhatsApp for official work***
- ***It has also asked officers holding "sensitive appointments" to delete their Facebook accounts***
- ***There have been several cases over the last couple of years where Pakistani women spies have virtually honey-trapped Indian military personnel***

New Delhi: With Chinese and Pakistani online espionage agents constantly on the hunt to surreptitiously obtain classified information and data about the Indian armed forces, the Army has directed its personnel to avoid the use of WhatsApp for official work, while also asking officers holding "sensitive appointments" to delete their Facebook accounts.

Though the Army regularly issues advisories asking its 13-lakh personnel to refrain from using social media platforms and chat groups, the fresh directives come after several new cases have come to light. An officer posted under the Sukna-based 33 Corps in the Eastern Command, for instance, was "automatically added to a WhatsApp group by a suspected Pakistani number" recently.

Noting the officer concerned "showed presence of mind by immediately exiting from the group after taking a screenshot", the 33 Corps said "Pakistani intelligence operatives are actively targeting Army personnel and their families" . Such incidents can be prevented by changing WhatsApp settings to stop any unwanted addition to any unauthorised or undesirable groups, said the advisory.

There have also been several cases over the last couple of years where Pakistani women spies have virtually honey-trapped Indian military personnel into divulging classified information, with even a Group Captain posted at the IAF headquarters in New Delhi falling prey to it last year. More recently, two Army jawans were arrested in a similar case in Rajasthan earlier this month.

The Army Cyber Group (ACG), on its part, said there have been "numerous instances of advertent or inadvertent loss of information" through social media, while asking all officers holding sensitive or important postings to delete or deactivate their Facebook accounts.

Similarly, the end-to-end encryption of WhatsApp can be rendered "ineffective" if the mobile handset is "compromised" , and consequently the popular messaging service should not be used for any official communication or work, said the ACG. "Inimical agencies are known to possess sophisticated tools for monitoring and analysing data available on social media and opensource platforms to synthesise actionable intelligence. The officers in critical appointments are... at risk of

being targeted," it said. The ACG also asked officers to be careful while using smartphones because they are susceptible to cyber-attacks. Such phones should be audited at least once every three months to ensure they have not been compromised, it added.

https://timesofindia.indiatimes.com/india/snoop-fears-army-asks-staff-to-avoid-whatsapp-and-fb/articleshow/72192313.cms

THE HINDU

Mon, 25 Nov 2019

Swedish defence major SAAB seeks clarity on strategic partnership route

Swedish defence major SAAB, which has fielded Gripen for the Indian Air Force (IAF) tender for 114 fighter jets, is looking for clarity on some provisions of the strategic partnership route of the Defence Procurement Procedure (DPP), Micael Johansson, its president and CEO, said in an exclusive conversation with The Hindu. "India is important, and we see huge potential here," he said.

"We are awaiting the Expression of Interest (EoI) from the IAF. It has been delayed a few times now. Last we heard, it is expected in the second quarter of next year," said Mr. Johansson who is on his first trip to India since taking over the top post at October-end. "We are looking for how it is explained to us," he said of the strategic partnership policy. The comments are significant as it is a concern shared by several foreign original equipment manufacturers (OEMs).

"We have said for long that we are willing to do a huge technology transfer, not only the manufacturing capability but also creating an indigenous capability to upgrade and work with the system. Because that is the key to add future functionality in the fighters all the time," Mr. Johansson said.

Under the strategic partnership policy, foreign OEMs have to tie up with Indian private companies to build the products locally.

Elaborating on the grey areas, Mr. Johansson wanted to know whether they could work with several companies to optimise partnership, because certain companies were good at certain things. "Then how do we make sure that we do something that will create a sovereign capability in India?" Pointing out that they did not know what were the requirements for establishing partnerships for big projects, he said: "That is why it is so important to see what the EoI says."

Recently, SAAB pulled out of the Indian Navy's tender for six advanced conventional submarines under Project-75I, citing tough provisions and lack of clarity on the strategic partnership route, under which the tender was being processed.

