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Many countries have shown interest in acquiring BrahMos: DRDO Chief

Several countries, including the Philippines and Vietnam, have shown interest in acquiring the BrahMos missile which can hit targets at around 300 km

Lucknow: Defence Research and Development Organisation (DRDO) Chief Satheesh Reddy on Thursday said that many countries have shown interest in acquiring the BrahMos supersonic cruise missile which can be exported to friend nations.

Mr Reddy said the target of increasing defence exports to \$5 billion was achievable and the DRDO would play an important role in it.

"BrahMos supersonic cruise missile is one of the most important products that we are looking to export. We have received many queries about the missile system," he said.

Several countries, including Philippines and Vietnam, have shown interest in acquiring the BrahMos missile which can hit targets at around 300 km.

Mr Reddy also elaborated on the other products that can be exported and said, "We can also offer radars, anti-tank missiles, surface to air missiles and various types of torpedoes for exports."

"The goal of exporting \$5 billion in defence exports in the next five years is the direction given by the Prime Minister and we all have to work towards the meeting the target. I am sure that the technologies and capabilities that have been developed over the years and what it is today, we can definitely achieve it," he further added.

<https://www.ndtv.com/india-news/defence-research-and-development-organisation-chief-satheesh-reddy-many-countries-have-shown-interes-2176198>



BrahMos missile ready for exports, many countries interested: DRDO Chief

Lucknow: After Prime Minister Narendra Modi called for increasing defence exports to USD 5 billion, DRDO Chief Satheesh Reddy on Thursday said that many countries have shown interest in acquiring the BrahMos supersonic cruise missile which can be exported to friendly foreign countries.

In an exclusive interaction with ANI, the Defence Research and Development Organisation (DRDO) Chief said the target of increasing defence exports to USD 5 billion was achievable and the DRDO would play an important role in it.

"BrahMos supersonic cruise missile is one of the most important products that we are looking to export. We have received many queries about the missile system," Reddy said.

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<https://in.news.yahoo.com/brahmos-missile-ready-exports-many-countries-interested-drdo-132048961.html>



Fri, 07 Feb 2020

More lethal BrahMos to be tested by year-end

By Ajay Banerjee

Lucknow: A next variant of BrahMos is expected to be tested by year-end. It will travel further than the existing range of 300 km and its precision strike ability will be fine-tuned to hit within 1 m of designated target.

At the DefExpo here, the BrahMos has on display an existing missile platform that has been inducted for various usages in the Army, Navy and the Indian Air Force (IAF).

The one that is expected to be tested this year is likely to have a range of 500 km and bring down the precision ability from the present – within 10 m radius of the target – to the just one metre. It will have better sensors and tracking devices which are now available after research.

The test will be of the land attack version which can be launched from land to another land target. Such a weapon – land-to-land attack – has been inducted into the Army albeit with a range of 300 km.

The range of the BrahMos can be increased after India becomes a part of the elite Missile Technology Control Regime (MTCR). The MTCR hinders the transfer of technology for missiles more than 300 km. Russia despite having the technology could not give it to India due to MTCR restrictions.

So far, three BrahMos missile regiments have been deployed in the western sector to counter threats from Pakistan. And fourth regiment is tasked in Arunachal Pradesh.

14 pacts signed

- The 5th India-Russia military industrial conference was conducted in Lucknow where 14 MoUs were inked for manufacture of spare parts in India for Russian-origin equipment used in India
- In September 2019, an inter-governmental agreement was signed at Vladivostok that allows joint manufacturing of spare parts
- The armed forces have been facing difficulties due to long delays in supply of spare parts of Russian origin military platforms and systems

<https://www.tribuneindia.com/news/more-lethal-brahmos-to-be-tested-by-year-end-37008>

Defexpo 2020: India unveils wheeled armoured platform, upgraded Sarath IFVs

By Dmitry Fediushko

Lucknow: India's defence industry unveiled two new infantry fighting vehicles (IFVs), the Wheeled Armoured Platform (WhAP) and an upgraded variant of the BMP-2/2K Sarath, during the 5-9 February Defexpo 2020 defence exhibition in Lucknow, northern India.

The WhAP IFV, which is powered by a Cummins ISXe 600 turbocharged diesel engine coupled to an automatic transmission, has been developed by the state-owned Defence Research and Development Organisation (DRDO) to meet Indian Army (IA) requirements, and is available in both an 8×8 and an 8×4 configuration.

“The vehicle's protection meets STANAG 4569 requirements, with actual protection levels depending on the task,” a DRDO official told *Jane's*. The modular protection results in the platforms weight varying between 19 and 26 tonnes, with amphibious capability provided at up to 24 tonnes. The WhAP, which can reach a top speed of 100 km/h on land, has a cruising range of up to 500 km.

The WhAP is armed with the manned turret from the BMP-2. “It is the most cost-effective solution for the IA,” said the DRDO official, pointing out that the turret is fitted with a 30 mm 2A42 main gun, a Kalashnikov PKT 7.62 mm co-axial machine gun, and a roof-mounted launcher for the AT-4 Spigot anti-tank missile system.

Meanwhile, India's state-owned Ordnance Factory Board (OFB) showcased an upgraded variant of the BMP-2 Sarath IFV. Compared with the baseline Sarath, this modernised variant is fitted with new sensor suites featuring thermal imagers and TV cameras for the gunner and commander.

https://janes.ihs.com/Janes/Display/FG_2694827-JDW



hindustantimes

India to develop 200-km range tactical ballistic missile

The surface-to-surface missile, being developed by the Defence Research and Development Organisation (DRDO), has been named Pranash

By Rahul Singh

Lucknow: India is working on a new tactical ballistic missile capable of striking targets at a range of 200km, two top government officials said on Thursday on condition of anonymity.

The surface-to-surface missile, being developed by the Defence Research and Development Organisation (DRDO), has been named Pranash, the first official cited above told Hindustan Times at DefExpo 2020, a military systems' exhibition organised by the Department of Defence Production that seeks to project India as hub for global defence manufacturing.



The new weapon traces its origin to the Prahaar missile developed by the DRDO, the official said. The Prahaar has a range of 150km but the army wanted a weapon with a better range, which is why Pranash is being developed, he added.

“The configuration of Pranash has been frozen and development trials will begin by 2021-end. We will be in a position to offer it for user trials in two years. The army wants a missile with a range in the region of 200km,” said a second official aware of the matter.

The non-nuclear Pranash missile will be propelled by a single-stage solid propellant engine, he added.

DRDO's short-range Prithvi series of missiles with ranges of 150 to 350 km are nuclear-capable and powered by a liquid propellant engine that has its limitations. “Missiles with solid propellant engine are ready-to-use. However, liquid propellant engines can be complicated as the liquid propellant mixture has to be added before the launch,” the second official said.

India's Agni series of nuclear-capable ballistic missiles can hit targets at different ranges between 700km and 5,500km.

Once developed, the Pranash missile could also be exported to friendly foreign countries, said the first official cited above. “It will be one of the cheapest missiles in the world in its range category. Also, the missile is outside the purview of the Missile Technology Control Regime (MTCR), which places export restrictions on missiles with ranges of more than 300km,” he said.

Increasing weapons exports is a top priority for the government. Prime Minister Narendra Modi on Wednesday said the country's target was to clocks exports worth Rs 35,000 crore in the next five years.

This is in line with a draft Defence Production Policy, released in March 2018, that visualises India as one of the top five countries in the aerospace and defence sectors in the coming years. The PM said India had exported military hardware worth Rs 17,000 crore during the last two years, compared to Rs 2,000 crore in 2014.

This year's DefExpo is being attended by ministers from almost 40 foreign countries.

<https://www.hindustantimes.com/india-news/india-to-develop-200-km-range-pranash-missile/story-eev9HZEZo2m6ADnIjSncvP.html>

Defexpo 2020: India to test Nirbhay cruise missile powered by indigenous propulsion system

By Rahul Udoshi

Lucknow: India is expected to carry out in April the first developmental trial of a Nirbhay cruise missile fitted with an indigenous propulsion system, an Aeronautical Development Establishment (ADE) official told *Jane's* during the 5–9 February Defexpo 2020 exhibition in Lucknow, northern India.

Called the Indigenous Technology Cruise Missile (ITCM), the weapon, which is essentially the Nirbhay missile fitted with the indigenous Small Turbo Fan Engine (STFE), is being developed by Gas Turbine Research Establishment (GTRE) of India's state-owned Defence Research and Development Organisation (DRDO). ADE has planned two developmental tests using the ITCM to demonstrate the STFE and a new radio frequency seeker.

The ADE official also confirmed that new variants of the missile are either planned or already being developed, including the ground/ship-launched Long Range Land Attack Cruise Missile (LRLACM), the Submarine Launched Cruise Missile (SLCM) – or Nirbhay SLCM – and the future air-launched version, possibly known as Air-Launched Cruise Missile (ALCM) or Nirbhay ALCM.

The 6 m-long, nuclear-capable, land-attack Nirbhay has a diameter of 0.52 m and is fitted with two tapering-chord fold-out (backwards) wings with a span of 2.7 m. The one-tonne missile is brought up to the takeover speed of its turbofan engine by a jettisonable solid-propellant booster. The missile cruises at a speed of 270–305 m/s, and its maximum strike range is stated to be 1,000 km.

