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Mon, 31 Jan 2022

Second BrahMos order from Philippines in the pipeline

Despite the big ticket deals, India does not have a Defence Attache in Manila

By Dinakar Peri

New Delhi: While Philippines signed a \$375 million deal for BrahMos supersonic cruise missiles last week to be operated by the Philippines Marines, there is another long pending deal under discussion for BrahMos missiles for the Philippines Army, which could see progress in the near future, according to defence and diplomatic sources.

In an ironic situation, while India has signed its biggest defence export contract with the Philippines, it does not have a full-fledged Defence Attaché (DA) at its Embassy in Manila. The proposal for increasing the number of DAs at several Indian missions abroad, including the Philippines, has been pending for sometime, at least two officials independently said.

“The Marines deal is done, next will be of the Philippines Army. The Philippines Army (PA) will push through with the project,” two diplomatic sources stated.

Acquisition of BrahMos by the PA is programmed in the Horizon 3 Modernization programme of Philippines (Year 2023-2027), one of the sources stated.

This deal was in the works before the Philippines Marines, which is under the Navy, initiated its project but got delayed and was held in abeyance. Philippines Defence Secretary Delfin Lorenzana had stated in December 2019 that the PA was looking to procure two BrahMos missile batteries.

Earlier, in 2019 the PA had activated its first land-based missile Unit under the its Army Artillery Regiment in preparation to induct the BrahMos.

Defence Attaches

In the absence of a full-fledged DA at the Embassy in Manila, the DA at the Indian Mission in Singapore currently functions as a non-resident DA to Philippines. With India’s growing military diplomacy, the issue of increasing the number of DAs has been long raised but got caught in red tape, two officials said on condition of anonymity. “With the signing of BrahMos, maybe they will send a full-fledged DA to Manila,” one official remarked.

This is especially important as it is not just the BrahMos systems, but Philippines is looking at India for a whole range of military hardware as part of large scale of military modernisation. Indian company MKU which had supplied Bullet Proof Jackets (BPJ) to the PA in the past, is bidding for bigger contracts for BPJs and helmets.

In another instance, Hindustan Aeronautics Limited (HAL) has received interest from the Philippines Coast Guard for procurement of seven Dhruv Advanced Light Helicopters and eight Do-228 aircraft under the \$100 million Line of Credit (LoC) extended by India. Further discussions on this have been delayed due to the pandemic situation impacting travel, a defence official in the know said.



****EDS: HANDOUT PHOTO MADE AVAILABLE FROM DEFENCE PRO ON THURSDAY, JAN. 20, 2022** Chandipur: BrahMos supersonic cruise missile with increased indigenous content and improved performance, successfully test-fired from Integrated Test Range, Chandipur off the coast of Odisha. (PTI Photo) (PTI01_20_2022_000072B)**

Indian shipyards had in the past competed to supply small frigates to Philippines Navy though they lost out to South Korea in the end. However, there are more emerging opportunities from Philippines in the maritime domain as well.

In 2017, during the visit of Prime Minister Narendra Modi to the Philippines, the two countries had signed a Memorandum of Understanding on defence industry and logistics cooperation which provides a “framework for enhancing and strengthening cooperation in logistics support and services and in the development, production and procurement of defence materials.”

On Friday, Philippines signed a \$374.96 million deal with BrahMos Aerospace Pvt. Ltd. for the supply of shore based anti-ship variant of the BrahMos supersonic cruise missiles. The contract includes delivery of three missile batteries, training for operators and maintainers as well as the necessary Integrated Logistics Support (ILS) package. This is the first export order for the missile which is a joint product between India and Russia.

As reported by *The Hindu* earlier, in addition to Philippines there is interest for acquiring BrahMos missiles from several countries with discussions in advanced stages with Indonesia and Thailand.

BrahMos is a joint venture between DRDO and Russia’s *NPOMashinostroyeniya* and the missile derives its name from Brahmaputra and Moskva rivers. The missile is capable of being launched from land, sea, sub-sea and air against surface and sea-based targets and has been long inducted by the Indian armed forces.

<https://www.thehindu.com/news/national/second-brahmos-order-from-philippines-in-the-pipeline/article38350176.ece>



Sat, 29 Jan 2022

BrahMos gets 1st export order from Philippines

By Rahul Dutta

New Delhi: India on Friday entered the niche defence export market by inking a deal worth over 375 million dollars with the Philippines for BrahMos supersonic cruise missile. It is the first big export contract by India. The country hopes to cross the five billion dollar mark by 2025.

The Pioneer on January 14 had reported about the Government-to-Government deal between India and the Philippines for the missile system. While the Brahmos is a joint venture between India and Russia, the missile is indigenously designed and manufactured. The missile can be launched from land, air, sea and submarines.

Announcing the deal, Defence Ministry officials said here on Friday that BrahMos Aerospace Private Limited (BAPL) signed a contract with the Department of National Defence of the Republic of the Philippines for supply of shore-based anti-ship missile system. The contract is an important step forward for India’s policy of promoting responsible Defence exports.

Though the Government did not specify the number of missiles to be supplied to the Philippines Navy, sources said at least three batteries will be sold. The signing ceremony took place in Manila.

Moreover, the range of the missile for export is about 300 km with the capability of carrying 200k warhead even though the Brahmos has the capability of hitting a target at more than 400 km, they said.

Indian ambassador to the Philippines Shambhu Kumaran said he was privileged to witness history in the making. “Signing of the Brahmos acquisition contract by Philippines Defence Secretary Delfin Lorenzana today marks a decisive step forward for Prime Minister’s Mission Sagar and India’s Indo-Pacific engagement,” he tweeted.

He thanked Lorenzana and Philippines Cabinet Secretary Teddy Locsin Jr for their active support to build stronger relations with India.

“Today we are one step closer to elevating ties between our democracies to a strategic partnership and our shared objective of a free and peaceful Indo-Pacific,” Kumaran noted.

“It is also a moment of deep pride as India establishes itself as a source of high-technology equipment and a trusted partner towards capability development of friendly nations,” he added.

Reacting to BrahMos’s export order, Defence Research and Development Organisation (DRDO) chairman G Satheesh Reddy said, “Surface to air missile Akash, Astra, anti-tank missiles, radars, torpedoes gain the interest of various countries. More systems are being developed which have export potential.”

The Philippines selected the Indian missile system after tough negotiations and extensive trials, officials said adding a team from the Philippine Navy visited the production unit of BrahMos Aerospace in Hyderabad some months back as part of the acquisition process.

The BrahMos Integration Complex in Hyderabad undertakes integration of mechanical systems and assembling electronic systems. Various sub-systems fabricated in other centres in India and Russia are integrated and checked at this complex.

India and the Philippines signed an implementing arrangement in March last year for the Government to Government deals regarding military equipment, including the BrahMos missile.

This deal came about in the backdrop of India engaging with several Southeast Asian countries including Thailand, Indonesia and Vietnam for the sale of the missile system, they added.

India’s ties with the Philippines were stepped up in the past few years after the two countries signed a bilateral Memorandum of Understanding (MOU) on Defence and Logistics in 2018.

In 2020, an MoU on Sharing of White Shipping Information (non-military/non-government shipping vessel information) was signed. In 2019, the Philippine Navy participated in a group sail in the South China Sea along with the navies of India, the United States, and Japan.

India has inducted the land and sea version of the Brahmos into its security architecture. The supersonic cruise missile can be launched from submarines, ships, aircraft and land platforms. The BrahMos missile flies at a speed of 2.8 Mach or almost three times the speed of sound. The Army and Navy have already inducted the highly versatile missile. Recently, India successfully test-fired the extended range sea-to-sea variant of the missile from the Navy’s INS Vishakhapatnam on January 11.

<https://www.dailypioneer.com/2022/page1/brahmos-gets-1st-export-order-from-philippines.html>



Sat, 29 Jan 2022

Philippines inks deal worth \$375 million for BrahMos missiles

This is the first export order for missile developed jointly by India, Russia
By Dinakar Peri

New Delhi: Philippines on Friday signed a \$374.96-million deal with BrahMos Aerospace Private Ltd. for the supply of shore-based anti-ship variant of the BrahMos supersonic cruise missile. This is the first export order for the missile, a joint product of India and Russia.

The contract was signed by Delfin N. Lorenzana, Defence Secretary of Philippines, and Atul Dinkar Rane, Director General of BrahMos Aerospace Pvt. Ltd., in a virtual ceremony at 2 p.m. Manila time (11:30 a.m. IST).

Speaking at the signing ceremony, Mr. Lorenzana said it was an absolute honour to be the first foreign nation to acquire the supersonic cruise missile system.

“As the world’s fastest supersonic cruise missiles, the BrahMos missiles will provide deterrence against any attempt to undermine their sovereignty and sovereign rights, especially in the West

Philippine Sea,” he said. “Equipping our Navy with this vital asset is imperative as the Philippines continues to protect the integrity of its territory and defend its national interests.”

Stating that BrahMos supersonic cruise missiles would certainly beef up the firepower of the Philippine Navy, particularly the Philippine Marine Corps coastal defence regiment, Mr. Lorenzana said the system would provide counter-attack capabilities within the Philippine exclusive economic zone.

Tensions have high between Philippines and China over the disputed islands in the South China Sea, and last November Manila had accused Chinese Coast Guard of “intimidation and harassment” of its Navy personnel.

The contract includes the delivery of three missile batteries, training for operators and maintainers as well as the necessary Integrated Logistics Support (ILS) package. The coastal defence regiment of the Philippine Marines will be the primary employer of the missile systems.

Terming the contract “history in the making”, Indian Ambassador in Philippines Shambhu Kumaran, who physically represented the Indian side at the event, said on social media that they were today one step closer to elevating ties between the two democracies "to a strategic partnership and our shared objective of a free and peaceful Indo-Pacific."

“It is also a moment of deep pride as India establishes itself as a source of high-technology equipment and a trusted partner towards capability development of friendly nations,” Mr. Kumaran said on Twitter.

As reported by *The Hindu* on January 14, Gen. Lorenzana signed the ‘notice of award’ on December 31, accepting the proposal of BrahMos Aerospace at a price of \$374,962,800. Conceptualised as early as 2017, the Office of the President approved its inclusion in the Horizon 2 Priority Projects in 2020, he had stated.

Several countries have shown interest in acquiring the BrahMos missile. Discussions are in advanced stages with Indonesia and Thailand. India and Russia had long agreed on a negative export list for sale of the missile.