SAAB has a major presence in self-protection systems, electronic warfare suites and camouflage materials. It is working closely with Hindustan Aeronautics Limited (HAL). Mr. Johansson said the company was setting up manufacturing capabilities along with HAL for maintenance of these systems. For instance, SAAB supplies self-protection systems for the indigenous Advanced Light Helicopter. "The Light Combat Helicopter is important to us," he said.

In civil aviation, the company is offering air traffic management solutions, including digital towers for smaller airports. Mr. Johansson said SAAB was also pitching its Aerobahn surface management system for civilian airports and airlines to cut down on money and fuel. This had been demonstrated at the John F. Kennedy airport on certain routes which have shown fuel savings of up to 30%, SAAB officials said.

https://www.defencenews.in/article/Swedish-defence-major-SAAB-seeks-clarity-on-strategic-partnership-route-768138

THE NATIONAL INTEREST

Sat, 23 Nov 2019

Doomsday: India's missile defense could make nuclear war with Pakistan more likely

Pakistan will not take kindly to seeing its nuclear deterrent undermined

By Michael Peck

Key point: India is notorious for developing home-grown weapons, such as aircraft and tanks, that take much longer to develop than expected.

India says it has successfully tested an interceptor capable of shooting down ballistic missiles.

But could this trigger a nuclear war with Pakistan?

On August 2, the Defense Research Development Organization (DRDO) -- India's equivalent of the Pentagon's DARPA research agency -- launched an Advanced Area Defense (AAD) missile from Abdul Kalam island off India's eastern coast.

"The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 kilometers [9 to 16 miles] was launched against multiple simulated targets of 1,500 kilometer [932 mile]-class ballistic missiles," according to the DRDO announcement.

"One target among simultaneously incoming multiple targets was selected on real time, the weapon system radars tracked the target and the missile locked on to it and intercepted the target with a high degree of accuracy. The complete event including the engagement and interception was tracked by a number of electro-optical tracking systems, radars and telemetry stations. All the mission objectives were successfully met."

India's missile defense program is a two-tiered system: the Prithvi missile (derived from the Prithvi tactical ballistic missile) for exo-atmospheric intercepts in outer space, before they near the target, and the Advanced Area Defense missile for endo-atmospheric intercepts within the Earth's atmosphere, in the terminal phase when the target warhead is making its final descent.

In that sense, it is similar to the 1960s U.S. Anti-Ballistic Missile System, which used Safeguard and Sprint missiles, or any integrated air defense system. A long-range interceptor to take out the incoming missile far from the target, and a short-range point defense weapon to destroy any missile that penetrates the long-range screen.

Previous tests of Indian interceptors targeted short-range Prithvi ballistic missiles on a trajectory that mimicked medium-range missiles. The Diplomat magazine suggests that the dummy target this time could have been an Agni, an intermediate-range missile capable of carrying nuclear warheads.

Indian press trumpeted that India's missile defense is a homegrown program developed by India, rather than imported from Russia and America as are so many Indian weapons such as jet fighters and tanks. That's no small point of pride for the world's second most-populous nation, once the poster child for poverty, and now the world's sixth-largest economy.

Interestingly, while India boasts of developing its own missile defense system, it is also buying Russian S-400 air defense missiles capable of intercepting missiles as well as aircraft.

"The S-400 acquisition, which has some utility for missile defense, suggests that India is interested in the capability and not merely letting DRDO have a science project," Christopher Clary, a professor of international relations at State University of New York Albany, told *The National Interest*.

But there is another danger with Indian missile defense, as history shows. When America and the Soviet Union developed anti-missile systems in the 1960s, the opposing superpower either built more missiles, or increased the number of warheads on existing missiles, to saturate enemy defenses.

So what will Pakistan do?

India and Pakistan "are already in an arms race for all intents and purposes and have been so for some time," Georgetown University professor C. Christine Fair, who has written on the Pakistani military, told *The National Interest*.