The 110 kg STFE straight jet engine has an onboard gas generator for powering on the engine, which generates 425 kgf of thrust and is credited with a 2 kW power offtake. Measuring 900×360 mm, the engine has already completed stand-alone ground testing, a GTRE official told *Jane's*.

ADE's priority is to complete trials of the LRLACM by 2021, with preparations already under way for the test in April. This will be followed by another test before an actual live firing set to take place in January/February 2021.

Meanwhile, the Indian Navy (IN) has expressed an interest in acquiring the ship-launched version at the earliest by 2023, he added.

In addition, the Nirbhay SLCM is also being prepared for its first underwater test from a simulated submarine (pontoon) by the end of 2020, which is set to be followed by an actual test firing in mid-2021.

The ADE official noted that the project is on track and expressed optimism that the weapon will soon be moving into production-standard configuration, followed by the operational testing phase. Once the technology behind the missile is certified, there is a proposal to develop the Nirbhay ALCM within two to three years.

https://janes.ihs.com/Janes/Display/FG_2694763-JDW



Fri, 07 Feb 2020

Defexpo 2020: India's DRDO displays remotely operated platform to defuse unexploded ordnance

By Jayesh Dhingra

Lucknow: The Research and Development Establishment (R&DE) laboratory of India's state-owned Defence Research and Development Organisation (DRDO) has displayed a remotely operated platform designed to handle and defuse unexploded ordnance.

Called the Unexploded Ordnance Robot (UXOR) the platform, which was exhibited during the 5-9 February Defexpo 2020 exhibition in Lucknow, northern India, has an operating range of 2,000 m line-of-sight and can handle unexploded ordnance of up to 1,000 kg and 1 m in diameter, according to the DRDO.

DRDO scientist Mridu Kant Pathak told *Jane's* that the UXOR uses a 7-axis manipulator arm with a 3-axis cutting mechanism that holds the cutting nozzle of an abrasive water jet cutting machine for in-situ munition 'case entry'.



The grappler mounted on the loader arm is used to handle the larger and heavier ordnance. The sensors on the UXOR include a series of 11 cameras for navigation and operation control, a laser, and an ultrasonic sensor-based system for nozzle alignment.

The complete unexploded ordnance disposal system includes the UXOR and a 6×6 carrier vehicle fitted with a master control station.

<https://www.janes.com/article/94146/defexpo-2020-india-s-drdo-displays-remotely-operated-platform-to-defuse-unexploded-ordnance>



Fri, 07 Feb 2020

DefExpo2020: DRDO exhibits special car for army jawans

Defence Research and Development Organisation (DRDO) exhibited a special car without driver and installed arms features for army jawans at the ongoing Defence Expo in Lucknow on Wednesday.

With an aim strengthen India's position in the world, especially in the defence manufacturing sector, Prime Minister Narendra Modi, on Wednesday, said that the government expects to do arms and ammunition export business of Rs 35,000 crore in the next five years.

<https://news.abplive.com/videos/news/india-defexpo2020-drdo-exhibits-special-car-for-army-jawans-1154519>

India set to develop long range, land attack cruise missile

By Anantha Krishnan M

Lucknow: A new home-grown, subsonic missile will be homing on to its target adding might to the Indian Navy by mid of 2023.

A top military source tells Onmanorama at the DefExpo2020 that the new weapon will be named Long Range Land Attack Cruise Missile (LRLACM). It will have a range in excess of 1,000 km and will be launched from a UVLM (Universal Vertical Launcher Module) of BrahMos. The unique UVLMs in operation is designed, developed and patented by BrahMos Aerospace.

These BrahMos UVLMs are already operational on 30 ships of Indian Navy and the new missile will sit inside the same launcher.

The missile is the result of a naval requirement projected to the Defence Research and Development Organisation (DRDO). The sanction for the project is expected in two months and the first trials of the missile could begin in early 2023.

The missile project has been designated to Aeronautical Development Establishment (ADE), a Bengaluru-based DRDO lab developing unmanned systems.

ADE has the expertise of developing India's first home-grown subsonic cruise missile, Nirbhay.

Developmental flights

Around 20 developmental flights are being planned of the LRLACM, tipped to be developed with completely indigenous systems. Barring small sensors and accelerometers every component on this missile will be of indigenous class.

The terminal homing featured will be aided by a desi radio frequency (RF) seeker. Similar to Nirbhay, LRLACM too will be capable of flying at low altitude with sea-skimming capabilities.

At DefExpo2020, a video is being played out showing the sea-skimming capabilities of Nirbhay during its last launch.

The missile's journey has been captured by a chase aircraft and also through Electro-Optical Targeting System (EOTS).

During a visit to DRDO's exhibition area, the Chief of Naval Staff Admiral Karambir Singh on Wednesday expressed his desire to get the new missile delivered at the earliest.

Once DRDO completes the trial phase of the new missile, the Indian Navy is keen to place an order on development cum production partner (DCPP). An order worth Rs 5,000 crore for 200 LRLACMs will be placed on the DCPP by Indian Navy.

Nirbhay's new avatar

Interestingly, the Nirbhay project, which completed six developmental trials from March 2013 to April 2019, has been technically closed.

The project has taken a new desi avatar with a renewed outlook and will be now known as the Indigenous Technology Cruise Missile (ITCM). The Indian power plant for ITCM – the Short Turbo Fan Engine (STFE) – is developed by Gas Turbine Research Establishment (GTRE) in Bengaluru.

The first launch of ITCM will be with STFE and it will have an RF seeker developed by RCI, Hyderabad. The trial is expected to be conducted in April this year.

The air variant of ITCM too is taking shape at ADE in addition to a submarine variant as well.

DRDO is aiming to attain complete self-reliance for its missile programmes. Efforts are afoot to cut the delays during the development phase and LRLACM and ITCM are among the batch of weapons cruising through the new thought process.

(The writer is an independent aerospace and defence journalist, who blogs at Tarmak007 and tweets @writetake.)

<https://english.manoramaonline.com/news/nation/2020/02/06/india-defexpo-long-range-land-attack-cruise-missile.html>



Fri, 07 Feb 2020

DRDO robots to help fight terror, handle hostage crisis

These robots will have specific roles — covering the periphery of an operation area, entering target area and operating from close proximity of a target, a senior DRDO Scientist said

Lucknow: The Defence Research and Development Organisation (DRDO) is ready with robots which will help to eliminate terrorists and free hostages from their clutches.

These robots will have specific roles — covering the periphery of an operation area, entering target area and operating from close proximity of a target, a senior DRDO scientist said.

The first set will do outside surveillance, will create map and will relay it to the Master Control Station (MCS) from where each of them will be controlled and commanded. The second set of robots will be a miniaturised unmanned armed vehicle, BolBot.

These robots will be best utilised in a situation where terrorists are holed up in an unknown building or in a hostage situation where the map of the location and inside the building will be known on the spot, thereby decreasing the possibility of collateral damage to security forces.

These robots will be fitted with radars and sensors having capability so that these can be used in dark rooms or in night operations.

These also will have carriage and arms with a manipulator to execute the order from the MCS. Also, they will share data with the MCS.

The third set of robots — the smallest of the three — will be capable to go and sit in a corner, while continuously capturing real-time data for soldiers to take action.

“The robots have reached a stage where they are almost working autonomous. But, for final stage some work is pending,” the scientist said. These robots are on display in the DRDO Pavillion at the 11th Edition of Defence Expo.

<https://www.newindianexpress.com/nation/2020/feb/06/drdo-robots-to-help-fight-terror-handle-hostage-crisis-2099655.html>

75 किमी दूर से दुश्मन को मारेगा पिनाक

पुलक त्रिपाठी • लखनऊ

भारतीय सेना को अपनी मारक क्षमता से मजबूत करने वाली रॉकेट गाइडेड पिनाक अब दुश्मन को 75 किलोमीटर दूर से मार गिराने को तैयार है। 327 किलोग्राम वाले पिनाक का निशाना बेहद अचूक है, इसके चलते दुश्मनों को भागने भी मौका नहीं मिलता।

डिफेंस रिसर्च एंड डेवलेपमेंट आर्गनाइजेशन (डीआरडीओ) के अधिकारियों के मुताबिक गाइडेड पिनाक रॉकेट (मल्टी बैरल रॉकेट लांचर सिस्टम) को युद्ध के दौरान प्रयोग में लाया जाता है। चार सेकेंड के अंतराल पर एक रॉकेट लांच होता है। रक्षा विशेषज्ञों के अनुसार 5175 मिमी लंबे पिनाक का इस्तेमाल दुश्मन देश में स्थित किसी फिक्स टारगेट को ध्वस्त करने के लिए किया जाता है। जैसे दुश्मन के एयरपोर्ट, एयरबेस आदि। इसके अलावा दुश्मनों के सैनिक जत्थे को भी ध्वस्त करने में पिनाक का निशाना एकदम सटीक बैठता है।

आमतौर पर युद्ध के दौरान दुश्मनों के ठिकानों को ध्वस्त करने के लिए प्लेन से बमबारी की जाती है। मगर पिनाक एक वैकल्पिक और बेहद सटीक निशाना साधने में कारगर