BrahMos is a joint venture between DRDO (Defence Research and Development Organisation) and Russia’s NPO Mashinostroyeniya and the missile derives its name from the Brahmaputra and Moskva rivers. It is capable of being launched from land, sea, sub-sea and air against surface and sea-based targets and has for long been inducted by the Indian armed forces.

The range of the missile was originally capped at 290 km as per obligations of the Missile Technology Control Regime. Following India’s entry into the club in June 2016, officials said the range would be extended to 450 km and 600 km at a later stage. The extended range missile has been tested earlier and tested twice- on January 11 from indigenous guided stealth missile destroyer *INS Visakhapatnam*, and the Integrated Test Range, Chandipur, off the coast of Odisha, on January 20.

<https://www.thehindu.com/news/national/philippines-inks-deal-worth-375-million-for-brahmos-missiles/article38338340.ece>



BrahMos supersonic cruise missile with increased indigenous content and improved performance, successfully test-fired from Integrated Test Range, Chandipur off the coast of Odisha recently. | Photo Credit: PTI

India to export BrahMos supersonic cruise missiles to the Philippines

By Rajat Pandit

New Delhi: India on Friday inked the \$375 million (Rs 2,770 crore) contract to export BrahMos supersonic cruise missiles to the Philippines, which will pave the way for more such deals with the country as well as other ASEAN countries like Indonesia and Vietnam.

This first-ever contract to export the 290-km range BrahMos missiles, which has been developed jointly with Russia, is strategically significant in the backdrop of China's strong-arm tactics with its neighbours like Philippines in the South China Sea as well as an important milestone in India's quest to become a major arms exporter.

The contract, under which three missile batteries of the shore based anti-ship version will be delivered within two years, was inked by Philippines secretary of national defence Delfin Lorenzana and BrahMos Aerospace chief Atul D Rane.

"Today marks a decisive step forward for PM Modi's SAGAR (policy) and India's Indo-Pacific engagement... We are one step closer to elevating ties between our democracies to a strategic partnership and our shared objective of a free and peaceful Indo-Pacific," said Indian ambassador to Philippines, Shambhu Kumaran.

Lorenzana, in turn, said BrahMos as the world's fastest cruise missile will provide deterrence against any attempt to undermine his country's sovereignty and rights, especially in the West Philippine Sea (South China Sea).

While this contract is for the Philippines Navy, with the requisite integrated logistics support package and training, India is negotiating another bigger contract with the country's Army as well.

Similarly, talks for exporting the air-breathing BrahMos missiles, which fly almost three times the speed of sound at Mach 2.8, to Indonesia are also in an advanced stage, as was reported earlier by TOI.

The range of the BrahMos missiles, which have also been deployed in eastern Ladakh and Arunachal Pradesh during the ongoing 20-month-long military confrontation with China, is being extended from the original 290-km to 350-400-km.

With the Indian armed forces having placed orders worth over Rs 36,000 crore for the BrahMos missiles over the years, tests are also now in progress for an 800-km range version of the "precision-strike conventional (non-nuclear) weapon".

With an eye on China, India has been steadily cranking up military ties with ASEAN countries through combat exercises, exchanges, training programmes and now increasingly weapon supplies over the years.

India is also trying to build a strong domestic defence-industrial base and become a major arms exporter, with the government setting an ambitious annual export target of \$5 billion (Rs 36,500 crore) by 2025.



Indian team of BrahMos Aerospace signs 375 million deal with the Philippines

UAE, Saudi Arabia and South Africa are among the other countries that have shown an interest in acquiring the BrahMos missiles. India also plans to sell the indigenous Akash missile systems, which can intercept hostile aircraft, helicopters, drones and subsonic cruise missiles at a range of 25-km, to countries like Philippines, Indonesia, Vietnam, UAE, Bahrain, Saudi Arabia, Egypt, Kenya and Algeria.

As for India, the Army already has four BrahMos regiments, with the possibility of ordering more when the 800-km version becomes operational. The Navy, in turn, has equipped 11 of its frontline warships, including the latest destroyer INS Visakhapatnam, with the BrahMos vertical launch systems.

IAF has also inducted two land-based BrahMos squadrons, with the sleeker air-launched version also being progressively fitted on Sukhoi-30MKI fighter jets. With a combat radius of almost 1,500-km without mid-air refueling, a Sukhoi armed with BrahMos constitutes a formidable long-range weapons package.

<https://timesofindia.indiatimes.com/india/india-to-export-brahmos-supersonic-cruise-missiles-to-the-philippines/articleshow/89176007.cms>

अमर उजाला

Sat, 29 Jan 2022

ब्रह्मोस की बिक्री शुरू: फिलीपींस की नौसेना को बेची जाएगी सुपरसोनिक मिसाइल, 37 करोड़ डॉलर का करार

सार

ब्रह्मोस सुपरसोनिक मिसाइल ध्वनि की रफ्तार से तीन गुना तेज गति यानी 4321 किलोमीटर प्रति घंटा की रफ्तार से मार करने में सक्षम है। फिलीपींस ने ब्रह्मोस मिसाइलों की खरीदी को लेकर भारत से 37.50 करोड़ डॉलर का करार किया है।

विस्तार

नई दिल्ली: लंबे समय तक हथियार आयातक देश रहा भारत अब शस्त्रों का बड़ा निर्यातक बनने जा रहा है। इस दिशा में बड़ा करार फिलीपींस से किया गया है। फिलीपींस की नौसेना के लिए भारत ब्रह्मोस सुपरसोनिक मिसाइल बेचेगा। ब्रह्मोस मिसाइल निर्यात के लिए यह पहला विदेशी ऑर्डर है।

ब्रह्मोस सुपरसोनिक मिसाइल ध्वनि की रफ्तार से तीन गुना तेज गति यानी 4321 किलोमीटर प्रति घंटा की रफ्तार से मार करने में सक्षम है। फिलीपींस ने ब्रह्मोस मिसाइलों की खरीदी को लेकर भारत से 37.50 करोड़ डॉलर (2,812 करोड़ रुपये) का करार किया है। शुक्रवार को सरकारी अधिकारियों ने यह जानकारी दी। दोनों देशों के अधिकारियों ने इस करार पर दस्तखत किए। इस महत्वपूर्ण करार पर हस्ताक्षर के वक्त ब्रह्मोस एयरोस्पेस इंडिया के सीईओ अतुल डी राणे, डिप्टी सीईओ संजीव जोशी, ले. कर्नल आर. नेगी और प्रवीण पाठक मौजूद थे।



भारत—फिलीपींस ब्रह्मोस करार पर शुक्रवार को दस्तखत किए गए - फोटो : ANI

चीन के आक्रामक रवैये को झेल रहे फिलीपींस ने भारत के साथ दुनिया की सबसे तेज सुपरसोनिक एंटी शिप कूज मिसाइल ब्रह्मोस की खरीदी का करार कर चीन को झटका दिया है। सूत्रों का कहना है कि डीआरडीओ (रक्षा अनुसंधान एवं विकास संगठन) और ब्रह्मोस एयरोस्पेस इस मिसाइल का मित्र देशों को

निर्यात करने के लिए पूरा जोर लगा रहे हैं। डीआरडीओ ने हाल ही में अमेरिका के साथ मेड इन इंडिया रडार का सौदा भी किया था। भारत को अन्य मित्र देशों से भी मिसाइल प्रणाली के ऑर्डर जल्द मिलने की उम्मीद है क्योंकि कुछ और देशों के साथ भी इसे लेकर सौदेबाजी अंतिम दौर में है। इस मिसाइल की क्षमताओं में वृद्धि हुई है और कई आधुनिक विशेषताओं से लैस किया गया है। चीन का एक और पड़ोसी देश वियतनाम भी भारत से यह मिसाइल सिस्टम खरीद सकता है।

चीन को झटका

फिलीपींस को आंखें दिखा रहे चीन को इस सौदे से बड़ा झटका लगा है। दरअसल, दक्षिण चीन सागर में चीन के साथ फिलीपींस के अधिकार क्षेत्र को लेकर विवाद चल रहा है। रिपोर्ट के मुताबिक, ऐसे में ब्रह्मोस मिसाइल को फिलीपींस अपने तटीय इलाकों में तैनात कर सकता है।

<https://www.amarujala.com/india-news/supersonic-missile-to-be-sold-to-philippines-navy-india-and-philippines-sign-370-million-deal>

mint

Sat, 29 Jan 2022

Surface-to-air missiles gain interest of various nations: DRDO Chairman

Reddy's statement comes after India signed a deal worth USD 375 million to supply 290 km strike range BrahMos supersonic cruise missile to the Philippines.

Department of Defence Research and Development Secretary and Defence Research and Development Organisation (DRDO) Chairman, Dr. G Satheesh Reddy has said that the surface-to-air missiles have gained the interest of various nations, adding that more systems with export potential are being developed in the country.

"Surface to air missile Akash, Astra missile, anti-tank missiles, radars, torpedoes have gained the interest of various nations. Lot more systems are being developed which are advanced technology in nature and have export potential," Reddy told ANI.

He also expressed confidence that in the coming years, India will witness an increase in the export of indigenously developed technologies and said, "In the coming year, we will have a lot of exports from India of the technologies developed here."

Reddy's statement comes after India signed a deal worth USD 375 million to supply 290 km strike range BrahMos supersonic cruise missile to the Philippines.

He also said that it is the first order for export of the BrahMos missile system and termed it as a "major development."

"BrahMos is a giant venture of DRDO. This giant venture has developed the supersonic cruise missile 'BrahMos'. It has been inducted into the Indian Armed Forces," Reddy said.

"It is the beginning and we expect that many more export orders will come in the future," he added.

Emphasizing that it is in line with Prime Minister Narendra Modi's vision of developing advanced technologies indigenously, Reddy added, "PM Modi has been setting goals on developing very advanced technologies and systems and we should be exporting a lot to the world. So, there are many systems that are being developed which have a lot of export potential."