"There is, of course more nuance: Pakistan has the world's fast growing nuclear weapons program. India has chosen not to reciprocate in growing its stockpiles. Pakistan has and is trying to acquire tactical nuclear weapons while India has demurred."

"Pakistan will field more warheads on more delivery vehicles than it would in the absence of BMD [ballistic missile defense], Clary says.

"Pakistan could develop multiple warheads for its current ballistic missiles, or develop short-range tactical nuclear weapons and cruise missiles that are harder to intercept."

In turn, a Pakistani buildup might prompt an India buildup, sparking a vicious cycle reminiscent of the Cold War.

Ironically, India is notorious for developing home-grown weapons, such as aircraft and tanks, that take much longer to develop than expected, and are plagued with problems when they are fielded. But as always with nuclear weapons and missile defense, perception is everything.

"The biggest problem from India's side is that it all too frequently announced that it has a capability which mobilizes Pakistan to innovate when in fact India is a long way from achieving the stated capability but Pakistan has already developed a counter measure," Fair warns.

https://nationalinterest.org/blog/buzz/doomsday-indias-missile-defense-could-make-nuclear-war-pakistan-more-likely-98587

THE HINDU

Mon, 24 Nov 2019

India, U.S. to sign industrial security agreement at 2+2 dialogue

They will also review implementation of pact to facilitate encrypted communications between armed forces

By Dinakar Peri

New Delhi: The next 2+2 dialogue between India and the U.S. is likely to be held on December 18 in Washington, D.C., during which the two countries are expected to sign the Industrial Security Annex (ISA) and review the steps being taken to operationalise the Communications Compatibility and Security Agreement (COMCASA), official sources said.

But the Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA), which is under discussion, is unlikely to be concluded. There are differences over the issue of reciprocity in the exchange of geo-spatial information and both sides are trying to resolve them, two official sources independently confirmed.

“The ISA draft is all done and ready. We are waiting for a formal occasion to sign it,” one defence official said. The ISA is part of the General Security of Military Information Agreement (GSOMIA), which India had signed with the U.S. many years ago. The ISA is crucial for U.S. companies bidding for big-ticket Indian deals to partner Indian private companies.

In the past two months, there were a series of high-level visits to take forward several bilateral initiatives. However, with the dialogue a month away, the final agenda is still being worked out. A

major movement over the last year has been steps to operationalise the COMCASA, which will facilitate encrypted communications between the two armed forces.

Ellen Lord, U.S. Under Secretary of Defence for Acquisition and Sustainment, who was in India last month for the Defence Trade and Technology Initiative (DTTI) talks, said one significant thing coming out of the COMCASA was that “we have actually moved forward and in some cases actually put together some CENTRIXS [Combined Enterprise Regional Information Exchange System] kits.” These kits facilitate encrypted communications between the navies.

She said that in March this year, the U.S. Navy and the Indian Navy signed a loan agreement and installed two Pacific fleet- provided CENTRIXS systems at the Indian Navy headquarters. “We are also holding discussions to have several more installed in a variety of places.”

India has also created a common account of $5 million to pay for services or information sought from the U.S. under the COMCASA. In addition, a tactical data link, Sealink Advanced Analysis (S2A), is to be set up to analyse large volumes of data that are received as part of Maritime Domain Awareness. “The account has been created. The S2A is being co-developed by India and the U.S. for big data analytics,” an official source said.

During Ms. Lord’s visit, the two sides identified new joint projects under the DTTI and signed a Statement of Intent (SOI) for their detailed planning and measurable progress. Ms. Lord had said that at the upcoming 2+2 dialogue, the two sides “will finalise a DTTI Standard Operating Procedure (SOP) that will act as a guide for coordinating projects.”

While there is progress in defence cooperation, a major issue is India’s purchase of the S-400 missile system from Russia and the threat of U.S. sanctions under the Countering America’s Adversaries Through Sanctions Act (CAATSA). It is likely to figure prominently during the talks. A senior State Department official said in Washington, D.C., last week that as India acquires sophisticated military systems from both Russia and the U.S., Washington has pressed India to tighten procurement and technology security processes and protocols.