फिक्स टारगेट को ध्वस्त करने में बेहद कारगर डीआरडीओ की मिसाइल, पिनाक रॉकेट गाइडेड प्रणाली रही आकर्षण का केंद्र

सफल साबित हो रहे पिनाक एमके 1 रॉकेट

गाइडेड पिनाक रॉकेट की तरह पिनाक एमके 1 रॉकेट भी है। जिसकी अधिकतम रेंज 37.5 किलोमीटर और वजन 277 किलोग्राम है। तलनात्मक रूप से इसकी रेंज भले ही गाइडेड पिनाक रॉकेट से कम हो, मगर इसका निशाना भी अचूक है।

साबित माना जाता है। इससे किए गए हमले में दुश्मन के पास जाने की जरूरत नहीं। रॉकेट के जरिए ही बम वर्षा की जा सकती है। डीआरडीओ अधिकारियों का दावा है कि पिनाक के रेंज को और बढ़ाने पर काम किया जा रहा है।

भारत 2030 में शीर्ष तीन अर्थव्यवस्था वाले देशों में होगा शामिल : राजनाथ

रक्षा मंत्री ने कहा- **अंतरराष्ट्रीय** स्तर पर बढ़ी है भारत की साख

राज्य ब्यूरो, लखनऊ : रक्षा मंत्री राजनाथ सिंह ने कहा कि 2030 तक भारत विश्व की शीर्ष तीन अर्थव्यवस्था वाले देशों में शामिल हो जाएगा। इसमें उत्तर प्रदेश का अहम योगदान रहेगा। साथ ही प्रधानमंत्री नरेंद्र मोदी ने वर्ष 2024 तक देश को पांच ट्रिलियन डॉलर (अरब डॉलर) की अर्थव्यवस्था में लाने का जो लक्ष्य रखा है, उसमें भी प्रदेश का अहम योगदान होगा। उन्होंने कहा कि अंतरराष्ट्रीय स्तर पर भारत की साख बढ़ी है।

डिफेंस एक्सपो-2020 में 'उत्तर प्रदेश डिफेंस इंडस्ट्रियल कॉरिडोर' विषय पर आयोजित सेमिनार में राजनाथ सिंह ने कहा कि कुछ अर्थशास्त्री दुनिया में मंदी का हवाला देते हुए कहते हैं ऐसे हालातों में भारत कैसे पांच ट्रिलियन डॉलर अर्थव्यवस्था के लक्ष्य को हासिल करेगा। मंदी के बावजूद हमारे देश की अर्थव्यवस्था सबसे तेजी से बढ़ रही है। कुछ तिमाही नतीजों में भले ही कुछ कमी



उपर के लखनऊ में चल रहे डिफेंस एक्सपो में गुरुवार को रक्षा मंत्री राजनाथ सिंह ने प्रदर्शित एडवॉंस रक्षा उत्पादों और तकनीकों का जायजा लिया। उन्होंने कई अन्य कार्यक्रमों में भी हिस्सा लिया • एएनआइ

रक्षा मंत्री ने की योगी की तारीफ

राजनाथ सिंह ने मुख्यमंत्री योगी आदित्यनाथ की तारीफ करते हुए कहा कि उनमें हमेशा कुछ कर गुजरने की ललक दिखती है। यहां के मुख्यमंत्री के उत्साह और विजन को देखकर लगता है कि कोई भी बड़ा लक्ष्य आसानी से पाया जा सकता है।

निवेशकों के लिए खुले हैं रक्षा मंत्रालय के दरवाजे

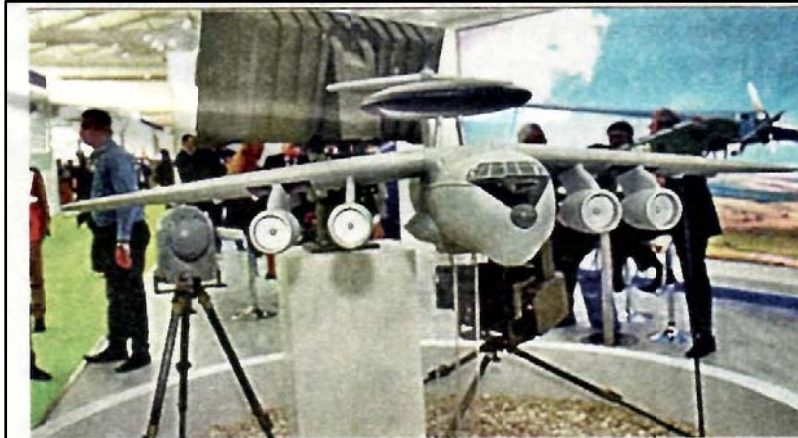
राजनाथ सिंह ने कहा कि पहले रक्षा मंत्रालय का ऑफिस किसी किले से कम नहीं था। जब मैं यहां आया तो मैंने सारे बंद खिड़की-दरवाजे खुलवा दिए। निवेशकों के

लिए रक्षा मंत्रालय के दरवाजे खोल दिए गए हैं। उद्योगपति जब आना चाहें यहां आकर मिल सकते हैं। वे सीधे मुझसे भी मिल सकते हैं।

हो जाती है, लेकिन इससे बहुत घबराने की जरूरत नहीं है। रक्षा मंत्री ने कहा

कि अंतरराष्ट्रीय मुद्रा कोष ने भी विश्वास जताते हुए कहा है कि मंदी

से भले पूरी दुनिया जूझ रही है, मगर भारत इससे तेजी से उबर जाएगा।



स्पाइक मिसाइल का बढ़ा बाजार

इजराइल के पास एंटी टैंक 5जी मिसाइल स्पाइक है, जो टारगेट पर अचूक निशाना लगाती है। इजराइल की रफायल कंपनी की एंटी टैंक गाइडेड मिसाइल स्पाइक की चार मिसाइल की पूरी फैमिली है। इसकी रेंज दो से 30 किमी. तक होती है। भारत की सेना के पास फिलहाल चार किलोमीटर तक मार करने वाली स्पाइक एलआर मिसाइल है।



ईरानी कमांडर कासिम सुलेमानी पर हमले के बाद इजरायल को लेकर उत्सुकता बढ़ी है। डिफेंस एक्सपो में जब इजरायल के ड्रोन दिखाए तो लोग उसकी ओर खिंचे चले आए

● जागरण



टाइटैनियम से बना प्रोपेलर पानी के जहाज में बाधाओं को दूर करने के काम आता है। इसकी नई तकनीक को लखनऊ की एक कंपनी ने विकसित किया है। ● जागरण

Indian Air Force needs to upgrade Su-30MKI, says former Air Marshal

By Johnson

Key Points

- ***The IAF has a pressing need to upgrade its Su-30MKI fighters, according to a former IAF commander***
- ***The aircraft's radar and EW system in particular are areas to be addressed***

Singapore: The Indian Air Force (IAF) must address the need to upgrade its fleet of Russian-made Sukhoi Su-30MKI fighters, according to a former senior commander of the service.

Speaking at the 4–5 February Electronic Warfare Asia symposium in Singapore, retired Air Marshal Daljit Singh said, “The Sukhoi is quite obviously a superb and powerful platform. In terms of the carriage capability and its range it has great utility but the reality is that the programme originally came online in 1997 and there have been numerous technological advancements since then that dictate an update for the aircraft.”

The IAF has acquired more than 250 of the type, most of which have been licence-assembled at the Hindustan Aeronautics Ltd (HAL) plant in Nasik, India.

Singh said two key elements in the Su-30MKI – the radar and the electronic warfare (EW) suite – are falling behind the current state-of-the-art elements and need to be upgraded. The radar is the NIIP N011M Bars radar, which is only a passive electronically scanned array (PESA) system and would need to be replaced with an active electronically scanned array (AESA) radar to give Su-30MKI crews a higher level of situational awareness.

The EW suite is a greater challenge in that the aircraft's large radar cross-section makes a robust self-protection capacity mandatory. The aircraft's current EW suite is a variant of the Russian-produced KNIRTI SAP-518 wingtip-pod-mounted system, which can be augmented by the SAP-14 centreline stand-off jamming module.

“The Russian EW is very effective; there is no question about that,” said Singh. “But what the Russians did not tell us is what a negative impact the pods have on the Sukhoi's aerodynamic performance.” An assessment made in 2017 by one of the designers working on indigenous EW concepts for the Su-30MKI was even more blunt, saying, “With the Russian pods the Sukhoi is basically [flying like] a transport aircraft.”

This shortcoming was exacerbated by the fact that there is no effective interface between the Russian EW modules and the Indian-designed radar warning receiver (RWR). The pilot must therefore manually engage the appropriate EW mode once the threat signal ‘painting’ the aircraft has been properly identified, creating a significant time lag.

The Defence Avionics Research Establishment (DARE) in Bangalore has committed to developing an Indian-designed EW pod for the Su-30MKI. It has been reported that the pod itself and the components of the self-protection suite have been developed but that the DARE still requires a cooling system that will meet mission requirements.