<https://www.livemint.com/news/india/surfacetair-missiles-gain-interest-of-various-nations-drdo-chairman-11643432371603.html>



File Photo: DRDO Chief G Satheesh Reddy (ANI Photo)

फिलीपींस से ब्रह्मोस खरीद के सौदे के बाद डीआरडीओ प्रमुख बोले, कई देशों ने भारतीय मिसाइलों को लेकर जताई रुचि

By Dhyanendra Singh Chauhan

नई दिल्ली: भारतीय मिसाइलों की धमक दूसरे देशों तक पहुंच चुकी है। फिलीपींस से ब्रह्मोस खरीद का सौदा हो चुका है। इस बीच रक्षा अनुसंधान और विकास विभाग के सचिव और रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) के प्रमुख डा. जी सतीश रेड्डी ने कहा कि कई देशों ने भारत की सतह से हवा में मार करने वाली मिसाइलों को खरीदने पर रुचि दिखाई है। उन्होंने कहा कि देश में निर्यात क्षमता वाले अधिक सिस्टम विकसित किए जा रहे हैं।

रेड्डी ने कहा कि एयर मिसाइल आकाश, एस्ट्रा मिसाइल, एंटी टैंक मिसाइल, रडार और तारपीडो को लेने की कई देशों ने इच्छा जाहिर की है। अत्याधुनिक तकनीक से युक्त निर्यात क्षमता वाली और अधिक रक्षा प्रणालियों को विकसित किया जा रहा है। उन्होंने विश्वास जताया कि आने वाले वर्षों में देश में विकसित प्रौद्योगिकियों के निर्यात में वृद्धि होगी।

करोड़ों डालर के सौदे के साथ भारत मिसाइल निर्यातकों के विशिष्ट समूह में हुआ शामिल

बता दें कि डीआरडीओ प्रमुख का यह बयान शुक्रवार को फिलीपींस के साथ सुपरसोनिक क्रूज मिसाइल ब्रह्मोस के एंटी-शिप वैरिएंट की बिक्री के एक समझौते पर हस्ताक्षर के बाद आया है। 37.49 करोड़ डालर (2,770 करोड़ रुपये) के इस सौदे के साथ ही भारत मिसाइल निर्यातकों के विशिष्ट समूह में शामिल हो गया है। उन्होंने ब्रह्मोस मिसाइल सिस्टम के पहले निर्यात आर्डर को महत्वपूर्ण कदम बताया।

आने वाले दिनों में इसके निर्यात के और मिलेंगे आर्डर

सुपरसोनिक क्रूज मिसाइल ब्रह्मोस को डीआरडीओ का एक बड़ा उपक्रम बताते हुए उन्होंने कहा कि इसे भारतीय सेना में शामिल कर लिया गया है। रेड्डी ने कहा कि अभी तो यह शुरुआत है और हम आशा करते हैं कि आने वाले दिनों में इसके निर्यात के और भी आर्डर मिलेंगे। डीआरडीओ प्रमुख ने कहा कि यह प्रधानमंत्री नरेन्द्र मोदी के स्वदेशी तकनीक विकसित करने के दृष्टिकोण के अनुरूप है। प्रधानमंत्री ने उन्नत तकनीक और प्रणालियों को विकसित करने का लक्ष्य दिया है और इस पर हम लगे हुए हैं। हम निर्यात क्षमता वाली रक्षा प्रणालियों को विकसित कर रहे हैं।

<https://www.jagran.com/news/national-drdo-chief-said-many-countries-expressed-interest-in-indian-missiles-22422069.html>



रेड्डी ने कहा कि एयर मिसाइल आकाश एस्ट्रा मिसाइल एंटी टैंक मिसाइल रडार और तारपीडो को लेने की कई देशों ने इच्छा जाहिर की है। अत्याधुनिक तकनीक से युक्त निर्यात क्षमता वाली और अधिक रक्षा प्रणालियों को विकसित किया जा रहा है।



India needs many big-ticket exports like BrahMos deal to hit \$5 billion export target by 2025, counter China

India needs several big-ticket deals like the one recently closed with the Philippines for BrahMos missile worth \$375 million, to reach \$5 billion export target by 2025 and counter China.

By Abhishek Bhalla

New Delhi: In a big boost to India's defence exports, BrahMos Aerospace has inked a \$375 million deal with the Philippines to provide the BrahMos cruise missile to the country's navy. The Philippines navy will use this as an anti-ship shore-based missile that has a range of 290km.

BrahMos Aerospace, a joint venture company between India's Defence Development and Research Organisation (DRDO) and Russia, has been continuously upgrading the missile system, making it more lethal against sea and land targets.

BrahMos is one of the potent missile weapon systems used by the Indian military; already inducted into the Armed Forces and used by the army, air force and navy in different variants. It can be launched from submarines, ships, aircraft, or land platforms.

Meant to deter China

A statement from department of national defense of the Philippines says the BrahMos will provide deterrence against any attempt to undermine sovereign rights in the Philippine Sea — a reference to the South China Sea where China maintains an aggressive posturing.



The BrahMos order by the Philippines is the first major military export by India. (File photo)

As the deal is finally through with the Philippines, other countries like Malaysia, Thailand, Vietnam and Indonesia, who have shown interest in acquiring the anti-ship missile, could also come onboard. Malaysia and Vietnam are also claimants in the South China Sea.

Experts are of the view that if India is successful in providing big-ticket military systems to countries in the neighbourhood, it won't just be a boost for defence exports but will also be a strategic step to counter China's influence as it provides defence products in Asia, including Pakistan, Bangladesh and Myanmar.

Jump in Indian defence exports

There has been a monumental increase in India's defence exports — jumping from Rs 1,940.64 crore in 2014-15 to Rs 8,434.84 crore, the Ministry of Defence had said in a reply to a Parliament question in December 2021.

While the increase in exports is significant, the BrahMos deal with the Philippines is the first for a major military platform.

The Hindustan Aeronautics Limited (HAL) recently signed a contract with the government of Mauritius for exporting the advanced version of Advanced Light Helicopter (ALH Mark III). Mauritius already operates HAL built ALH and Do-228 aircraft.

Department of Defence Production lists out Italy, Maldives, Sri Lanka, Russia, France, Nepal, Mauritius, Israel, Egypt, UAE, Bhutan, Ethiopia, Saudi Arabia, the Philippines, Poland, Spain and Chile as India's export destinations for defence items.

The major defence items being exported listed are personal protective items, Offshore Patrol Vessels, Advanced Light Helicopter and surveillance systems.

In another reply last year to a Parliament question, the defence ministry informed that India exported items to 84 countries. These were not big-ticket military platforms or weapon systems.

These were items like teargas launcher, night vision devices, fire control systems, weapon simulators and light weight torpedoes.

Export target \$5 billion by 2025

India has set a target of exporting defence equipment worth Rs 35,000 crore (\$5 billion) by 2025. Aimed at enhancing exports and build a domestic defence industry, the new policy aims at self-reliance looks to achieve a turnover of Rs 1,75,000 crore (25 billion US dollar). The policy also looks at doubling domestic procurement from the Indian industry.

To promote self-reliance and reduce imports, the defence ministry has also come out with a list of 2,851 items put in an import embargo list aimed at saving Rs 3,000 crore annually with a ban on importing these items.

How India fares with other countries

The import ban list seems to be having an impact already. According to a study by Stockholm International Peace Research Institute (SIPRI), there were three Indian companies in top 100 arms companies and their combined arms sales grew by 1.7 per cent.

However, a comparison with China shows how Chinese companies have been racing ahead. “The combined arms sales of the five Chinese companies included in the top 100 amounted to an estimated \$66.8 billion in 2020, 1.5 per cent more than in 2019. Chinese firms accounted for 13 per cent of total top 100 arms sales in 2020, behind the US companies and ahead of companies from the United Kingdom, which made up the third largest share,” the SIPRI report says.

It quotes Dr Nan Tian, SIPRI senior researcher: “In recent years, Chinese arms companies have benefited from the country’s military modernisation programmes and focus on military-civil fusion. They have become some of the most advanced military technology producers in the world.” NORINCO, for example, co-developed the BeiDou military-civil navigation satellite system and deepened its involvement in emerging technologies.

The SIPRI report says while the United States has once again hosted the highest number of companies ranked in the top 100, Russian arms sales have declined for third year in a row.

“Together, the arms sales of the 41 US companies amounted to \$285 billion — an increase of 1.9 per cent compared with 2019 — and accounted for 54 per cent of the top 100’s total arms sales. Since 2018, the top five companies in the ranking have all been based in the USA,” the report said.

India’s strategy to beef up defence exports

The Ministry of Defence has proposed a promotion body for exports that can advise the government on various export-related issues, coordinate all export facilitation schemes of the government, increase awareness amongst the industry about various export facilitation measures and promotion of exports through specific marketing efforts in targeted countries.

“The body will identify the suitable export markets in consultation with ministry of external affairs and department of commerce, keeping in view our foreign policy and various international export control and arms control regimes,” the ministry said in a statement.

As part of defence diplomacy aimed at enhancing exports, Indian missions have been asked to promote Indian defence exports. If required, industry delegations would be taken to target countries under the leadership of officials.

<https://www.indiatoday.in/india/story/india-defence-export-target-arms-race-china-1905942-2022-01-28>

Fire alarm to be mandatory in passenger area of long-route and school buses from February 2023

By Dipak K Dash

New Delhi: From February next year, all new buses designed for plying on long distance routes and school buses will need to have fire detection and alarm systems in the passenger area, according to a notification issued by the road transport ministry which made this provision mandatory.

These buses will also need to have a system to suppress the fire so that passengers get enough time to disembark from the burning vehicle. Till now, it was mandatory to have the system of fire detection, alarm and extinguishing only in the engine compartment.



(Picture for representation)

TOI on April 27 in 2021 had first reported the government's move to make it mandatory to have more safety features in buses to prevent injuries in case of fire. There were several incidents of fire in long distance and luxury buses claiming dozens of lives in different states.

In several studies, the ministry found that injuries to passengers in such bus fires are primarily caused by the heat and smoke in the passenger compartments.

Sources said the compliance of the new norms will ensure the occupants getting additional evacuation time and thus will further enhance the safety in fire incidents in buses. They added if the heat can be controlled in a bus 3-4 minutes, the passenger can safely disembark within that time.

In November 2021, the ministry had issued a draft notification to amend the Automotive Industry Standards (AIS) based on experiments carried out by the Defence Research and Development Organisation (DRDO) for introduction of this protection of occupants from fire.

The buses will now also have water tanks. Water can be sprayed like mist at high pressure through nozzles which will be fixed inside the bus at different spots. These buses will also have thermal sensors and the system to control heat can be activated either manually or automatically.