In addition, there are several big-ticket defence deals in the works, and their progress will be reviewed. Of them, the closest to conclusion is the agreement for 24 MH-60R multi-role helicopters, worth $2.4 billion. All procedural modalities have been completed, but cost negotiations are still under way, defence sources said. Last week, the U.S. approved the sale to India of MK-45 naval guns, built by the BAE Systems.

zx[*https://www.thehindu.com/news/national/india-us-to-sign-industrial-security-agreement-at-22-dialogue/article30063585.ece*](https://www.thehindu.com/news/national/india-us-to-sign-industrial-security-agreement-at-22-dialogue/article30063585.ece)

hindustantimes

Sun, 23 Nov 2019

In S-400 talks, US asks India to tighten security of defence technology

India has begun making advance payments 5 S-400s it is buying at an estimated cost of $5 billion in a deal signed by Prime Minister Narendra Modi and President Vladimir Putin in October 2018

By Yashwant Raj

Washington: As part of the ongoing discussions about India's acquisition of Russian S-400 missile system, the United States has asked India to tighten its "defence technology security processes", a senior state department official said Thursday.

But it was not clear if that was a requirement — the only one or one of several — that would allow India to get a waiver from secondary sanctions under a US law that seeks to punish Russia for the 2016 election meddling, called CAATSA (Countering American Adversaries Through Sanctions Act).

"We have pushed with Indians is: tighten up your procurement processes, tighten up your defence technology security processes and protocols, and then you're putting yourselves in a much more mature space to be a tighter, closer partner," the official told reporters.

The official had prefaced that with the apprehensions about Russians laying their hands on American technology in India's possession — "we don't want it (American equipment) exposed because some Russians walking the shop floor decide to go walk away and put it in their handbag or knapsack and take it back to Moscow. We're not going to allow that".

The US sanctions can be triggered by either payment being made of significant purchases or when they are delivered. India has begun making advance payments 5 S-400s it is buying at an estimated cost of $5 billion in a deal signed by Prime Minister Narendra Modi and President Vladimir Putin in October 2018. India has insisted it will not be dictated on who it should buy arms from but has been talking to the US to find a way around the sanctions.

"We are getting there," said a person familiar with the discussion. But there was no clarity if the tightening of "defense technology security process" is a precondition that could get India off the hook for CAATSA.

Though aimed primarily at punishing Russia by scaring away its arms buyers with the threat of secondary CAATSA sanctions, the United States has also expressed reservations about selling its unique defense technology to countries that also buy high-technology arms from Russia, saying it could adversely impact interoperability and expose American technology to Russia.

In development being observed closely by India, the United States has told Turkey, a NATO ally, to "get rid of" its S-400s, which it had begun receiving in July. The United States has threatened to shut Turkey out of the F-35 joint development and production programme and cancel its orders.

"There is room for Turkey to come back to the table. They know that to make this work they need to either destroy or return or somehow get rid of the S-400," the official said.

Turkey's purchase of S-400 figured prominently in talks President Donald Trump held with and Turkey's Tayyip Erdogan in the White House last week. But there was no work on the outcome. Trump had only said, "We'll work something out."

https://www.hindustantimes.com/world-news/in-s-400-talks-us-asks-india-to-tighten-security-of-defense-technology/story-CpvtgkAI7VsEFipfTFjbPN.html

THE HINDU

Sat, 23 Nov 2019

Building bridges of friendship across oceans

Naval officers from 7 nations train along with their Indian counterparts in Kochi

Kochi: Lieutenant Hafizuddin of the Royal Malaysian Navy had been to the Andaman and Nicobar Islands in 2014 to take part in Exercise Milan in 2014 when he had occasion to interact with his counterparts in the Indian Navy.

Five years later, he is set to complete a roughly seven-month-long specialised course in navigation and direction under the Southern Naval Command, Indian Navy's training command, in Kochi.