The IAF's official upgrade programme for the Su-30MKI, known as the Sukhoi Super 30 programme, has yet to be fully defined.

https://janes.ihs.com/Janes/Display/FG_2693911-JDW

Indian Navy to get delivery of Scorpene-class ‘Karanj’ submarine

The DRDO is already in the process of developing an indigenous fuel cell-based AIP module and has already touched a milestone last October with the successful operation of a land-based prototype engineered to the form-and-fit of a submarine

By Huma Siddiqui

The stage is getting set for the Indian Navy to take the delivery of the third ‘Scorpene’ submarine ‘Karanj’ by the end of this year, and all the six will be delivered by 2022. According to Nicolas de La Villemarque, Vice President India, Asia and Pacific of Naval Group, “The Company is in discussions with all agencies involved in the project for fitting the Air Independent Propulsion (AIP) modules on all Scorpene’s beginning 2023.”

The Mazagon Dock Shipbuilders Limited (MDL), the Indian Navy and Defence Research and Development Organisation (DRDO) are in the midst of discussions with the Naval Group. Since minor changes need to be carried out for the fitment of the AIP, a design agreement with the DRDO by the year-end is expected.

The Naval Group is ready to do design simulations which would help in working out the technicalities of the project which involves the process of cutting, joining and putting various blocks together. With technology assistance from the Naval Group (former DCNS) for a \$3.75 bn deal signed in October 2005, the Mumbai based MDL shipyard is building these submarines.

The Financial Express Online had reported recently that the third ‘Scorpene’ Karanj under construction at MDL, is undergoing the rigorous phase of sea trials. Karanj was launched in 2018.

The fourth submarine ‘Vela’, which was launched in May 2019 is getting ready for the sea trials and the balance two submarines — Vagir and Vagsheer are presently in various stages of outfitting.

The first Scorpene, Kulvari, is expected to come up for its refit after six years in 2023 and the Indian Navy is keen that the AIP be installed at that time. The INS Kulvari was commissioned in 2018. The Indian Navy has inducted the second ‘Scorpene’ class submarine just last September.

The DRDO is already in the process of developing an indigenous fuel cell-based AIP module and has already touched a milestone last October with the successful operation of a land-based prototype engineered to the form-and-fit of a submarine. However, to get it operationally viable, naval officers feel it will take time to get fitted onboard the submarine in 2023.

Speaking on condition of anonymity, a senior officer said that “It will take time for a Defence Quality Assurance (QA) approved ‘productionised’ version which could be ready for operational exploitation onboard Kalvari-class submarine. However, the Ministry of Defence (MoD) and the Indian Navy has the options to buy either from the Naval Group or from any other vendors who have this technology on offer meeting all parameters.”

What is AIP & why is it important for the submarines?

It is a module which gives stealth and extended endurance to diesel-electric submarines and allows them to stay in the water longer without access to the outside air.

With the Kalvari Class submarine is fitted with an AIP system onboard, it will have the potential to run its electric propulsion motor and electrical network and bypassing the traditional batteries.

Project-75I

The French Naval Group is also among the five Original Equipment Manufacturers (OEM) who have

been shortlisted for the Indian Navy's project for advanced submarines under Project-75I. This is being processed under the Strategic Partnership (SP) model of defence procurement. And MDL and Larsen & Toubro are the two Indian companies which have been shortlisted as the Indian partners and soon the Request For Proposal (RFP) is expected to be issued to them.

The Company has also responded to the Indian Navy's tender for heavyweight torpedoes, which will be used to equip the Scorpene submarines.

<https://www.financialexpress.com/defence/indian-navy-to-get-delivery-of-scorpene-class-karanj-submarine/1858621/>



Fri, 07 Feb 2020

HAL, Newspace sign unmanned systems agreement

By Jon Grevatt

India's Hindustan Aeronautics Limited (HAL) has signed an agreement with Newspace Research and Technologies, a private company established in 2017, to collaborate on advanced aerospace and defence technologies, it was announced on 5 February.

HAL said that under non-disclosure agreement (NDA) – signed at the DefExpo 2020 show in Lucknow, northern India – the two firms will explore co-operation in the joint development and manufacturing of products and systems related to unmanned systems, swarm technologies, and space systems.

While HAL is India's primary aerospace group, Newspace Research and Technologies has outlined an intention to invest in developing a range of modern technologies in aerospace and defence. These technologies include unmanned systems, robotics, GPS-denial systems, augmented and virtual reality, and artificial intelligence. Both HAL and Newspace Research and Technologies are based in Bangalore.

HAL signed its NDA with Newspace Research and Technologies one day after it entered another agreement with two companies – Indian firm Dynamatic Technologies Limited (DTL) and Israel Aerospace Industries (IAI) – to develop and build unmanned aerial vehicles (UAVs) for the Indian armed forces. The agreement is expected to focus on the promotion and production of IAI-designed UAV systems.

https://janes.ihs.com/Janes/Display/FG_2694268-JDW

To boost Army's firepower, upgraded artillery guns to be inducted this month

The Jabalpur-based Gun Carriage Factory, a unit of the OFB, is upgrading the army's vintage Soviet-origin 130mm M-46 towed artillery pieces to 155 mm 45-calibre standard. (155 mm denotes the diameter of the shell and calibre relates to barrel length.)

By Rahul Singh

Lucknow: The Indian Army is preparing to induct upgraded artillery guns named Sharang by the end of the month to boost its firepower, with a symbolic handing over ceremony to be held at DefExpo-2020 on Friday, Ordnance Factory Board (OFB) chairman Hari Mohan said on Thursday.

The Jabalpur-based Gun Carriage Factory, a unit of the OFB, is upgrading the army's vintage Soviet-origin 130mm M-46 towed artillery pieces to 155 mm 45-calibre standard. (155 mm denotes the diameter of the shell and calibre relates to barrel length.)

The OFB is the country's main producer of military arsenal and controls 41 ordnance factories engaged in the production of artillery guns, tanks, armoured personnel carriers, bombs, rockets, anti-aircraft guns, parachutes and small arms.

Mohan told Hindustan Times the upgraded guns have an enhanced range — up from 27km to 37km — and better terminal effectiveness. The OFB was awarded a contract to upgrade 300 of the 130 mm artillery guns in October 2018.

The board will supply the first batch of 12 upgraded guns to the army by February-end, while the remaining ones will be delivered in batches by 2022-end, said Lieutenant General A Mukherjee (ret), a consultant to the OFB and a former director general of the army's artillery directorate. The OFB has showcased an upgraded gun at DefExpo, which is being attended by more than 1,000 Indian and foreign defence firms.

“Apart from enhanced range, the upgraded guns stand out for ease of handling due to automation of loading of ammunition. The weapon has great export potential. The upgraded Sharang guns use the same ammunition as Dhanush and feature the same barrel,” Mukerjee said.

The army's newest 155mm 45-calibre Dhanush towed artillery gun is also an OFB product and the force has placed an order for 114 guns. Mohan said the board has delivered six Dhanush guns to the army and will supply another 12 by early next year. The defence ministry said the weapon is the first long-range artillery gun to be produced in India and a 'Make in India' success story.

Artillery modernisation is a top priority for the army and the force plans to order 300 more Dhanush guns, a senior officer said. The army has also begun inducting 155mm/52-calibre tracked self-propelled K9 VAJRA-T guns, being manufactured in India by private sector defence major Larsen & Toubro and South Korea's Hanwha Techwin. The army has inducted 50 of the 100 K9 VAJRA-T guns it ordered in 2017. The army is also raising seven new regiments that will be equipped with M-777 ultra-light howitzers for accurate artillery fire support in mountainous terrain. The 155 mm/39-calibre howitzers can be sling-loaded to helicopters and swiftly deployed to high-altitude areas.

India ordered 145 M-777 howitzers from the United States for \$750 million in November 2016. The M777s were the first artillery guns to be ordered after the Bofors scandal unfolded in the late 1980s.

The army's Rs 50,000-crore filed artillery modernisation programme, cleared two decades ago, lays down the road map for inducting new 155mm weaponry, including tracked self-propelled guns, truck-

mounted gun systems, towed artillery pieces and wheeled self-propelled guns. The plan seeks to equip 169 artillery regiments with a mix of nearly 3,000 guns in the coming years.

<https://www.hindustantimes.com/india-news/homemade-upgraded-artillery-guns-to-be-inducted-this-month/story-k9kyGgqGvWZqr2PE7Y103K.html>

Business Standard

Fri, 07 Feb 2020

Saudi to evaluate Kalyani group's artillery guns Bharat 52, Garuda V2

*It has been learnt that the two types of gun systems - both designed and developed by
Kalyani Group - are being sent later this year to Saudi Arabia for trial evaluation*

By Ajai Shukla

Lucknow: The Pune-based Kalyani Group, which has made a major foray into the field of artillery gun systems, is pitching strongly to supply artillery gun systems to the Saudi Arabian military.

Business Standard has learnt that two types of gun systems, both designed and developed by Kalyani Group, are being sent later this year to Saudi Arabia, for trial evaluation by the Royal Saudi Army in the forbidding Saudi Arabian desert.

The guns include the so-called Bharat 52, a 155 millimetre (mm), 52 calibre (cal) towed howitzer that is the first gun the Kalyani Group built. Saudi Arabia will also evaluate the Garuda V2, a 105 mm gun mounted on a light vehicle chassis for added mobility.