<https://timesofindia.indiatimes.com/india/fire-alarm-to-be-mandatory-in-passenger-area-of-long-route-and-school-buses-from-february-2023/articleshow/89209896.cms>

BusinessToday.In

School, inter-city buses need to install fire alarm, protection system: Govt

Fire protection systems would be installed in the passenger compartment of buses designed and constructed for long distance transport and in school buses, an official statement said on Saturday.

The Road Transport and Highways Ministry has issued a notification to introduce fire alarm and suppression systems in inter-city passenger buses and school buses. Fire protection systems would be installed in the passenger compartment of buses designed and constructed for long distance transport and in school buses, an official statement said on Saturday.

At present, fire detection, alarm and suppression systems are notified for fires originating from the engine compartment, as per Automotive Industry Standard-135.

"The Ministry of Road Transport and Highways, vide notification dated 27th January 2022, has introduced the fire alarm system and fire protection system in the passenger (or, occupant) compartment in buses through an amendment in the AIS (Automotive Industry Standard)-135 for Type III buses (type III' Vehicles are those designed and constructed for long distance passenger transport, for seated passengers) and school buses," the statement said.

The statement pointed out that studies on fire incidents indicate that injuries to passengers are mainly due to heat and smoke in the passenger compartment.

"These injuries can be prevented if the heat and smoke in the passenger compartment is controlled by providing an additional evacuation time to occupants by thermal management during fire incidents," it said.

The statement said a water mist- based active fire protection system and a standalone fire alarm system for buses has been designed to manage the temperature in the passenger compartment within 50 degrees centigrade.

This amendment to the standard has been undertaken in consultation with stakeholders and experts from the Centre for Fire Explosive and Environment Safety (CFEES), a DRDO establishment, working in the area of fire risk assessment, fire suppression technologies, modelling and simulation etc, it said.

<https://www.businesstoday.in/latest/policy/story/school-inter-city-buses-need-to-install-fire-alarm-protection-system-govt-320777-2022-01-29>



At present, fire detection, alarm and suppression systems are notified for fires originating from the engine compartment, as per Automotive Industry Standard-135.



पत्र सूचना कार्यालय
भारत सरकार

सड़क परिवहन एवं राजमार्ग मंत्रालय

Sat, 29 Jan 2022 3:02PM

बसों के यात्री-कक्ष में अग्नि चेतावनी प्रणाली और अग्नि सुरक्षा प्रणाली के लिए अधिसूचना जारी

सड़क परिवहन और राजमार्ग मंत्रालय ने श्रेणी III बसों [श्रेणी III] वाहन वे हैं, जिन्हें लंबी दूरी के यात्री परिवहन के लिए, बैठकर जाने वाले यात्रियों को ध्यान में रखकर डिज़ाइन और निर्मित किया जाता है] और स्कूल बसों के लिए 27 जनवरी, 2022 की अधिसूचना के अनुसार एआईएस (वाहन उद्योग मानक) -135 में संशोधन के माध्यम से बसों के यात्री (या बैठने वाले) कक्ष में अग्नि चेतावनी प्रणाली और अग्नि सुरक्षा प्रणाली की शुरुआत की है।

वर्तमान में, एआईएस-135 के तहत, इंजन कक्ष से लगने वाली आग के लिए आग का पता लगाने, चेतावनी देने और इसके शमन की प्रणाली को अधिसूचित किया जाता है। आग की घटनाओं के अध्ययन से पता चलता है कि यात्रियों को नुकसान मुख्य रूप से यात्री कक्ष में गर्मी और धुएं के कारण होता है। यदि आग की घटनाओं के दौरान थर्मल प्रबंधन द्वारा यात्रियों की निकासी के लिए अतिरिक्त समय देकर यात्री कक्ष में गर्मी और धुएं को नियंत्रित किया जाए, तो इस नुकसान को रोका जा सकता है।

बसों के लिए पानी की सूक्ष्म बूंदों पर आधारित सक्रिय अग्नि सुरक्षा प्रणाली और एक पृथक आग चेतावनी प्रणाली को यात्री डिब्बे में तापमान को 50 डिग्री सेंटीग्रेड से कम रखने का प्रबंधन करने के लिए डिज़ाइन किया गया है।

अग्नि विस्फोटक और पर्यावरण सुरक्षा केंद्र (सीएफईईएस) एक डीआरडीओ प्रतिष्ठान है, जो अग्नि जोखिम मूल्यांकन, अग्नि शमन प्रौद्योगिकियों, मॉडल बनाने और अनुरूपता परीक्षण आदि के क्षेत्र में कार्यरत है। इस केंद्र के विशेषज्ञों और अन्य हितधारकों के परामर्श से मानक में यह संशोधन किया गया है।
<https://pib.gov.in/PressReleasePage.aspx?PRID=1793511>



Press Information Bureau
Government of India

రహదారి రవాణా, హైవేల మంత్రిత్వ శాఖ

Sat, 29 Jan 2022 3:02PM

బస్సులలో ప్యాసింజర్ కంపార్ట్‌మెంట్‌లో ఫైర్ అలారం సిస్టమ్, అగ్నిమాపక

వ్యవస్థ ఏర్పాటు నోటిఫికేషన్ జారీ

కేంద్ర రోడ్డు రవాణా మరియు రహదారుల మంత్రిత్వ శాఖ, జనవరి 27, 2022 నాటి నోటిఫికేషన్ ప్రకారం, ఏఐఎస్ (ఆటోమోటివ్ ఇండస్ట్రీ స్టాండర్డ్)-135లో సవరణ చేసింది. దీని ప్రకారం బస్సులలోని ప్యాసింజర్ (లేదా, ఆక్యుపెంట్) కంపార్ట్‌మెంట్‌లు అగ్ని మాపక అలారం వ్యవస్థ, ఫైర్ ప్రొటెక్షన్ సిస్టమ్‌ను ప్రవేశపెట్టింది. టైప్ III బస్సులు ['టైప్ III' వాహనాలు సుదూర ప్రయాణీకుల రవాణాకు కూర్చున్న ప్రయాణీకుల కోసం రూపొందించబడి నిర్మించబడ్డాయి] మరియు స్కూల్ బస్సులలో ఈ వ్యవస్థ ఏర్పాటు చేసేలా సవరణ చేయడమైంది. ప్రస్తుతం, ఏఐఎస్-135 ప్రకారం, ఇంజిన్ కంపార్ట్‌మెంట్ నుండి ఉత్పన్నమయ్యే మంటల కోసం అగ్ని గుర్తింపు, అలారం మరియు అగ్నిమాపక వ్యవస్థలు నోటిఫై చేయడం జరిగింది. అగ్ని ప్రమాదాలపై అధ్యయనాల ప్రకారం ప్రయాణీకులు ప్రధానంగా గాయాలు కంపార్ట్‌మెంట్‌లో అగ్నికారణంగా వెలువడే ఎక్కువ వేడిమి, పొగ కారణంగా చాలా తీవ్రంగా ప్రభావితమవుతున్నారు. అగ్ని ప్రమాదాల సమయంలో థర్మల్ మేనేజ్‌మెంట్ ద్వారా ప్రయాణీకులు ప్రమాదాలను నుంచి తరలి దూరంగాపోయే సమయాన్ని అందించడం ద్వారా ప్రయాణీకుల కంపార్ట్‌మెంట్‌లోని వేడి మరియు పొగను నియంత్రించినట్లయితే ఈ గాయాలను నివారించవచ్చు. నీటి పొగమంచు ఆధారిత యాక్టివ్ ఫైర్ ప్రొటెక్షన్ సిస్టమ్ మరియు బస్సుల కోసం ఒక స్వతంత్ర ఫైర్ అలారం సిస్టమ్ ప్యాసింజర్ కంపార్ట్‌మెంట్‌లోని ఉష్ణోగ్రతను 50 డిగ్రీల సెంటీగ్రేడ్ లోపల నిర్వహించేలా రూపొందించబడ్డాయి. డీఆర్డీఓకు చెందిన సెంటర్ ఫర్ ఫైర్ ఎక్స్‌ప్లోజివ్ అండ్ ఎన్విరాన్‌మెంట్ సేఫ్టీ (సీఎఫ్ఈఈఎస్) సంస్థతో కలిసి పని చేస్తున్న ఫైర్ రిస్క్ అసెస్‌మెంట్, ఫైర్ సప్రెషన్ టెక్నాలజీస్, మోడలింగ్ మరియు సిమ్యులేషన్ మొదలైన రంగాలలో భాగస్వామ్యపాత్రలు, నిపుణులతో సంప్రదించిన తరువాత ఏఐఎస్ (ఆటోమోటివ్ ఇండస్ట్రీ స్టాండర్డ్)-135 సవరణ చేయడమైంది.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1793622>



Sun, 30 Jan 2022

TEL vehicle of Indian Advanced Air Defense AAD anti-ballistic missile system

A picture is published on the Twitter account of Defense Decode® showing the TEL (Transporter Erector Launcher) vehicle of the Indian Advanced Air Defense (AAD) anti-ballistic missile system developed locally in collaboration with the Indian DRDO (Defense Research and Development Organization).

The Advanced Air Defense (AAD) is an anti-ballistic missile system designed to intercept incoming ballistic missiles in the endo-atmosphere at an altitude of 40 km. The TEL (Transporter Erector Launcher) vehicle is based on a Tatra truck chassis with three launcher container units each carrying one missile. In firing position, the containers are erected in a vertical position at the rear of the truck to launch the missile.

The AAD is a single-stage solid rocket-propelled guided missile able to intercept aerial threats at a maximum range of 40 km. The missile has a length of 7.5 m, a diameter less than 0.5 m, and a weight of around 1.2 tons.

In March 2017, Indian DRDO conducted the successful launch of the interceptor missile Advanced Area Defense (AAD) at 1015 hrs today from Abdul Kalam Island, Odisha. The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 km successfully destroyed the incoming missile. All the mission objectives were successfully met.

On August 2, 2018, the Defense Research Development Organization (DRDO), the Indian Ministry of Defense's (MoD) research and development wing, conducted another successful test of its indigenously designed and built AAD Advanced Air Defense interceptor missile from Abdul Kalam Island, home to the Indian military's principle missile test facility, the Integrated Test Range, off the coast of Odisha in the Bay of Bengal.

https://www.armyrecognition.com/weapons_defence_industry_military_technology_uk/tel_vehicle_of_india_n_advanced_air_defense_aad_anti-ballistic_missile_system.html



TEL Transporter Erector Launcher vehicle of Indian Advanced Air Defense anti-ballistic missile system. (Picture source Twitter account Defense Decode®)

THE TIMES OF INDIA

Mon, 31 Jan 2022

B'luru co gets DRDO's GIS technology

Bengaluru: MicroGenesis Techsoft, a Bengaluru-based company that enables clients to capture and interpret spatial and geographic data, has entered into a technology collaboration with the government's Defence Research and Development Organisation (DRDO).