"It's been a wonderful experience. My seniors had come here earlier to take the course. It has given me a deeper understanding of the branch. I look forward to coming back," he says, looking at another batch of 13 officers from seven nations, including Bangladesh, Indonesia, Malaysia, Myanmar, Morocco, Sri Lanka, and Tanzania, who graduated from the Indian Navy's Anti-Submarine Warfare (ASW) School on completion of their specialisation course on Friday.

A first for Morocco

It was the first time an officer from Morocco had come down for training at the ASW School, pointed out Commander Sridhar Warrier, Defence PRO. Lt Oualid Afrache had earlier trained in ASW in the US.

"With the Moroccan Navy acquiring frigates with sonars, it became imperative to understand the technology so as to exploit it well. And, apart from training, we had a good time here. I will surely recommend it to all my officers," he said.

Lt. Commander Emilio Okyere Dadzie from Ghana, who also trained at the Navigation and Direction School, recalls the long-standing relationship between India and Ghana.

A tradition

"It dates back to the colonial times and our officers have got trained here since the 1960s," he says. Lt Daniel of RMN who's completed his specialisation course at the Signal School recalls that some Admirals of the Royal Malaysian Navy had also trained at the school in their younger days.

Besides the professional training, the international trainees, some of them are accompanied by their spouses, get a chance to tour places across India. "There's tremendous bonding that one develops with the institution and across nations. It's something that stays with you," says Lt. Cdr Samiul Haq, a naval pilot from Bangladesh who stood first in the ASW course.

Pat for Indian Navy

"The Indian Navy is one of the most professional navies and the way they train is appreciated the world over," he adds.

Captain Abraham Samuel, Command Training Coordinating Officer of the Indian Navy, says that it has so far trained about 14,000 foreign officers from 46 different countries.

"On an average, we train about 1,000 people each year. There's been a spike in the number of trainees seeking training from us over the last few years. It is all funded by the Ministry of External Affairs and almost 90% of the seats allotted to the Navy every year get subscribed," he adds.

Apart from training foreign naval personnel at its institutions, the Indian Navy also sends out mobile training teams, at least five-six teams every year, to give customised courses based on demand from friendly nations.

https://www.thehindu.com/news/national/kerala/building-bridges-of-friendship-across-oceans/article30053324.ece

पंजाब केसरी

Sat, 23 Nov 2019

जापान के साथ सैन्य समझौते को रद्द नहीं करेगा दक्षिण कोरिया

सियोल, (एएफपी): दक्षिण कोरिया ने जापान के साथ महत्त्वपूर्ण सैन्य खुफिया जानकारी साझा करने से जुड़े समझौते को रद्द करने के अपने फैसले को आखिरी क्षणों में शुक्रवार को वापस ले लिया। उसके इस कदम से अमेरिका को भी राहत मिली है। यह समझौता शुक्रवार मध्य रात्रि समाप्त होने वाला था। ''जीएसओएमआईए'' समझौता 2016 में हुआ था, जिसके तहत दोनों देश (दक्षिण कोरिया और जापान) अपनी सैन्य खुफिया जानकारियों को साझा करने पर सहमत हुये थे।

दक्षिण कोरिया और जापान के बीच संबंधों में आयी तेज गिरावट के कारण अमेरिका के लिए चिंता पैदा हो गई थी क्योंकि वह (अमेरिका) परमाणु हथियार संपन्न उत्तर कोरिया के खतरे को रोकने की कोशिश में लगा हुआ है। दक्षिण कोरिया और जापान, दोनों अमेरिका के प्रमुख सहयोगी देश हैं, इसलिए यह समझौता अमेरिका के लिए भी

- **नार्थ कोरिया के परमाणु खतरे के मद्देनजर दोनों देशों को एक साथ रहना बेहद आवश्यक**