Interestingly, Saudi Arabia has not expressed interest in the flagship artillery gun that the Kalyani Group is working one: the eponymous Advanced Towed Artillery Gun System (ATAGS). This futuristic DRDO-designed gun is being built by two private firms in parallel -- Kalyani Group and Tata Advanced Systems Ltd (TASL).

Kalyani Group, by virtue of its organic skills in metal castings and forgings, is playing the larger role, including building barrels for its own, as well as TASL's gun.

Baba Kalyani, chief of the Kalyani Group, makes no secret of his intention to sink whatever money it take for dominating artillery gun production in India. In this his flagship company, Bharat Forge, the worlds' largest producer of forgings and castings, is to play a leading role.

"Kalyani Group is well along in mastering gun production. We are the equal of the world's top 2-3 companies in artillery systems," Kalyani told Business Standard.

Kalyani praises the government's initiative to boost defence exports, which have already multiplied over the last two years to a total of Rs 10,700 crore. The MoD's Defence Production Policy of 2018 has set an annual defence exports target of \$5 billion by 2024.

"The real efforts in export promotion started 5-6 years ago and to be fair to the system, we have made significant headway. We had a conference about six months ago on ways to boost exports. That was attended by India's military attaches posted in embassies abroad. Now they are at the front end of export promotion in the countries to which they are posted," said Kalyani.

The hard-driving Kalyani Group chief is launching the development of new guns without waiting for MoD orders. After the army launched a programme to procure 145 ultralight howitzers from the international market – a \$700 million contract that BAE Systems eventually won with its M777 gun system – the Kalyani Group has unilaterally designed and built two different ultralight howitzers, which it intends to offer the army.

“We are offering the guns *suo moto*, under the “Make-2” category,” said Kalyani. Under this procurement category, companies can offer the MoD defence products they have developed at their own cost.

Of these ultralight howitzers, one is a 155 mm, 39-calibre titanium gun that weighs a mere 4.8 tonnes. Kalyani Group has dubbed it Mountain Artillery Gun – Titanium (MArG-T). Its range matches the BAE Systems M777 gun, with conventional ammunition fired to a range of 25 kilometres (km).

The other gun is a larger, cheaper, all-steel 155 mm, 52 calibre gun that weighs 7.8 tonnes and fires conventional ammunition to a range of 30 km.

“The army can choose what it wants: low weight and higher cost; or higher weight and lower cost. We are offering both options,” says a Kalyani engineer.

“Both these guns are truly indigenous, having been designed by our R&D centre in Pune. While Bharat Forge’s metal working skills are acknowledged worldwide, our Pune R&D centre develops the command and control systems, central computers and automation that goes into gun systems,” says Kalyani.

Kalyani Group’s growing skills provide the military with options they could earlier only dream of. In December 2018, with the Sino-Indian border roiled by the recent Doklam confrontation, then army chief, General Bipin Rawat, visited Kalyani Group and asked whether they could build a truck-mounted 155 mm, 39 calibre gun that could move around on the narrow roads of northern Sikkim.

The gun that Kalyani group developed in response is on display at Defexpo. Based on a 4x4 vehicle produced by Bharat Earth Movers Ltd, the so-called “Go Anywhere Vehicle” offers unparalleled mobility. It is going into firing trials immediately after Defexpo.

The Kalyani Group has a growing relationship with BAE Systems and purchased the British company’s barrel production unit located in the UK. This facility has been physically relocated from the UK to Pune.

For any future artillery orders BAE Systems gets from the international market – including a possible follow-on order from India for more M777 ultralight howitzers – it is likely to source barrels from the Kalyani Group.

Illustrating this relationship, two 155 mm barrels manufactured by Kalyani Group are on display in the BAE Systems stall in Defexpo 2020.

Business Standard

Fri, 07 Feb 2020

UK eager to help India design second indigenous aircraft carrier INS Vishal

Asked whether the UK had offered carrier design cooperation at the political level, British minister for defence Heapey affirmed: "Very much so! At the very highest level."

By Ajai Shukla

Lucknow: The British Minister for Defence Procurement, James Heapey, has confirmed the UK’s eagerness to assist the Indian Navy with designing and building its second indigenous aircraft carrier, INS Vishal.

Asked whether the UK had offered carrier design cooperation at the political level, Heapey affirmed: “Very much so! At the very highest level.”

Cooperation on aircraft carrier design was also discussed on November 28, in an India-UK meeting in New Delhi chaired by the two defence secretaries.

Terming aircraft carrier design “the most totemic” of UK-India cooperation opportunities, Heapey told Business Standard: “The Royal Navy has world-beating electrical propulsion and operational experience of managing electrical propulsion. That is a real opportunity to develop capability and understanding together.”

The Indian Navy wants INS Vishal to be a 65,000 tonne carrier with an all-electric propulsion system – both features that are common with the Royal Navy’s two new aircraft carriers: Her Majesty’s Ship (HMS) Queen Elizabeth and HMS Prince of Wales.

For several years, New Delhi has sought to design INS Vishal in partnership with the US Navy, the world’s pre-eminent builder and operator of aircraft carriers. America operates 11 of the world’s 21 carriers and, by far, the most potent ones.

Towards this end, the Indian and US navies established a joint working group (JWG) on aircraft carrier cooperation in January 2015. India was considering a nuclear powered carrier, like the US vessels. It is also planning a state-of-the-art American “electromagnetic aircraft launch system” (EMALS) that can launch not just fighter aircraft, but also the game-changing E2D Hawkeye airborne early warning (AEW) aircraft.

However, with nuclear propulsion ruled out because India does not have a suitable nuclear reactor, and severe budget constraints casting a shadow over the EMALS, INS Vishal is increasingly looking more like the British carriers.

One feature that is being considered for INS Vishal would differentiate it from British carriers. Both HMS Queen Elizabeth and HMS Prince of Wales incorporate “short take off but vertical landing” (STOVL) systems to operate their aircraft. Their on-board F-35B fighters take off from a ski-jump and land back by hovering like a helicopter and lowering itself onto the deck.

In contrast, fighters on INS Vishal would take off with the help of a catapult and land by snagging their tail hooks on arrester wires laid across the deck, which then unspool, dragging the fighter to a halt. This is called “catapult assisted takeoff but arrested landing” (CATOBAR).

Heapey argues that India does not need to incur the expense of catapult launch systems. Meanwhile, the British carriers are being fitted with arrestor wires.

Revealing that “We are already looking at how we could retrofit an arrester wire onto the Queen Elizabeth carrier deck,” Heapey said: “The crucial thing is that [with] a 65,000 tonne carrier with its existing length of runway and with a ramp on the front, we are confident that an [Indian Navy] fighter jet like the Rafale or the F/A-18 could actually take off from the deck of the Queen Elizabeth without a catapult, just off the ramp. And so that sort of “ramp and trap” solution would suit your existing capability without needing to retrofit a catapult... and we’re looking at developing the arrestor wire anyway, so I think that makes it quite an interesting proposition.”

This system, called “short take off but arrested landing” (STOBAR) is already being used in India’s two existing carriers – INS Vikramaditya and the under-construction INS Vikrant.

Heapey is looking for design cooperation to lead to operational cooperation between the two navies. “How amazing would that be to see the Royal Navy and the Indian Navy steaming in the Indian Ocean with two carrier groups side by side, operating together. At the grand strategic level, what higher ambition could there be?” he said.

The UK is also pushing cooperation with India in the British programme to develop a 6th-generation fighter called the Tempest.

Asked what conversations have taken place between the two governments, Heapey said: “Very meaningful ones. It came up in my meeting with the defence minister yesterday... the Indian government, I know is very interested by our future Tempest programme and has seen the opportunity within it.”

साझेदारी बढ़ाएंगे भारत-अफ्रीका

राजीव दीक्षित • लखनऊ

लखनऊ गुरुवार को भारत और अफ्रीका के संबंधों में नया अध्याय जुड़ने का गवाह बना। डिफेंस एक्सपो 2020 के तहत आयोजित इंडिया अफ्रीका डिफेंस मिनिस्टर्स कॉन्क्लेव में भारत और अफ्रीकी देशों ने शांति, सुरक्षा और रक्षा के क्षेत्र में परस्पर सहयोग आगे बढ़ाने के लिए लखनऊ घोषणापत्र को अंगीकार किया। इस मौके पर अफ्रीका के 54 में से 38 देशों के 154 प्रतिनिधि मौजूद थे। इनमें 12 देशों के रक्षा मंत्री, 19 सेना प्रमुख, आठ परमानेंट सेक्रेट्री डिफेंस और एक सांसद थे।

रक्षा मंत्रालय सूत्रों ने बताया कि लखनऊ घोषणापत्र पर अफ्रीका के सभी देशों की सहमति हासिल की जा चुकी है।

रक्षा मंत्री राजनाथ सिंह की मौजूदगी में अंगीकार किए गए इस घोषणापत्र में भारत और अफ्रीकी देशों

- शांति, सुरक्षा-रक्षा के क्षेत्रों में सहयोग के लिए लखनऊ घोषणापत्र अंगीकार
- रक्षा मंत्री बोले-अफ्रीकी देशों के साथ रक्षा सौदों को लेकर आगे बढ़ने का तैयार भारत