Under this, DRDO has transferred to MicroGenesis the technology for its indigenous geographical information system developed by its Centre for Artificial Intelligence and Robotics. It's part of DRDO's larger initiative to involve the private sector in proliferating its technologies.

Company MD Manoj Tharian said MicroGenesis would use the technology to build GIS application products for civilian and defence sectors in India and overseas. He said they would start by building for the defence labs.

<https://timesofindia.indiatimes.com/city/bengaluru/bluru-co-gets-drdo-gis-technology/articleshow/89231659.cms>



Sat, 29 Jan 2022

देवघर एयरपोर्ट से जल्द शुरू होगी विमान सेवा, SpiceJet,

IndiGo समेत कई एयरलाइंस से बात फाइनल

बाबा बैद्यनाथ धाम जाने वाले भक्तों के लिए बड़ी खुशखबरी है। देवघर में जल्द ही हवाई यात्रा शुरू होने वाली है। देवघर एयरपोर्ट (Deoghar Airport) पर हवाई उड़ानों का रास्ता साफ हो गया है। बहुत जल्दी देवघर एयरपोर्ट से फ्लाइट सेवा शुरू हो जाएंगी।

By मनीष दुबे, Edited By Utkarsh Kumar

देवघर: बाबा बैद्यनाथ धाम जाने वाले भक्तों के लिए बड़ी खुशखबरी है। देवघर में जल्द ही हवाई यात्रा शुरू होने वाली है। देवघर एयरपोर्ट (Deoghar Airport) पर हवाई उड़ानों का रास्ता साफ हो गया है। बहुत जल्दी देवघर एयरपोर्ट से फ्लाइट सेवा शुरू हो जाएंगी। दरअसल देवघर एयरपोर्ट के डायरेक्टर संदीप ढींगरा एयरपोर्ट निर्माण कार्य के अपडेट रिपोर्ट जारी करते हुए कहा कि देवघर एयरपोर्ट से उड़ान भरने के लिए आधा दर्जन एयरलाइंस कंपनियों द्वारा सेवा देने की सहमति जताई गई है जिसके लिए फ्लाइट की फ्रीक्वेंसी और स्लॉट तय किए जा रहे हैं। उन्होंने बताया कि देवघर एयरपोर्ट के रनवे सहित टर्मिनल बिल्डिंग और एटीसी बिल्डिंग का कार्य पूरा कर लिया गया है। वहीं टर्मिनल बिल्डिंग में डिपार्चर और अराइवल सेंसर गेट भी लगाया गया है। अब इसे खूबसूरत लुक दिया जा रहा है। इसमें बाबा बैद्यनाथ धाम मंदिर की छवि बखूबी दिखाई गई है। इसके अलावा पार्किंग और लाउंज एरिया सहित सुरक्षा के व्यापक इंतजाम अब आखिरी दौर में है।

बता दें देवघर एयरपोर्ट पर टर्मिनल पूरी तरह से तैयार होने के बाद जल्द ही विमानों का आवागमन शुरू हो जाएगा। इसके लिए एयरलाइंस कंपनियों ने भी अपनी तैयारी शुरू कर दी है। बीते दिनों स्पाइसजेट (SpiceJet) और इंडिगो (IndiGo) के मार्केटिंग ऑफिसर ने दो दिनों तक देवघर एयरपोर्ट का जायजा लिया था। मालूम हो कि दोनों एयरलाइंस कंपनियों ने देवघर से हवाई सेवा शुरू करने के लिए सैद्धांतिक मंजूरी दी है।

तकनीकी बिंदुओं को दिया फाइनल टच

देवघर एयरपोर्ट से उड़ानों की सारी तकनीकी बिंदुओं पर अब अंतिम रूप में कार्य चल रहा है और इसे फाइनल टच दिया जा रहा है। ताकि मंत्रालय से उद्घाटन के लिए हरी झंडी मिल सके। ऐसे में कह सकते हैं कि देवघर एयरपोर्ट से हवाई सेवा शुरू करने के सारे तकनीकी रास्ते अब साफ हो गए हैं। बहुत जल्द बाबा बैद्यनाथ की नगरी को एयरपोर्ट की सौगात मिलने जा रही है जिससे न सिर्फ श्रद्धालुओं की संख्या बढ़ेगी बल्कि पर्यटन की दृष्टि से भी देवघर राष्ट्रीय स्तर पर पर्यटन के क्षेत्र में अपनी उपस्थिति दर्ज कराएगा।



देवघर एयरपोर्ट (Deoghar Airport) पर हवाई उड़ानों का रास्ता साफ हो गया है। बहुत जल्दी देवघर एयरपोर्ट से फ्लाइट सेवा शुरू हो जाएंगी।

एयरलाइंस कंपनियों के ऑफिसर ले चुके हैं जायजा

बता दें, बीते दिनों एयरलाइंस कंपनियों के ऑफिसर ने एयरपोर्ट अथॉरिटी ऑफ इंडिया के अधिकारियों के साथ देवघर एयरपोर्ट टर्मिनल में टिकट काउंटर, चेक इन, सुरक्षा, एयरलाइंस कंपनियों के प्रस्तावित कार्यालय का निरीक्षण किया। इसके साथ ही होटल की सुविधा से लेकर शहर में औद्योगिक व शैक्षणिक संस्थानों की वर्तमान स्थिति की भी जानकारी ली। उन्होंने संथाल परगना व आसपास धार्मिक स्थल, ट्रिस्ट पैलेस व एयरपोर्ट से इसकी दूरी की भी जानकारी हासिल की।

गोड्डा सांसद डॉ निशिकांत दुबे ने इस पर जानकारी देते हुए बताया कि पहले चरण में स्पाइसजेट और इंडिगो ने देवघर एयरपोर्ट से दिल्ली, मुंबई, कोलकाता और बंगलुरु के लिए हवाई सेवा शुरू करने की योजना बनाई है। दोनों एयरलाइंस कंपनियों की मार्केटिंग ऑफिसर ने देवघर एयरपोर्ट के निरीक्षण में पूरी तरह से संतुष्टि जताई है।

देवघर एयरपोर्ट शुरू होने से मिलेगी आर्थिक मजबूती

बता दें कि 2018 में 24 मई को प्रधानमंत्री नरेंद्र मोदी ने देवघर एयरपोर्ट का ऑनलाइन शिलान्यास किया था। टर्मिनल का काम भी लगभग पूरा हो चुका है। देवघर एयरपोर्ट पर 180 यात्रियों की क्षमता वाला विमान उतर सकता है। एयरपोर्ट के 2.5 किमी लंबे 45 मीटर चौड़े रनवे पर एयर बस तक उतारने की क्षमता होगी। यहां डीआरडीओ का जहाज भी उतरेगा। डीआरडीओ के जहाज व पायलट के ठहराव के लिए अलग से व्यवस्था की जा रही है।

गौरतलब है कि देवघर एयरपोर्ट चालू होने से झारखंड, बिहार और बंगाल के यात्रियों को सुविधा होगी। वहीं कोलकाता, पटना, बागडोगरा और रांची एयरपोर्ट के बीच में देवघर एयरपोर्ट होगा। देवघर एयरपोर्ट के चालू होने से इस इलाके में धार्मिक स्थानों के साथ-साथ आर्थिक विकास भी तेजी से होगा। इसके अलावा देवघर आने में शिव भक्तों को भी काफी सहूलियत मिलेगी।

<https://hindi.news18.com/news/jharkhand/dhanbad-raid-in-dhanbad-jail-in-leadership-of-dc-ssp-list-of-numbers-scissors-bidi-cigarette-recovered-bruk-3982454.html>

DRDO on Twitter



ANI @ANI · Jan 28

BrahMos Aerospace Private Limited (BAPL) signed a contract with the Dept of National Defence of the Republic of Philippines today for the supply of Shore Based Anti-Ship Missile System to Philippines: Ministry of Defence

6 52 520

ANI @ANI

The BAPL is a joint venture company of the Defence Research and Development Organisation. The contract is an important step forward for the Government of India's policy of promoting responsible defence exports: Ministry of Defence

1:35 PM · Jan 28, 2022 · Twitter Web App

ANI @ANI · Jan 28

BrahMos Aerospace Private Limited (BAPL) signed a contract with the Dept of National Defence of the Republic of Philippines today for the supply of Shore Based Anti-Ship Missile System to Philippines: Ministry of Defence

DRDO @DRDO_India · Jan 28

BrahMos signs contract with Philippines for export of Shore Based Anti-Ship Missile System

#LeapWithDRDO
 #AtmaNirbharBharat
 @PMOIndia @SpokespersonMoD @DefenceMinIndia
pib.gov.in/PressReleasePa...

Visakhapatnam: Chief of Naval Staff to visit ENC tomorrow

Highlights

This is his maiden visit to the Eastern Naval Command after assuming office

Visakhapatnam: As a part of his maiden visit to the Eastern Naval Command (ENC) after assuming office last November, Chief of the Naval Staff (CNS) Admiral R Hari Kumar will arrive in Visakhapatnam on February 1.

The CNS chief will be accompanied by president of Navy Wives Welfare Association (NWWA) Kala Hari Kumar.

Admiral R Hari Kumar was commissioned into the Indian Navy on January 1, 1983, and has specialised in Gunnery and Missile Systems.

The Admiral has commanded Coast Guard ship C-01, INS Nishank, INS Kora, INS Ranvir and INS Viraat. His Flag appointments include Commandant of Naval War College at Goa, Flag Officer Sea Training, Flag Officer Commanding Western Fleet, Chief of Staff Western Naval Command (WNC), Controller Personnel Services and Chief of Personnel at IHQ MoD (N), and CISC/ VCDS at HQIDS. Prior to taking over as CNS, the Admiral was Flag Officer Commanding-in-Chief WNC.

He had served in the Civil-Military Operations Centre of the UN Mission in Somalia (UNOSOM II) at Mogadishu and had also served as the Naval Advisor to the Government of Seychelles. He attended the US Naval Staff Course at Naval War College, Rhode Island, Army Higher Command Course at AWC, Mhow, and the Royal College of Defence Studies, London.