महत्त्वपूर्ण है। सियोल ने इस समझौते के रद्द होने को सशर्त निलंबित करने की घोषणा की, जिसमें महज छह घंटे शेष रह गये थे। सियोल स्थित राष्ट्रपति कार्यालय 'ब्लू हाउस' में पदस्थ राष्ट्रीय सुरक्षा अधिकारी किम यू-गेउन ने इस फैसले की पुष्टि की। इस समझौते को जीएसओएमआईए के रूप में जाना जाता है, जो अब शुक्रवार आधी रात को खत्म नहीं होगा। उन्होंने कहा कि जापान सरकार ने अपनी सहमति व्यक्त की है। हालांकि, उन्होंने चेतावनी दी कि यह समझौता अब भी ''किसी भी समय रद्द किया जा सकता है।

The Indian EXPRESS

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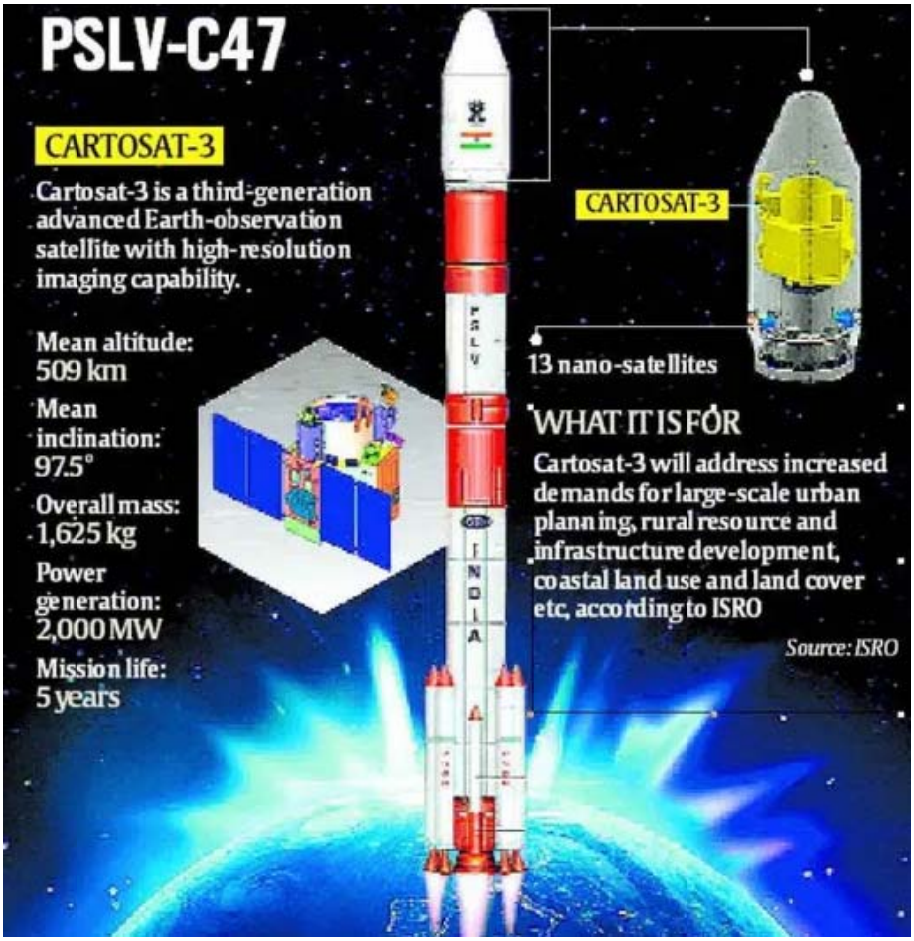
Cartosat-3: What's going up in ISRO fifth launch of 2019

On Wednesday, ISRO will launch the indigenous Cartosat-3 besides 13 foreign satellites. What is the function of Cartosat-3, and how is it an improvement from previous satellites of the series?

By Amitabh Sinha

After Chandrayaan-2, it is back to business for the Indian Space Research Organization. On Wednesday, ISRO will launch Cartosat-3, and 13 other foreign satellites, aboard a PSLV (Polar Satellite Launch Vehicle). This will be ISRO's fifth launch this year and the first since the July 22 launch of the Chandrayaan-2 Moon mission.