ने शांति और सुरक्षा के क्षेत्रों में अपनी साझेदारी को जारी रखने पर सहमति जताई। वहीं, रक्षा क्षेत्र में निवेश के माध्यम से रक्षा उपकरणों के संयुक्त उपक्रम लगाने, साफ्टवेयर, डिजिटल डिफेंस, अनुसंधान और विकास, रक्षा उपकरणों और उनके कलपुर्जों के रखरखाव में समन्वय स्थापित करने पर भी दोनों पक्ष रजामंद हुए।

दोनों पक्षों ने आतंकवाद, समुद्री डकैती तथा मानव, मादक पदार्थों व हथियारों की तस्करी की बढ़ती चुनौतियों की कड़े शब्दों में निंदा की और आतंकवाद और उसके ठिकानों को खत्म करने का आह्वान किया।

आतंकवाद व उसके विभिन्न स्वरूपों से निपटने के लिए भी भारत-अफ्रीका के बीच सहयोग व समन्वय बढ़ाने पर जोर दिया गया।

नीलो अर्थव्यवस्था के लिए समुद्री सुरक्षा की महत्ता को रेखांकित करते हुए दोनों पक्षों ने सूचनाओं के आदान-प्रदान और बेहतर निगरानी तंत्र के जरिये सुरक्षा, समुद्री डकैतियों और गैरकानूनी तरीके से मछली पकड़ने की घटनाओं पर अंकुश लगाने का भी वादा किया। कॉन्क्लेव को संबोधित करते हुए राजनाथ सिंह ने कहा कि भारत कोशिश करेगा दोनों पक्ष एक-दूसरे की सैन्य क्षमता को मजबूत करने में सहयोग दें।

इस मौके पर रक्षा राज्य मंत्री श्रीपद नाइक, चीफ ऑफ डिफेंस स्टाफ जनरल बिपिन रावत, भारत की तीनों सेनाओं के प्रमुख, रक्षा सचिव डा. अजय कुमार तथा रक्षा और विदेश मंत्रालय के वरिष्ठ अधिकारी आदि मौजूद थे।

जल्द देश में ही बनना शुरू होंगे रूसी रक्षा उपकरणों के कल-पुर्ज

राज्य ब्यूरो, लखनऊ : भारतीय रक्षा बलों द्वारा इस्तेमाल किए जाने वाले रूसी रक्षा उपकरणों के कल-पुर्जों का निर्माण बहुत जल्द भारत में शुरू होगा। इससे देश की रक्षा क्षेत्र में आत्म निर्भरता और बढ़ेगी। इसके लिए गुरुवार को भारत व रूस की कंपनियों के बीच 14 करार हुए। यह करार भारतीय उद्योगों के साथ रूस की मूल उपकरण निर्माता (ओईएम) कंपनियों के साथ हुए।

डिफेंस एक्सपो के मौके पर लखनऊ में पांचवां भारत-रूस सैन्य औद्योगिक सम्मेलन (आइआरएमआइसी) का आयोजन किया गया। इसमें भारत की ओर से रक्षा सचिव डॉ. अजय कुमार तथा रूसी संघ की ओर से उद्योग एवं व्यापार उपमंत्रि ओलेग रियाजात्सेव शामिल हुए।

इस मौके पर रक्षा सचिव ने कहा

बुल्गारिया की तकनीक से छोटे हथियार बनाएगी कल्याणी

रक्षा क्षेत्र में काम कर रहे कल्याणी ग्रुप ने डिफेंस एक्सपो में बुल्गारिया की कंपनी आर्सेनाल ज्वाइंट स्टॉक कंपनी की मदद से देश में छोटे हथियार बनाने का करार किया है। दोनों कंपनियों के बीच रणनीतिक समझौते के तहत तकनीक साझा की जाएगी। एमओयू के तहत एसाएल रायफल (एआर-एम5एफ41) व मशीन गन का निर्माण

अब देश में होगा। कल्याणी स्टेटेजिक सिस्टम लिमिटेड के चेयरमैन राजिंदर सिंह भाटिया ने कहा कि उनकी कंपनी छोटे हथियारों के निर्माण को लेकर उत्साहित है। छोटे हथियारों के निर्माण में आर्सेनाल कंपनी की तकनीक व अनुभव बड़ा है। उनके सहयोग से देश में बने उच्च स्तरीय व किफायती छोटे हथियार उपलब्ध कराएगा।

कि भारत में कल-पुर्जों के संयुक्त उत्पादन के बारे में अंतरसरकारी समझौते (आइजीए) पर चार सितंबर, 2019 को रूस में हस्ताक्षर किए जा चुके हैं। इसी के तहत रूस के रक्षा उपकरणों के कल-पुर्जों का भारत में निर्माण करने के लिए एमओयू किए जा रहे हैं।

रूस के उपमंत्रि ओलेग रियाजात्सेव ने कहा कि भारत में रक्षा उपकरणों के कल-पुर्जों के निर्माण के लिए सभी आवश्यक कदम रूस उठाएगा। इसी कड़ी में कल-पुर्जों के निर्माण के लिए पहला रिक्वेस्ट फॉर प्रपोजल भारतीय नौसेना ने एक भारतीय कंपनी को सौंपा।

एयरक्राफ्ट सेवा क्षेत्र में साझा कदम बढ़ाएंगे अडानी और एयरबस

राज्य ब्यूरो, लखनऊ : एयरक्राफ्ट सेवा क्षेत्र में मिलकर कदम बढ़ाने का निर्णय अडानी समूह और एयरबस इंडिया ने लिया है। दोनों कंपनियों ने डिफेंस इंडिया एक्सपो में समझौता कर तय किया कि भारत और दक्षिण एशियाई बाजार में सेवाओं के अवसर मिलकर खोजे जाएंगे।

लखनऊ में आयोजित डिफेंस इंडिया एक्सपो-2020 में एयरबस इंडिया एंड साउथ एशिया के प्रेसीडेंट व एमडी आनंद स्टैनली और अडानी डिफेंस एंड एयरोस्पेस के प्रमुख आशीष राजवंशी ने एमओयू पर हस्ताक्षर किए। एयरबस की वैश्विक सेवा संबंधी भविष्यवाणी के अनुसार भारतीय एयरक्राफ्ट सेवाओं का बाजार 2025 तक 6.3 बिलियन डॉलर तक होने की उम्मीद है। आनंद स्टैनली ने कहा कि यह एमओयू

अडानी समूह के साथ एल्बिट ने भी किया एमओयू

एल्बिट एडवांस्ड सिस्टम इंडिया लि. ने भी अडानी इंटरप्राइजेज इंडिया के साथ एक एमओयू किया। दोनों कंपनियां डिजाइन एंड डेवलपमेंट सेंटर फॉर डिफेंस टेक्नोलॉजी की स्थापना को लेकर सहमत हुईं। यह डिजाइन सेंटर सशस्त्र बलों की जरूरतों के अनुरूप भविष्य के उत्पादों के निर्माण के लिए आरएंडडी इंजीनियरों के रोजगार सृजन को बढ़ावा देगा।

भारत के विकास को सहयोग देने के लिए हमारी प्रतिबद्धता को दर्शाता है। अडानी समूह के आशीष राजवंशी ने कहा कि भारत एयरक्राफ्ट सेवा बाजार में वृद्धि के शिखर पर है।

The Tribune
VOICE OF THE PEOPLE

Boeing looks to accelerate manufacturing

Lucknow: US giant Boeing on Thursday said it was looking to accelerate manufacturing engineering and services, develop a globally competitive aerospace workforce besides invest in innovation digitisation research and technology.

“An important part of our India strategy is ensuring our defence customers have the most advanced platforms and capabilities, supported by a services model that optimizes mission readiness, high performance and safety,” said Salil Gupte, president, Boeing India. The company was getting work done worth Rs 7,000 crore (\$1 billion) annually from India.

Boeing highlighted future investments to accelerate its “Make in India” efforts and the capabilities being proposed for the Indian armed forces, specifically the next generation F/A-18 Block III Super Hornet fighter.

The F/A-18, on offer to the Indian Navy, is fully compatible with the carriers and will boost the growing maritime and defence relationship between the US and Indian navy.

In line with DefExpo 2020's theme of digital transformation in defence, Boeing also affirmed its commitment to provide its defence customers with data-based information for empowered decision support and optimisation of operations and missions.

The Boeing India Engineering and Technology Center in Bengaluru and Chennai undertakes advanced aerospace work and supports Boeing's global engineering growth. Boeing has made strategic investments in an upcoming wholly owned engineering and technology campus with future avionics manufacturing and assembly capability in Bengaluru.

<https://www.tribuneindia.com/news/boeing-looks-to-accelerate-manufacturing-37011>



Fri, 07 Feb 2020

Will achieve 70% localisation of Kamov copters: IRHL CEO

By Ajay Banerjee

India aims to achieve the target of 70 per cent local content by the time the last of the Russian-origin Kamov 226T helicopter is delivered, said MN Shrinath, Chief Executive Officer of the Indo-Russian Helicopters Limited (IRHL). The IRHL is a joint venture between India and Russia.

“The first batch of helicopters will come out of our production facility at Tumkur in Karnataka by 2025 if everything goes as per plan,” Srinath added.

