

# समाचार पत्रों से चयित अंश Newspapers Clippings

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ET Q&A

**G SATEESH REDDY**  
DRDO CHIEF

We will offer technologies to private sector for early realisation of products and to support R&D works

# In 5 Years, We Aim to be Self-reliant in Missiles, Radars and Armaments

The private industry is vital for self-reliance, says DRDO chief G Sateesh Reddy while inviting companies as development and production partners. In an interview to **Manu Pubby**, the missile scientist says the next generation AMCA (advanced multi-role combat aircraft) can fly within five years of approval and shares his formula for roping in industry for import substitution. Excerpts:

## How does DRDO see the push for the private sector?

DRDO is a technology development organisation and all our technologies have been realised into products by various PSUs and industry. DRDO has set a target to achieve self-reliance in missiles, radars, sonars, torpedoes, armaments and EW (early warning) systems. We intend to have no import for these systems in five years. We will offer our technologies to industries for early realisation of products and to support R&D facilities. Our focus will also be to support start-ups through the Technology Development Fund (TDF). Time and cost management of projects involving industry is another priority area. We have come up with a policy for identification of a Development Cum Production Partner (DcPP) in which the industry will be involved in all stages of system development.

## How is the progress of the Light Combat Aircraft and AMCA projects?

An advanced version, the LCA MK II, is the next aero platform. LCA MK II configuration is frozen and qualitative requirements are finalised. It is our



**PVT SECTOR**  
We are identifying companies in the private sector that can take on the role of lead system integrator for major systems

## THE BIG PROJECT

Presently, DRDO's flagship programme is to develop an advanced medium combat aircraft

endeavor to develop the fifth-generation advanced multi-role combat aircraft (AMCA) as per the project schedule to meet the Air Force's requirements. We should be in a position to roll out the first AMCA within five years of project approval. We are not comparing AMCA with other aircraft, but are trying to meet the specifications given to us by IAF.

## Is development of an indigenous fighter jet engine a priority?

Yes, it's a priority for strategic autonomy. The development of an indigenous jet engine through the

Kaveri programme has boosted the know-how and industrial ecosystem in the country. Presently, we are working on the flagship programme to develop an Advanced Medium Combat Aircraft. It requires an advanced 110kN thrust class engine. We will involve academia, industry and defence PSUs to develop this high-thrust engine. We are open to international collaboration.

## What's your plan on outsourcing further to private industry?

The private sector has been playing a great role in the production of DRDO

products. When Dr (former President APJ Abdul) Kalam started work, there were barely 30 partner companies, but now we have more than 1,800. A number of industries started as fabricators for us and have now become established aerospace manufacturers with our technology, handholding and quality practices. Actually, the aerospace industry developed by us is our strength. The Akash air defence system, for example, is built 87% by the industry. We have thrown open our test facilities to the industry. We will help with technology for development of products. We are identifying companies in the private sector that can take on the role of lead system integrator for major systems.

## Can you share updates on systems like the BMD, Astra and others?

We have developed a number of variants of anti-tank missiles. User trials of NAG ATGM have been successfully conducted and development trials of Helina, the airborne anti-tank missile, are under progress. We are currently working on MPATGM (man-portable anti-tank guided missile) programme. Five demonstration trials have already been completed and we would be able to offer it for user trials soon. India is one of the few countries that has an active and successful BMD (Ballistic Missile Defence) programme. We have demonstrated our BMD capability through both simulation as well as live target engagements in both endo and exo regions. All essential technologies have been proven through tests.



## First night trial of Agni-II conducted successfully

**BALASORE (ODISHA), NOV 16**

India on Saturday conducted successfully the first night trial of 'Agni-II', its versatile surface-to-surface medium range nuclear capable missile from Dr Abdul Kalam Island off Odisha coast, defence sources said.

The missile has a strike range of 2,000 km, the sources said soon after it blasted off from a mobile launcher at the Launch Complex-4 of the Integrated Test Range (ITR), the sources said. 'Agni-II', an intermediate range ballistic missile (IRBM) has already been inducted into the armed forces.

A defence official said this was the first time that the sophisticated missile was testfired at night. The entire trajectory of the trial was tracked by a battery of sophisticated radars, teleme-

The 20-metre-long ballistic missile has a launch weight of 17 tonne and can carry a payload of 1,000 kg over 2,000 km

try observation stations, electro-optic instruments and two naval ships located near the impact point in the down range area of Bay of Bengal, DRDO sources said.