In 2010, Admiral R Hari Kumar was awarded the Vishisht Seva Medal and Ati Vishisht Seva Medal in 2016. He was also awarded Param Vishisht Seva Medal.

<https://www.thehansindia.com/news/cities/visakhapatnam/visakhapatnam-navy-trains-marine-police-on-coastal-security-721641?infinitemscroll=1>



Chief of the Naval Staff (CNS)
Admiral R Hari Kumar



Press Information Bureau
Government of India

Ministry of Defence

Fri, 28 Jan 2022 2:37PM

Tri-Service Andaman & Nicobar Command inducts Advanced Light Helicopter MK III

In a boost to maritime security, the indigenous Advanced Light Helicopter (ALH) MK III aircraft was formally inducted at INS Utkrosh by Commander-in-Chief, Andaman and Nicobar

Command (CINCAN) Lieutenant General Ajai Singh at Port Blair on January 28, 2022. As the rotor blades of the versatile helicopter cut through the air, aircraft were ceremonially welcomed into ANC with a traditional water cannon salute. The induction marks a continuing increase in the capabilities of the A&N Command in the past two decades of its raising as India's only joint theatre command.

The ALH MK III aircraft is manufactured by Hindustan Aeronautics Limited and represents a tremendous leap towards self-reliance in the field of military aircraft, in line with the government's push towards 'Aatmanirbhar Bharat'. Till date, over 300 of these aircraft have been delivered by HAL and are being flown by the Armed Forces. Amongst its variants, the MK III variant is a maritime role variant encompassing state-of-the-art sensors and weapons that add punch to India's prowess at sea.

The ALH MK III aircraft with its glass cockpit, Shakti engines, advanced Maritime Patrol Radar, Electro-optical payload and Night Vision Device will act as a force multiplier in keeping India's far eastern seaboard and Island territories safe. The state-of-the-art aircraft has multirole capabilities including maritime surveillance, support for Special Forces, medical evacuations besides search and rescue roles.

Speaking on the occasion, Lt General Ajai Singh termed the induction as a boost to the security of Andaman & Nicobar. He added that the induction is a symbol of the country's resolve of being self-reliant in its security and maintaining peace in this region.



<https://pib.gov.in/PressReleasePage.aspx?PRID=1793229>



पत्र सूचना कार्यालय
भारत सरकार
रक्षा मंत्रालय

Fri, 28 Jan 2022 2:37PM

अंडमान और निकोबार त्रि-सेवा कमान ने उन्नत हल्के हेलीकॉप्टर एमके III शामिल किए

कमांडर-इन-चीफ, अंडमान और निकोबार कमान (सीआईएनसीएएन) लेफ्टिनेंट जनरल अजय सिंह ने समुद्री सुरक्षा को बढ़ावा देने के लिए 28 जनवरी, 2022 को पोर्ट ब्लेयर में आईएनएस उत्क्रोश पर स्वदेशी उन्नत हल्के हेलीकॉप्टर (एएलएच) एमके III को औपचारिक रूप से शामिल किया। जैसे ही बहु-भूमिका संपन्न हेलीकॉप्टर के रोटर ब्लेड ने हवा में घूमना शुरू किया, विमान का एएनसी में पारंपरिक जल तोप की सलामी के साथ औपचारिक रूप से स्वागत किया गया। इस विमान का शामिल किया जाना, भारत के एकमात्र संयुक्त कमान के रूप में स्थापित होने के बाद पिछले दो दशकों में अंडमान और निकोबार कमान की क्षमताओं में निरंतर वृद्धि का प्रतीक है।

एएलएच एमके III विमान हिंदुस्तान एरोनॉटिक्स लिमिटेड द्वारा निर्मित है और यह 'आत्मनिर्भर भारत' के लिए सरकार के प्रोत्साहन के अनुरूप सैन्य विमान के क्षेत्र में आत्मनिर्भरता की दिशा में एक महत्वपूर्ण उपलब्धि का प्रतिनिधित्व करता है। अब तक, एचएएल द्वारा 300 से अधिक विमान वितरित किए गए हैं और सशस्त्र बलों द्वारा इनका उपयोग किया जा रहा है। इसके विभिन्न प्रकारों में, एमके III संस्करण समुद्री भूमिका पर आधारित है। यह अत्याधुनिक संसर और हथियार से लैस है, जिनसे समुद्र में भारत के कौशल में वृद्धि होती है।

एएलएच एमके III विमान अपने ग्लास कॉकपिट, शक्ति इंजन, उन्नत समुद्री गश्ती रडार, इलेक्ट्रो-ऑप्टिकल पेलोड और अंधकार में देखने के उपकरण के साथ; भारत के सुदूर पूर्वी समुद्री तट और द्वीप क्षेत्रों को सुरक्षित रखने में ताकत को कई गुणा बढ़ाने वाले के रूप में कार्य करेगा। अत्याधुनिक विमान में समुद्री निगरानी, विशेष बलों के लिए समर्थन, चिकित्सा के लिए निकासी आदि के अलावा खोज और बचाव भूमिकाओं सहित बहु-भूमिका क्षमताएं हैं।

इस अवसर पर लेफ्टिनेंट जनरल अजय सिंह ने अंडमान और निकोबार की सुरक्षा को बढ़ावा देने वाले के रूप में इसकी सराहना की। उन्होंने कहा कि यह देश की सुरक्षा में आत्मनिर्भर होने और इस क्षेत्र में शांति बनाए रखने पर आधारित देश के संकल्प का प्रतीक है।



<https://pib.gov.in/PressReleasePage.aspx?PRID=1793258>

The Tribune

Sun, 30 Jan 2022

HAL plans to make radio altimeters for Dornier plane

Chandigarh: The Dornier Do-228 light transport aircraft used by the armed forces as well as civilian operators are set to get indigenously-developed radio altimeters which will replace the foreign-made gadgets presently being used in the aircraft.

Hindustan Aeronautics Limited (HAL), which manufactures the German-origin Dorniers at its Kanpur unit, has invited the Indian industry for the design and development and subsequent supply of fully assembled radio altimeters.

The radio altimeter provides accurate altitude information to the cockpit crew during low altitude flight, generally up to a height of about 2,500 ft. It consists of a receiver transmitter and antennae for exchange of information with ground stations.

Sources said a request for information was floated by HAL about a month ago, stating that a new radio altimeter for the Do-228 was an "immediate requirement." At present, the Dorniers are equipped with the Collins ALT-4000 radio altimeter that is manufactured by Collins Aerospace, a US-based subsidiary of Raytheon Technologies that also has a set-up in India.

More than 140 Do-228 aircraft produced by HAL are presently in service in India and overseas, primarily with the Indian Air Force, Navy and the Coast Guard.

German aircraft

- Hindustan Aeronautics Limited manufactures German-origin Dorniers at its Kanpur unit
 - It has invited local industry for design and development of radio altimeters
 - The equipment provides accurate altitude information to cockpit crew during low altitude flight
- <https://www.tribuneindia.com/news/nation/hal-plans-to-make-radio-altimeters-for-dornier-plane-365365>



Press Information Bureau
Government of India

Ministry of Defence

Fri, 28 Jan 2022 2:40PM

Keel laying of first of Class - Diving Support Craft at M/S Titagarh Wagons Ltd, Kolkata

Keel laying for the first ship of Diving Support Craft (DSC) project was held on 27 Jan 22 in virtual presence of reps from the Indian Navy, at M/s Titagarh Wagons Ltd., Kolkata. The contract for procurement of Five Diving Support Crafts (Yards 325 to 329) for the Indian Navy was signed in Feb 21 with M/s Titagarh Wagons Ltd.

The ships will be commissioned in the Indian Navy to provide diving assistance for ships inside and close to harbour, for underwater repairs, maintenance and salvage. The ships will be fitted with state-of-the-art diving equipment and tools for performing the diving operations.

With all main and auxiliary equipment sourced from indigenous manufacturers, these ships are proud flag bearers of Make in India initiatives of the Ministry of Defence.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1793230>



THE ECONOMIC TIMES

Sun, 30 Jan 2022

India to host slew of Oman's defence teams & joint exercises to bolster military ties amid China Indian Ocean forays

By Dipanjan Roy Chaudhury

Synopsis

Dr. Mohammed Bin Nasser Bin Ali AL Zaabi, Secretary General of the Ministry of Defence of Oman will visit India from January 31 to February 3 along with a seven-member delegation, Hamed Saif AL Rawahi, Oman Ambassador to India told ET.

Eyeing to bolster its military presence amid China's rising ambitions in the Indian Ocean Region, New Delhi will be hosting a series of defence and military delegations from its oldest strategic partner in the Gulf -- Oman -- beginning with the visit of its Defence Secretary from Monday followed by the Naval chief and other military delegates in February.

Dr. Mohammed Bin Nasser Bin Ali AL Zaabi, Secretary General of the Ministry of Defence of Oman will visit India from January 31 to February 3 along with a seven-member delegation, Hamed Saif AL Rawahi, Oman Ambassador to India told ET.

Al Zaaabi will chair Joint Military Cooperation Committee (JMCC) with Ajay Kumar, Defence Secretary. The Ministries of Defence of both countries review their relations annually under the

aegis of JMCC. Both the Air Force and Navy undertake staff talks on a regular basis, which has been the catalyst for new areas of cooperation. The two Armies are also scheduled to commence Staff Talks in the near future, AL Rawahi told ET.

The envoy hinted that the idea is to expand India-Oman military & strategic partnership in the Arabian Sea region where both sides have deep stakes.

Coming as it does after a hiatus of 3 years and after the pandemic period, the 10th JMCC is expected to comprehensively evaluate the ongoing defence exchanges and provide a roadmap for further strengthening defence ties in the coming years. On the sidelines of the JMCC, AL Zaabi is expected to call-on the Defence Minister and will also be given an exposure to the Indian defence production industry for possibilities of procurement and joint production.



Secretary General's visit will be followed by a series of high profile defence engagements in the month of February that will include back-to-back visits to India by the Chief of the Royal Navy of Oman (RNO), and the Chief of the Royal Air Force of Oman (RAFO), staff talks between Indian Navy and CRNO, and a bilateral Air Force exercise in Jodhpur, ET has learnt.