The Defence Acquisition Council of the Ministry of Defence was expected to give a go-ahead to the signing of a formal contract.

The Russian Helicopters Holding Company (part of Rostec State Corporation) today signed a roadmap with the IRHL for localisation of Ka-226T helicopter production in India. The contract was signed at DefExpo 2020 here.

The document defines the main stages and terms for organising production of Ka-226T helicopter and its units in India with respect to the date when the corresponding contract will be signed.

The roadmap reflects timelines for setting up production facility in India, contracting with suppliers, transferring design documentation, supplying technological equipment and machine kits, training Indian personnel and other key stages of the project to localise production of Ka-226T.

“The roadmap signed today will be the basis for further development of Ka-226T localisation project in India after the signing of the contract,” said Andrei Boginsky, Director General of Russian Helicopters holding company.

Shrinath said the copter had two sources of parts — Russian origin and western origin. Around 74 per cent of the copter is of Russian parentage. Its engine is from Safran France.

“For the 140 copters to be made in India, the Russian part of the content will be indigenised in phases. We will have 70 per cent local content in place of Russian components by the end of phase IV of production. This will include the technology for rotors,” he said in answer to a question.



Indo-Russian Helicopters Limited is a joint venture of Russian Helicopters, Rosoboronexport and the HAL. The company was registered in India in May 2017 as part of a project to localise production of Ka-226T helicopters.

<https://www.tribuneindia.com/news/will-achieve-70-localisation-of-kamov-copters-irhl-ceo-36986>

THE ECONOMIC TIMES

Fri, 07 Feb 2020

Toast of 'Make in India' but production line for Vajra artillery guns to run dry this year

L&T said the order for 100 guns — valued at Rs 4,500 crore — would be completed within six months and its manufacturing facility at Hazira, Gujarat, would be idle after that. A top executive said appeals had been made to the defence ministry for additional orders. Options to export the system are also being explored

By Manu Pubby

Lucknow: It is the toast of India's largest defence show, as an example of how the domestic manufacturing sector is performing, but the production line for the K9 Vajra artillery guns may run dry within six months as the order book exhausts, forcing a possible mothballing of the facility.

The 'Vajra', a 155 mm howitzer ordered by the Indian Army in 2017 after a global competition that was won by Larsen & Toubro, is a central attraction at the show that has seen participation from more than 70 nations.

L&T said the order for 100 guns — valued at Rs 4,500 crore — would be completed within six months and its manufacturing facility at Hazira, Gujarat, would be idle after that. A top executive said appeals had been made to the defence ministry for additional orders. Options to export the system are also being explored, he added.

"We have pleaded for additional orders and we hope something will happen. We are awaiting a repeat order for the guns. We will be without work soon and may have to shift people to other facilities," L&T board member JD Patil told ET.

The Indian company is looking at options to keep the production line functioning by pursuing work share agreements with public sector units, and will also actively look at options for exporting the artillery gun to friendly nations.

"Wherever there is a requirement to operate in desert conditions and in an NBC (nuclear, biological and chemical) environment, we can offer the Indian made Vajra that has been extensively tested by the Indian Army," the senior executive said.

While the K9 is also manufactured by South Korea's Hanwha which is L&T's partner in the project, the India-specific gun has been enhanced to meet the needs of the army for desert warfare. This could open up possibilities for exports to Asian and African countries.

The Vajra has an interesting history to it — the gun was offered to the army in competition with major global players that did not technically require a major Make in India component. However, L&T choose to offer it as an India-made product and has already achieved over 52% indigenisation by cost price.

When it comes to exports, the Indian company can also offer its experience of developing a domestic production line to third nations seeking to replicate the model.

BCCL - Non Copyrig

Seeking Targets

K9 VAJRA-T: A 155 mm/52 cal self-propelled Howitzer that can move quickly across all terrain, giving it a shoot-and-scoot ability

₹4,500CR
Deal value

100
No. of guns ordered by Indian Army

CONTRACT WAS won by L&T-Hanwha combine in 2017

L&T LOOKING AT options to export gun, use facility for other work

GUNS CAN BE offered to nations with desert warfare requirement

More than 50 of the guns have been delivered and have proven their performance in acceptance trails by the Indian Army. Defence minister Rajnath Singh visited the Hazira facility last month to flag off the 51st gun to be delivered.

The 'shoot and scoot' gun will be deployed along the western border to take on a Pakistani battlefield edge in mobile artillery. In 2009, Pakistan had acquired 115 of the M 109A5 cannons, given by the US as a "reward" for its assistance on the war on the Afghanistan border.

<https://economictimes.indiatimes.com/news/defence/toast-of-make-in-india-but-production-line-for-vajra-artillery-guns-to-run-dry-this-year/articleshow/73998114.cms>



Fri, 07 Feb 2020

India points to growing foreign investment in defence and aerospace

By Jon Grevatt

Lucknow: The Indian government has pointed to a growth in foreign direct investment (FDI) in the defence and aerospace sector.

Indian Minister of State for Defence Shripad Naik said in parliament on 5 February that foreign companies had invested INR18.34 billion (USD257.5 million) in the country's defence and aerospace sector since 2014.

No investment details were provided by the minister, but he said the FDI data was supplied by 79 companies in the country's defence and aerospace sector. However, the FDI statistics provided by Naik are at odds with other related government figures.

According to the government's Department for Promotion of Industry and Internal Trade, FDI in the defence sector between 2001 (when FDI was first permitted) and September 2019 was just INR519.3 million. Other figures issued in parliament in June 2019 showed that India's defence industry attracted just USD2.37 million between fiscal years 2014–15 and 2018–19.

The government has previously said disparities in FDI statistics for defence are linked to the way it classifies companies involved in production within the sector.

In India's commercial aviation sector there is no cap on FDI in local businesses providing maintenance, repair, and overhaul (MRO) and ground-handling services. However, there exists a 49% cap on ownership of domestic airlines, which has proved a major block to investment.

https://janes.ihc.com/Janes/Display/FG_2694292-JDW

THE ECONOMIC TIMES

Fri, 07 Feb 2020

Defence Expo 2020: Adani-Elbit JV exports India-made military drone

The Adani-Elbit JV said that it has launched the production of "hundreds of Mini UAV systems" for a global customer, with complete platform production and integration from its Hyderabad facility

By Manu Pubby

Lucknow: In a first, complete military drones in flyaway condition made in India have been exported to a foreign customer, with a joint venture between Adani and Israeli manufacturer Elbit declaring it one of the "largest export programmes".

The Adani-Elbit JV said that it has launched the production of "hundreds of Mini UAV systems" for a global customer, with complete platform production and integration from its Hyderabad facility.

In the past, the facility has supplied structures for the Hermes 900 UAV as well but final work, including integration of sensors and communications systems in that case was completed in Israel.

While the JV has not disclosed the nation or the value of contract, it is believed that the order was placed by an Asian nation and could be expanded to other countries in the future. The first private UAV manufacturing complex at Adani Aerospace Park in Hyderabad is now producing at least two types of drones that are being exported. The Hermes 900 Unmanned Aerial Platform was exported to foreign customers last year.

"Our vision is not limited to project-based collaboration with our partners but it's about transforming the defence ecosystem in India through inclusive growth and collective contribution," Ashish Rajvanshi, head of Adani Defence & Aerospace said.

The Gujarat-based group, which has made a measured entry into the defence manufacturing business in 2015, has set up a 20-acre facility near the Hyderabad international airport as its hub for manufacturing UAVs and other military products.

As reported by ET, the Adani Group is expanding its defence portfolio and has made a foray into the small arms business with the acquisition of a running facility in Gwalior that will produce machine guns, carbines and other weapons for the Indian and export markets.

The strategic acquisition — a joint venture company in which Israeli manufacturer IWI holds a 49% stake — positions the group as a major defence sector player with capabilities ranging from UAVs to helicopter systems and major aero structures.

<https://economictimes.indiatimes.com/news/defence/defence-expo-2020-adani-elbit-jv-exports-india-made-military-drone/articleshow/73998264.cms>



Fri, 07 Feb 2020

French defence company Thales to ramp up India operations

The company, which has a major work share in French military platforms including the Rafale fighter jets that have been ordered by India, currently has 1,600 employees in India that work on cutting-edge technologies

By Manu Pubby

Lucknow: French defence and engineering giant Thales says that it looking at significantly ramping up its Indian operations and will be hiring “thousands of engineers” here in the near future as it focuses on emerging technologies like artificial intelligence (AI), reports Manu Pubby.

The company, which has a major work share in French military platforms including the Rafale fighter jets that have been ordered by India, currently has 1,600 employees in India that work on cutting-edge technologies.

“We have very ambitious plans for India and plan to have thousands of engineers at our two centres of excellence here. The plan is to have maybe 4,000 engineers here who will work as part of our global supply chain,” Pascale Sourisse, senior executive vice president, Thales, told ET.

The company has two engineering excellence centres in India, one each in Noida and Bengaluru that work in the aerospace and defence sectors. It is also executing offsets worth over \$1 billion as part of the Rafale fighter jets deal. Thales says that it will focus on the Digital India initiative as well by leveraging the skillset available domestically.