The two stage missile equipped with advanced high accuracy navigation system, was guided by a novel state-of-the-art command and control system and propelled by solid rocket propellant system, the Defence official said.

The missile has already been inducted and is part of countries arsenal for strate-

gic deterrence. It was launched as a regular exercise undertaken by the armed forces, he said.

Saturday's test was carried out by the specially formed Strategic Forces Command of the Army with logistic support from the Defence Research and Development Organisation (DRDO). 'Agni-II' was developed by Advanced Systems Laboratory along with other DRDO laboratories and integrated by the Bharat Dynamics Limited, Hyderabad, the sources said.

'Agni-II' is part of the Agni series of missiles which includes Agni-I with a 700 km range, Agni-III with a 3,000 km range, Agni-IV and Agni-V both having long range capabilities. The first testfiring of the proto type of Agni-II missile was carried out on April 11, 1999. — PTI

## परमाणु हमले में सक्षम अग्नि-2 रात में भी भेदेगी लक्ष्य

लावा पाडे • बालेश्वर (ओडिशा)

सीमाओं की सुरक्षा मजबूत करने व सेना को ताकतवर बनाने की दिशा में देश ने एक और कदम बढ़ाया है। शनिवार को पहली बार बैलेस्टिक मिसाइल अग्नि-2 का रात्रिकालीन परीक्षण सफलतापूर्वक किया गया। परमाणु हमला करने में सक्षम इस मिसाइल की जद में पाकिस्तान व चीन के साथ दक्षिण एशिया के कई देश आ गए हैं।

भारत अपनी मिसाइलों का परीक्षण तटवर्ती ओडिशा के बंगाल की खाड़ी स्थित चांदीपुर के परीक्षण स्थल एक, दो और तीन नंबर या फिर अब्दुल कलाम द्वीप से चार नंबर लांचिंग कॉम्प्लेक्स से



ओडिशा में अग्नि-2 का परीक्षण किया गया • जागरण

**क्या होती है बैलेस्टिक मिसाइल**

तकनीकी दृष्टिकोण से बैलेस्टिक मिसाइल उस प्रक्षेपास्त्र को कहते हैं, जिसका प्रक्षेपण पथ सब ऑर्बिटल बैलेस्टिक पथ होता है। इसका उपयोग किसी हथियार (नाभिकीय अस्त्र) को किसी पूर्व निर्धारित लक्ष्य पर दागने के लिए किया जाता है। यह मिसाइल प्रक्षेपण के प्रारंभिक स्तर पर ही गाइड की जाती है। इसके बाद का पथ आर्बिटल मैकेनिक के सिद्धांतों पर एव बैलेस्टिक सिद्धांतों से निर्धारित होता है। अभी तक इसे रासायनिक रॉकेट इंजन द्वारा प्राणोदित किया जाता है।

करता आ रहा है। शनिवार को अब्दुल कलाम द्वीप के चार नंबर लांचिंग पैड से रात 7:32 बजे अग्नि-2 मिसाइल का परीक्षण किया गया, जो सफल रहा। रक्षा अनुसंधान एवं विकास संगठन

(डीआरडीओ) की मदद से सेना के सामरिक बल कमान ने परीक्षण किया। इस मौके पर डीआरडीओ और अंतरिम परीक्षण परिषद (आइटीआर) से जुड़े वरिष्ठ वैज्ञानिक एवं अधिकारियों का

दल मौजूद था। भविष्य में भारत और कई मिसाइलों का परीक्षण कर सकता है। यह है **खासियत**: देश में ही बनाई गई 21 मीटर लंबी, एक मीटर चौड़ी, 17 टन वजन वाली यह मिसाइल 1000 किलोग्राम तक विस्फोटक ले जाने की क्षमता रखती है। इसकी मारक क्षमता 2000 किलोमीटर तक है। यह टोस ईंधन से संचालित बैलेस्टिक मिसाइल है। **अग्नि सीरीज का हिस्सा**: सतह से सतह पर मार करने वाली मध्यम दूरी की इस मिसाइल का रात में भी परीक्षण होने से अग्नि सीरीज का मिसाइलों में एक नई ताकत मिली है। इस सीरीज में अग्नि-1 व अग्नि-3 शामिल हैं। अग्नि-2 पहले ही सेना में शामिल हो चुका है।

## MAIL TODAY

Mon, 18 Nov 2019

### Carrier trials for LCA-Naval

THE NAVAL VARIANT of the DRDO's Light Combat Aircraft has rushed through an incredible set of milestones this year.