The visits of the Naval and Air Force Chiefs of Oman are taking place after a gap of 5 years and will enable a high level re-engagement between the forces of two sides. The bilateral Air Force exercise is annual and this year will feature the participation of over 150 personnel from the Oman side.

Oman-India Defence cooperation has emerged as a key pillar of the strategic partnership between the two countries. Oman is India's closest defence partner in the Gulf region and an important anchor for India's defence and strategic interests. Defence cooperation has emerged as a key pillar for the robust India-Oman strategic partnership. Defence exchanges are guided by a Framework MOU which was recently renewed in 2021.

The Port of Duqm in Oman has offered facilities to the Indian Navy and the two sides have signed two critical defence related MoUs last year. Oman which holds tri service joint exercises with India is expected to play a critical role in enabling New Delhi maintain its role of net security provider in the Western Indian Ocean Region where China has embarked on a plan to boost its strategic presence as evident through the recent visit of Foreign Minister Wang Yi.

Last year the Indian Navy and the Royal Navy of Oman signed a memorandum of understanding (MoU) this September on the exchange of white shipping information.

The MoU will facilitate information exchange on merchant shipping traffic through the Information Fusion Centre-Indian Ocean Region, the dedicated centre in Gurugram for undertaking collation, fusion, and dissemination of data with partner countries, and the Muscat-headquartered MSC, officials told ET.

The MoU on exchange of white shipping information is expected to contribute to enhanced maritime safety and security, mutual collaboration, exchange of information and understanding the concerns and threats which are prevalent in the entire region, one of the above-mentioned officials pointed out.

Last year then Navy Chief Admiral Karambir Singh had visited key defence installations in Oman like the Muaskar Al Murtafa (MAM) Camp, the Maritime Security Centre, Said Bin Sultan Naval Base, Al Musanna Air Base and the National Defence College.

The Indian Navy has a wide-ranging partnership with the Royal Navy of Oman on several fronts, including operational interactions, training cooperation and exchange of subject matter experts in various fields. Since 1993 both the navies have been participating in the biennial maritime exercise "Naseem Al Bahr". The maritime exercise, which was last conducted off the Goa coast in 2020, is scheduled to take place again in 2022.

Oman is the only country in the Gulf region with which all 3 services of the Indian armed forces conduct regular bilateral exercises and staff talks, enabling close cooperation and trust at the

professional level. Oman also provides critical operational support to Indian naval deployments in the Arabian sea for anti-piracy missions.

Bilateral training cooperation between the two sides is also robust with Omani forces regularly subscribing to training courses in India both at professional as well as higher command level. Indian armed forces also subscribe to the Staff and Command courses conducted at NDC, Oman. Oman also actively participates in the Indian Ocean Naval Symposium (IONS).

<https://economictimes.indiatimes.com/news/defence/india-to-host-slew-of-omans-defence-teams-joint-exercises-to-bolster-military-ties-amid-china-indian-ocean-forays/articleshow/89209204.cms>

Telangana Today

Sun, 30 Jan 2022

College of Defence Management renews MoU with Osmania University

Hyderabad: The authorities of College of Defence Management (CDM), Secunderabad and Osmania University (OU) have signed a fresh Memorandum of Understanding (MoU) to collaborate in the areas of Management Studies for mutual academic benefit. The agreement was signed by Rear Admiral Sanjay Datt, VSM, Commandant, CDM and the Registrar of Osmania University, Prof. P Laxminarayana in the presence of Vice-Chancellor Prof. D Ravinder on Friday incorporating the latest regulations promulgated by the UGC.

The two institutions had entered into a MoU in 1994. Accordingly, the University has recognised the Higher Defence Management Course (HDMC) conducted by the College as a post-graduate degree course in Management Studies and has been awarding the degree of Master of Management Studies (MMS) to the successful graduates of HDMC. In addition, the University also offers a Doctor of Philosophy (Ph.D in Management) to the officers of the Armed Forces.

The training programmes conducted at the CDM is aimed at enhancing managerial skills of the Defence Service Officers in various disciplines of management concepts, techniques and application of the same at executive directors' level to solve various management problems in Defence Services. The College also provides research and consultancy services to defence organisations.

<https://telanganatoday.com/college-of-defence-management-renews-mou-with-osmania-university>

Science & Technology News



Mon, 31 Jan 2022

Space sector reforms, growth of space economy top priorities: ISRO's new Chief Somanath

Thiruvananthapuram: With space sector reforms and growth of India's space economy his topmost priorities, ISRO's new Chairman S. Somanath says that 'Gaganyaan', the ambitious project to put a human crew in space, is another key objective and the space agency expects that the mission would help lay the robust foundation for a sustainable human flight programme in the long run.

As the Indian Space Research Organisation (ISRO) is undertaking in-depth research and new projects and programmes to take space technology and space to a higher level and for benefits to the common man, it is also for promoting new entrepreneurs and for more and more programmes that would be useful to explore space and for bringing in benefits to mankind, Somanath in an exclusive interview to IANS at his residence in Thiruvananthapuram.



Following are excerpts from the interview.

Q: What are the major programmes in pipeline for ISRO?

A: The Indian Space Research Organisation is in the process of adapting and adopting to new challenges and opportunities. India will be launching two major space missions in the 75th year of Independence and the ISRO is in an advanced stage of developing the Reusable Launch Vehicle (RLV). We are also in the process of the first launch of the Small Satellite Launch Vehicle (SSLV).

While Covid has put our plans on the backburner or delayed our launches, we are hopeful of completing the landing trial or testing the landing gear mechanism of RLV soon. RLV is a priority and it will bring down the cost of launch drastically as also we need launch vehicles that need to be used even up to 15 times. The scaling down of costs would reflect on more launches and eventually the benefit is transferred to a large number of people.

The design and development of SSLV are almost done and we will be launching it within months.

Gaganyaan will be a top priority and with the Covid pandemic on, it has been delayed a bit but the ambitious push to put a human crew in space is on and we, at the ISRO, hope that the mission would help lay the foundation for a sustainable human space flight programme in the long run. Chandrayan-3 and Aditya-L1 missions are some of the projects awaiting immediate attention.

Q: Can you explain the proportionate impact that a fleet of satellites will have on communication technology?

A: We aim to have the capability of transmitting directly to handheld devices without any time lapse. This will revolutionise the information and the infotainment industry. In a similar manner, the low-cost launch will also help improve space application using remote sensing satellites or other low orbit satellites. With the help of Artificial Intelligence, we hope to bring out more services that bring benefit to more people and more lives. Other than this more eyes in the sky would help fine-tune the existing meteorological models along with other observation needs.

Q: There are reports on emerging commercial opportunities in the Space sector. Your comments

A: There are a lot of emerging opportunities in the space sector and there is a huge enthusiasm among the country's young entrepreneurs to explore the emerging commercial opportunities in the space sector. We have opened our doors to these game changers and they can explore the envelope of possibilities in this sunrise sector instead of confining their skills and imagination to a particular area of space science.

I can say that there are many skilled and qualified youngsters who are in discussions with the ISRO for their startups that are entering the field. However, there are risks involved in rocket manufacture and developing other launch vehicles and risk is a great factor in the manufacturing and assembling of satellites.

The maximum interest being envisaged in the commercial side is on the low-risk area of application development based on space-based data and becoming providers of space-based services opens a vista of opportunities to these youngsters who have the entrepreneurial bug and ISRO is fully supporting them.

Q: How are the strides in Indian space research beneficial to common man?

A: While most of the nations were used space for projecting another dimension of their defence power, we, in India, used it for reaching the scientific benefits to the common man of the country.

The giant strides the country has made in telemedicine, weather forecast, agriculture, and distance education are a few examples that we can showcase on the contribution we have made in space research that is directly transferred as benefits to common man.

My mission is to continue this work and to follow the footsteps of my seniors who have made yeoman contributions in the development of space science in the country and ISRO has played a stellar role in it.

We know that there are several departments in the country that need the support of space technology and we will improve interactions with them to develop user-based initiatives in these areas. At present we are in direct contact with some government institutions and we will expand it to a larger number and spread our wings with indirect contact with some government bodies. The idea is to bring them all under one umbrella and develop products that uplift the lives of common people in the country.

Q: There are a lot of discussions on graveyard orbits being in use by major players in space. Please explain

A: Graveyard orbit is used when the change in velocity required to perform a de-orbit maneuver is too large. For satellites in geostationary orbit and geosynchronous orbits, the graveyard orbit is a few hundred kilometers beyond the operational orbit. The transfer to a graveyard orbit beyond geostationary orbit requires the same amount of fuel as a satellite needs for about three months of stationkeeping.

We are planning to put an old satellite into graveyard orbit in the near future. This is done when a satellite is nearing its life and the remaining life is less than a few months and when the controls are still active.

Q: Could you tell us about your journey to ISRO

A: I did my schooling at St. Augustine High School, Aroor which is a government-aided school, and those days the pass percentage in the school was very low – around 30 per cent of those who write the Class 10 board exam. I was the topper in Kerala for physics, chemistry, mathematics, and biology in school and it was a great achievement those days that gave me a morale booster. My father was a Hindi teacher but he was scientifically oriented and he was the one who inculcated or rather kindled the interest in science in me.

Those days we did assemble our own radio and my father was keen that I read good science publications during my school days. I did my pre-university at the prestigious Maharajas College in Ernakulam and did my BTech in Mechanical Engineering from TKM College of Engineering, Kollam. I did my Master's degree in aerospace engineering from the Indian Institute of Science, Bangalore with a specialisation in Dynamics and Control and I joined the ISRO in 1985.

<https://ommcomnews.com/india-news/space-sector-reforms-growth-of-space-economy-top-priorities-isros-new-chief-somanath>

The Tribune

Sat, 29 Jan 2022

ISRO's Aditya-L1 mission likely to be launched this year

New Delhi: ISRO's Aditya-L1 mission, which will study the Sun, will likely be launched this year, the Indian space agency's former chief A S Kiran Kumar said Friday.

"Mars Orbiter Mission has completed 7 years studying Mars. AstroSat mission is the first dedicated astronomical observatory that India has put in orbit. It is a large collaboration between many national institutes and has provided data for a large number of important studies in astronomical research".

"Chandrayaan 2 orbiter is healthy, and all payloads are operational. The spacecraft can remain functional for many more years. The data obtained till now has already resulted in many publications," he said at the Indo-US Workshop on "Space Radiation Workshop: Radiation Characterisation from Sun to Earth, Moon, Mars and Beyond" held from January 24 to 28.