“We are investing in the digital sector in India. At a global level, we have invested 7 billion in digital, artificial intelligence, big data and connectivity. India has a critical role to play in our strategy,” Sourisse says.

On the Rafale offsets clause, Thales says that its latest joint venture with Reliance Defence will integrate the radar and electronic warfare systems onboard the fighter jets at a new facility in Nagpur.

We have planned to integrate the radar on the aircraft and it is happening now. The technology transfer has been done, and we plan to have the first radars integrated this quarter. We will also work on electronic warfare equipment,” the senior executive said.

Besides the Reliance partnership, Thales will work with partners like Larsen and Toubro, Bharat Electronics and Samtel to meet its offset commitments.

<https://economictimes.indiatimes.com/news/defence/french-defence-company-thales-to-ramp-up-india-operations/articleshow/73998368.cms>

Defence of the Realm

This is the right time for the Chief of Defence Staff to intervene and fight for the modernisation of the armed forces lest we are again caught with our pants down as in 1962. The defence strategists have failed to analyse as to why the Modi government is not giving priority to defence modernisation when a severe threat from our adversaries is lurking. Pakistan's defence budget is about 3.5 per cent of GDP whereas China's is about 4 per cent of GDP. India's budget should at least be about 3 per cent of GDP if not more, notwithstanding the economic slowdown

The disappointing feature of the Union budget 2020-21 is that there has been a very marginal increase in the capital outlay for defence, as compared to the budget estimates and revised estimates of 2019-20. This will affect several big-ticket projects of the defence forces that are being executed for building capabilities against our two hostile neighbours - China and Pakistan.

Indeed, there was no reference to the defence budget in the Finance Minister, Nirmala Sitharaman's speech, the longest-ever. She was earlier the Defence Minister, indicating that the government has prioritised other sectors - agriculture, education and health - over defence. Without the pension, the defence budget is only 1.5 per cent of the GDP.

As part of the Rs 3.37 lakh crore (excluding pension) allocated for defence in 2020-21, Rs 1.18 lakh crore is the capital outlay and Rs 2.18 lakh crore is the revenue head. Separately Rs 1.33 lakh crore is the allocation for pensions. The capital outlay for the budget estimate for 2019-20 was Rs 1.08 lakh crore. So, there has only been an increase of Rs 10,306.2 crore in the capital head for 2020-21 as compared to what it was for the current financial year. Similarly, there has only been an increase of Rs 3,183.64 crore in the capital head as compared to what it was in the revised estimate for 2019-20. The capital outlay for the revised estimate was Rs 1.15 lakh crore.

The bare minimum increase in capital outlay will drastically affect several major acquisitions of the army, navy and air force. The army is already procuring

high-end artillery systems such as the M777 ultra light howitzers, the K-9 Vajra self-propelled gun and the indigenously developed Dhanush for the frontiers with China and Pakistan. Payments for these are ongoing. The IAF too is also paying for modern weapon systems such as the Rafale fighters and S-400 air defence system. The meagre allocation will also affect the navy, which had earlier approached the government for additional funds amid a severe financial crunch that is forcing it to rationalise and reduce its requirements. Due to the low budget, the navy has had to re-work its plan of having 200 warships by 2027. The navy has been trying to get its share of the defence budget back to the 18 per cent for 2012-13 from 13 per cent for the current financial year. The navy has also had to cut down on the numbers in some projects such as Mine Counter Measure Vessels and P8i maritime reconnaissance aircraft.

In view of the committed liabilities from past years, the allocated budget will fall short of the armed forces' requirements. The budget is also unlikely to cater to inflation and GST rates.

The defence budget this time indicates only a 5.8 per cent hike as compared to the defence budget estimate of 2019-20, while it is only a 1.9 per cent increase over the revised estimate. The hike is much less as compared to the percentage point

increase in the defence budget for 2019-20, which stood at 7.93 per cent.

The revenue head continues to remain larger than the capital outlay. This is mainly because of the large amount by way of pay and allowances, including increments. The revenue head also takes care of repairs and transport, which are crucial for running a force. For example in the army, the revenue to capital ratio is 82:18. However, this head too has witnessed only a marginal increase over what it was in the

budget and revenue estimates of 2019-20. Meanwhile, separately Rs 1.33 lakh crore is the allocation for pension.

But, it remains to be seen whether the appointment of the Chief of Defence Staff (CDS), aimed at improving coordination between the forces, can synergise their requirements and prioritise them according to the budget. This is the right time for the CDS to intervene and fight for the modernisation of the armed forces lest we are again caught with our pants down as in 1962.

Defence Minister Rajnath Singh, commenting on the budget, said, "The first Budget of the new decade presented today by Finance Minister Smt. Nirmala Sitharaman gives an outline of a New and Confident India. It is a promising, proactive and progressive Budget which will make India healthy and wealthy in coming years."

While presenting her maiden Budget speech in July 2019,

Mrs Sitharaman mentioned modernisation and upgradation of the defence sector as "national priority." Experts believe with India's defence allocation still below 2 per cent of GDP, hiking the defence budget is the need of the hour.

Commodore C Uday Bhaskar (retired), Director, Society for Policy Studies said, "My expectation is that Budget 2020 will be a meaningful redress of the imbalance in the defence allocation, wherein the capital component of the total fiscal allocation for defence will be brought back to the optimum of 40 per cent".

"While noting that the Finance Minister has to address the abiding challenge of keeping the overall deficit under a certain median, even while ensuring appropriate allocation for all sectors including defence, it merits note that over the last few years the capital component of the defence budget has been hovering in the 33 to 34 per cent range. Collectively, the three armed forces are in dire need of funds in the capital account for bare minimum modernization and acquisitions. The existing pattern of fiscal allocation for defence has to be reviewed and increased in a meaningful manner. One hopes that this expectation will not be in vain," said Commodore C Uday Bhaskar.

The defence strategists have failed to analyse as to why the Modi government is not giving priority to defence modernisation when a severe threat from our adversaries is lurking. Pakistan's defence budget is about 3.5 per cent of GDP whereas China's is about 4 per cent of GDP. India's budget should at least be about 3 per cent of GDP if not more, notwithstanding the economic slowdown.

सेना में शामिल होंगे नए हेलिकॉप्टर, एक टन तक सामान ढो सकेंगे

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रूस के नए हेलिकॉप्टर में छह लोग बैठ सकेंगे

■ **लखनऊ :** इंडियन आर्मी और एयरफोर्स को नए लाइट यूटिलिटी हेलिकॉप्टर मिलने की दिशा में भारत और रूस एक कदम और आगे बढ़े हैं। साथ ही रूस के इन Ka-226T हेलिकॉप्टर की टेक्नॉलजी भारत को ट्रांसफर होगी। जहां 60 हेलिकॉप्टर रूस में बनकर ही भारत आएंगे और भारत इन्हें रूस से खरीदेगा, वहीं 140 हेलिकॉप्टर भारत में तैयार होंगे जिसके लिए इंडिया रशिया हेलिकॉप्टर्स लिमिटेड नाम से एक कंपनी बनाई गई है। ये 140 हेलिकॉप्टर रूस और भारत की संयुक्त भागीदारी में बनाए जाएंगे। इंडियन आर्मी और एयरफोर्स अभी

- दुर्गम इलाकों में सेना को सामान पहुंचाने, रेस्क्यू ऑपरेशन में बनेंगे मददगार
- 'चीता' और 'चेतक' हो चुके हैं 60 साल पुराने



चेतक और चीता लाइट यूटिलिटी हेलिकॉप्टर का इस्तेमाल करते हैं। सियाचिन और लेह जैसे दुर्गम इलाकों में सेना तक सामान पहुंचाने और लोगों के एक जगह से दूसरी जगह जाने के लिए इसका इस्तेमाल होता है। पहाड़ी इलाकों में इन्हीं हेलिकॉप्टर के जरिए रेस्क्यू

ऑपरेशन भी किया जाता है। अभी आर्मी के पास जो चीता और चेतक हेलिकॉप्टर हैं वह 60 साल पुराने हैं। इन्हें बदलने की जरूरत काफी वक्त से महसूस की जा रही है। Ka-226T हेलिकॉप्टर आने के बाद यह चीता और चेतक की जगह लेंगे। Ka-226T हेलिकॉप्टर एक बार में एक

टन तक का सामान ढो सकता है। इसमें छह लोग बैठ सकते हैं।

लखनऊ में चल रहे डिफेंस एक्सपो में Ka-226T हेलिकॉप्टर को लेकर टेक्नॉलजी ट्रांसफर का रोडमैप साइन हुआ। इंडिया रशिया हेलिकॉप्टर्स लिमिटेड के सीईओ एम.एन. श्रीनाथ ने कहा कि एक बार करार साइन होने के 24 से 36 महीने के बाद हेलिकॉप्टर का पहला बैच रूस से भारत आ जाएगा। जिसके बाद कुछ वक्त बाद अलग अलग बैच में कुल 60 हेलिकॉप्टर रूस से भारत आएंगे। टेक्नॉलजी ट्रांसफर के बाद 140 Ka-226T हेलिकॉप्टर भारत में ही बनाए जाएंगे। कुल 200 हेलिकॉप्टर में 165 आर्मी को और 35 एयरफोर्स को मिलेंगे।