The payload

The main purpose of the mission is to place the 1,625-kg Cartosat-3 satellite, the third generation of Earth-observation remote sensing satellites that ISRO has been launching and using 1988. These satellites provide high-resolution imagery of the Earth that are used for applications like 3-D mapping, disaster management, agriculture and water management, recording of changes in land use, and urban and rural infrastructure planning, and even border surveillance.

The PSLV-C47 rocket is also carrying 13 commercial nano-satellites from the US. Twelve of them are Flock-4P satellites, also Earth-observation satellites, from the private company Planet, which has sent several such satellites on PSLV rockets earlier. In fact, it was an earlier version of these same

Flock satellites that, in February 2017, had helped ISRO launch a world record 104 satellites at one go. Of the 104 satellites on board PSLV-C37, 88 were Flocks. Those Flocks were called doves, and the current bunch is known as super-doves.

Earth observation

The main payload in Wednesday's launch would be the next-generation Cartosat satellite. The Cartosat satellites, used mainly for large-scale mapping of the Earth through high-resolution cameras, are part of the large range of earth observation satellites deployed by ISRO, starting with the Indian Remote Sensing series of satellites. The Earth-observation satellites also include the Resourcesat and RISAT series, the Oceansat series and many more. These satellites now focus on generating theme-based user-friendly data that are in great demand. The Resourcesat and RISAT series of satellites, for example, provide imageries and data that are needed for land and water resources applications. The Oceansat series and the SARAL satellite, meanwhile, produce data on the oceans, while satellites like INSAT 3D, INSAT-VRR or Megha Tropiques study the atmosphere.

Data from Earth-observation satellites are in great demand, both from government agencies, which need it for planning and infrastructure development, as well as private companies looking to execute infrastructure and other projects.

Cartosat, then and now

Cartosat-3 has been developed as an improvement over the Cartosat-1 and Cartosat-2 series satellites, though ISRO has not yet revealed the full specifications of this satellite.

Cartosat-1, launched in May 2005, was the first Indian remote sensing satellite capable of taking three-dimensional images. With a resolution of 2.5 metres, which meant it could identify a car on the ground from space, Cartosat-1 helped in creating new digital maps of over 150 towns and cities in the country at a scale of 1:10,000. Earlier maps were of a scale of 1:50,000 or even lower. Data from this satellite were also used to a do an inundation vulnerability assessment of the Indian coastline in the event of a tsunami or a major cyclone, and even for estimating the status of irrigation potential created by the large number of projects under the Accelerated Irrigation Benefit Programme.

The first of the Cartosat-2 series was launched in 2007 and these have been substantially advanced versions of Cartosat-1. Seven of them are in orbit, each with the capability of taking images of resolution better than 1 metre. The last three Cartosat-2 series satellites are also placed in a lower orbit — 505 km from the Earth's surface compared to the 640 km earlier — thereby increasing their resolution further.

ISRO has not revealed the quality of the camera on Cartosat-3 or the resolution of the images it would be able to take. But it is likely to have the capability to take images with resolution better than 0.25 metres.

"There is great demand for reliable high resolution data because these are needed for a very wide range of applications. It is needed by the government, private companies, and also academics who are studying earth, ocean or atmosphere systems. We need to know how the forest or vegetation cover is changing for example, or how urbanisation is spreading. Cartosat satellites come back to the same place after every few months, so that they are able to capture the change that is happening on the ground. And this is valuable for a number of user agencies. ISRO is therefore only catering to the increased demand by deploying more such satellites," said a retired space scientist.

The rocket

Wednesday's mission will fly on a four-stage PSLV rocket that has been the most consistent of ISRO's launch vehicles. This would be the PSLV's 49th flight. All but two of them have been successful. Apart from Chandrayaan-2, which flew on a GSLV rocket, the other three launches this year have all used PSLV variants.

https://indianexpress.com/article/explained/isro-cartosat-3-foreign-satellites-pslv6132580/