He also said that in future, ISRO and the Japan Aerospace Exploration Agency (JAXA) will be collaborating on a lunar exploration mission.

The workshop was supported by the Indo-US Science and Technology Forum and hosted by the Aryabhata Research Institute for Observational Sciences (ARIES), Nainital, an autonomous institute under the Department of Science & Technology, and the Indian Institute of Science Education and Research (IISER), Pune.

Part of the activities commemorating "75 years of India's Independence: Azadi ka Amrit Mahotsav" at ARIES, the five-day workshop had a theme for each day - Earth, Air, and Spaceflight, Exploration, Space Radiation & Biology, Space Situational Awareness & Opportunities.

<https://www.tribuneindia.com/news/schools/isros-aditya-11-mission-likely-to-be-launched-this-year-365026>



Image: iStock



Sat, 29 Jan 2022

इसरो इस साल लांच कर सकता है आदित्य-एल1

By Monika Minal

नई दिल्ली: भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) इस साल आदित्य-एल1 अंतरिक्षयान लांच कर सकता है। अपनी तरह का यह पहला अंतरिक्षयान सूर्य का अध्ययन करेगा। भारतीय अंतरिक्ष एजेंसी के पूर्व प्रमुख एस किरण कुमार ने शुक्रवार को यह जानकारी दी।

किरण कुमार ने इसके अलावा अन्य जानकारियां भी साझा कीं। उन्होंने कहा, मार्स आर्बिटर मिशन ने मंगल का अध्ययन करते हुए सात साल पूरे कर लिए हैं। इसने खगोलीय अनुसंधान के लिए बड़ी संख्या में महत्वपूर्ण अध्ययनों के लिए डाटा उपलब्ध कराया है। उन्होंने कहा, चंद्रयान दो आर्बिटर के सभी पेलोड चालू हैं। यह कई और वर्षों तक सेवा में बना रह सकता है। भारत और अमेरिका के एक संयुक्त वर्कशाप में उन्होंने यह भी कहा कि भविष्य में इसरो और जापान की अंतरिक्ष एजेंसी भी चंद्रमा को लेकर एक मिशन पर सहयोग करेंगी। इस वर्कशाप का आयोजन आजादी का अमृत महोत्सव के तहत किया गया था।

मिशन गगनयान के लिए बेंगलुरु में बना ट्रेनिंग सेंटर

ISRO के नवनियुक्त अध्यक्ष एस. सोमनाथ ने केंद्रीय मंत्री जितेंद्र सिंह से कुछ दिन पहले मुलाकात की और गगनयान (Gaganyaan Mission) की स्थिति के साथ-साथ निकट भविष्य के अन्य अंतरिक्ष मिशनों पर चर्चा की।

एक सरकारी विज्ञप्ति के अनुसार, परमाणु ऊर्जा और अंतरिक्ष राज्य मंत्री (स्वतंत्र प्रभार) सिंह ने कहा कि सोमनाथ बहुत ही महत्वपूर्ण समय पर प्रतिष्ठित कार्यभार संभाल रहे हैं और नियति ने उन्हें भारत के पहले मानव अंतरिक्ष मिशन 'गगनयान' सहित कुछ सबसे ऐतिहासिक मिशनों के माध्यम से इसरो का नेतृत्व करने का मौका दिया है।

विज्ञप्ति में कहा गया है कि पहले मानवरहित मिशन के बाद दूसरा मानवरहित मिशन 'व्योममित्र' रोबोट ले जाएगा। इसके बाद मानव मिशन होगा। विज्ञप्ति के मुताबिक मंत्री को यह भी बताया गया कि भारतीय

अंतरिक्ष यात्रियों ने रूस में सफलतापूर्वक सामान्य अंतरिक्ष उड़ान प्रशिक्षण प्राप्त किया है। विज्ञप्ति में कहा गया है कि 'गगनयान' विशिष्ट प्रशिक्षण के लिए बंगलुरु में एक समर्पित अनौपचारिक अंतरिक्ष यात्री प्रशिक्षण केंद्र भी स्थापित किया गया है।

<https://www.jagran.com/news/national-isro-to-launch-aditya-11-22420827.html>

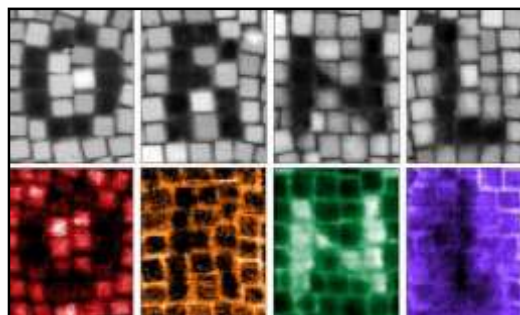


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Precision machining produces tiny, light-guiding cubes for advancing info tech

Drilling with the beam of an electron microscope, scientists at the Department of Energy's Oak Ridge National Laboratory precisely machined tiny electrically conductive cubes that can interact with light and organized them in patterned structures that confine and relay light's electromagnetic signal. This demonstration is a step toward potentially faster computer chips and more perceptive sensors.

The seeming wizardry of these structures comes from the ability of their surfaces to support collective waves of electrons, called plasmons, with the same frequency as light waves but with much tighter confinement. The light-guiding structures are measured in nanometers, or billionths of a meter—100,000 times thinner than a human hair.



ORNL scientists used an electron beam for precision machining of nanoscale materials. Cubes were milled to change their shape and could also be removed from an array. Credit: Kevin Roccapiore/ORNL, U.S. Dept. of Energy

"These nanoscale cube systems allow extreme confinement of light in specific locations and tunable control of its energy," said ORNL's Kevin Roccapiore, first author of a study published in the journal *Small*. "It's a way to connect signals with very different length scales."

The feat may prove critical for quantum and optical computing. Quantum computers encode information with quantum bits, or qubits, determined by a quantum state of a particle, such as its spin. Qubits can store many values compared with the single value stored by a classical bit.

Light—electromagnetic radiation that propagates by massless elementary particles called photons—replaces electrons as the messenger in optical computers. Because photons travel faster than electrons and do not generate heat, optical computers could have performance and energy efficiency superior to classical computers.

Future technologies may use the best of both worlds.

"Light is the preferred way to communicate with qubits, but you cannot connect contacts to them directly," said senior author Sergei Kalinin of ORNL. "The problem with visible light is its wavelengths range from about 380 nanometers for violet to around 700 nanometers for red. That's too big because we want to make devices only a few nanometers in size. This work aims to create a framework to move technology beyond Moore's law and classical electronics. If you try to put 'light' and 'small' together, that's exactly where plasmonics comes into play."

And if there's a great future in plasmonics, the ORNL-led achievement may help overcome a signal size mismatch that threatens the integration of components made of different materials. Those hybrid components will need to "talk" to each other in next-generation optoelectronic devices. Plasmonics may bridge the gap.

Plasmonic phenomena were first observed in metals, which are conductive because of their free electrons. The ORNL team used cubes made of a transparent semiconductor that behaves like a metal—indium oxide doped with tin and fluorine.

The fact that the cube is a semiconductor is the key to its energy tunability. The energy of a light wave is related to its frequency. The higher the frequency, the shorter the wavelength. Wavelengths of visible light appear to the human eye as colors. Because a semiconductor can be doped—that is, a small impurity can be added—its wavelength can be shifted on the spectrum.

The study's cubes were each 10 nanometers wide, which is much smaller than the wavelength of visible light. Synthesized at the University of Texas at Austin by Shin-Hum Cho and Delia Milliron, the cubes were placed in a detergent to prevent clumping and pipetted onto a substrate, where they self-assembled into a two-dimensional array. A shell of detergent surrounded each cube, spacing them apart evenly. After the detergent was removed, the arrays were sent to ORNL.

"That the cubes do not directly touch is important for the collective behavior," said Roccapiore, who organized the cubes into diverse structures. "Each cube individually has its own plasmon behavior. When we bring them together in geometries like a nanowire, they talk to one another and produce new effects that are not typically seen in similar geometries that aren't made up of individual elements."

The study builds on prior work to sculpt three-dimensional structures as small as a nanometer with an electron beam. "The current paper proves that the plasmonic effect, as well as the structure, can be sculpted," Roccapiore said. "At the end of the day, we're interested in the electron wave—where is it and what is its energy? We're controlling those two things."

Kalinin added, "We want to transition from using what exists in nature by chance to fabricating materials with the right responses. We can take a system of cubes, shine light on it and channel energy into small volumes localized exactly where we want them to be."

The project was a natural for Roccapiore, who conducted a lot of electron-beam lithography in graduate school and even built a machine in his garage to make and mill 3D-printed structures. At ORNL, experimenting with the beam of an electron microscope, he adjusted its current to intentionally shift from imaging to modification mode. He found he could remove bits of cubes or entire cubes from an array to make patterned objects at will. He also discovered that, just like addition of chemical elements enables tuning of cube energies, so too does selective removal of chemical elements. Such atomic precision is possible with scanning transmission electron microscopy, or STEM.

The key to characterizing plasmonic behavior within single cubes and among collective cube assemblies was a technique called electron energy loss spectroscopy. It uses a STEM instrument with an electron beam filtered to energies within a narrow range. The beam loses energy as its electrons pass through the sample, interact with electrons in the material and transfer a little energy to the system by exciting plasmons.

"Electron energy loss spectroscopy provides deep insights into exotic physics and quantum phenomena related to plasmonic behavior," said co-author Andrew Lupini of ORNL, who helped map the energies of electrons in the cubes and arrays of cubes. Lupini is one of the developers of aberration-corrected STEM, which made pioneering advances possible. "Electron energy loss spectroscopy lets us analyze evolving plasmonic responses in real time as the cubes are sculpted. We can figure out relationships between arrangements of cubes and their plasmonic properties."

The scientists plan to create a library of relationships between materials, structures and plasmonic properties. That new knowledge will provide the foundational understanding needed to eventually mass-produce structures that can direct the flow of light in plasmonic nanocircuits. According to Roccapiore, "the idea is to understand the relationships using machine learning and then automate the process."

More information: Kevin M. Roccapiore et al, Sculpting the Plasmonic Responses of Nanoparticles by Directed Electron Beam Irradiation, *Small* (2021). DOI: [10.1002/sml.202105099](https://doi.org/10.1002/sml.202105099)

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<https://phys.org/news/2022-01-precision-machining-tiny-light-guiding-cubes.html>