In August, the aircraft being developed by the DRDO's Aeronautical Development Agency (ADA) began an intensive series of trial at the Shore-Based Test Facility (SBTF), a mock aircraft carrier at the INS Hansa, Dabolim.

The jet has completed 26 landings and take-offs from the ski-jump including its first-ever night-time arrested landing on November 13. Now comes news that prototypes of the fighter are set to fly from the Navy's aircraft carrier, INS Vikramaditya,



**Prototypes of the Naval Light Combat Aircraft.**

sometime before December 31. The Navy has constituted a review board to see exactly when the carrier can be made available for the trials.

Project officials say the trials, if approved by the Navy board, could last for upto a month, from mid-December 2019 to mid-January 2020.



**MOST WORLD** armies standardise their assault rifles and carbines on a single cartridge for ease of logistic and production issues. The Indian Army will soon become the only one in the world to use three rifle calibers.

Deliveries of 72,000 7.62x51 mm SiG 716 rifles from the US will begin this month. A facility to make over 6 lakh AK-203 (7.62x39 mm) rifles will start production at the ordnance factory Amethi soon. The Army will also import over 93,000 Caracal (5.56x45 mm) carbines from UAE. To add to this bewildering ammo array comes news that the DRDO has begun developing a new assault rifle prototype chambered for the 6.8x43 mm round. Two rifles will be readied for trials at the Infantry School, Mhow, in a month's time.

This is possibly linked to the recent announcement of Indo-US collaborations on lightweight small arms as part of the Defence Technology and Trade Initiative (DTTI) initiative. The US Army is switching over to the 6.8 mm rifle round for its new standard issue rifle after over half-a-century of using the 5.56x45 mm

## A FOURTH RIFLE ROUND



The MCIWS multi-caliber rifle developed by ARDE Pune for the Indian Army.

NATO round. US firm Textron, which is developing the New Generation Squad Weapons for the US Army with its radical caseless ammunition, recently made presentations to the DRDO and the Indian Army on their new offerings. The 6.8x 43 mm round bridges the gap between the 5.56 and the 7.62 (AK-47) round. It delivers more energy than the 5.56 round but weighs less than the 7.62 bullet, so soldiers can carry more ammunition. The new DRDO rifle will use the long-stroke gas

piston mechanism of the INSAS rifle and a new barrel and ammunition developed by the Armament Research Development Establishment (ARDE), Pune.

It developed the 6.8 mm rifle round and barrel nearly a decade ago as part of the Indian Army's requirement for a multi-caliber rifle. The MCIWS rifle project chambered to fire three types of rifle ammunition — the 5.56x45, the 7.62x39 mm AK-47 round and the new 6.8x43 mm rifle round. Only the 5.56x45 variant was developed when the project was shelved in 2016.

**The 6.8 mm rifle is a candidate for Indo-US collaboration.**

**D**EFENCE minister Rajnath Singh will soon have to take a tough call on a defence contract that had beguiled his ministry for several years now — a decade-long project to indigenously build four Landing Platform Docks (LPDs).

The MoD is yet to proceed with price negotiations because one of the two contenders is on the verge of bankruptcy. RFPs for the project were first issued in December 2013 to three defence shipyards.

ABG shipyards was disqualified due to poor financial health leaving only two private sector defence shipyards — L&T which has tied up with Navantia Group of Spain and Reliance Naval and Engineering Ltd (RNEL) which tied up with France's Naval Group. At an estimated ₹16,000 crore, it is the largest private sector defence contract for which RFPs have been issued. LPDs are like mini-aircraft carriers which carry helicopters and assault craft and can land main battle tanks, infantry combat vehicles and a battalion of over 800 fully equipped soldiers on



The Spanish Navy's Amphibious Assault Ship 'Juan Carlos'. One of the designs being offered by the L&T-Navantia Shipyard consortium to build in India.

Defence minister Rajnath Singh

## ₹16,000 cr warship deal on the verge of reboot

an enemy coastline. The Indian Navy was drawn to them by their role change capability in humanitarian assistance and disaster response missions. The Navy's sole LPD, the 47-year-old INS Jalashwa (bought second-hand from the US in 2007) is nearing the end of its life. The MoD is stuck in a jam with the project as a key official familiar with developments said.

The bureaucracy has shied

away from the project fearing court cases from one of the shipyards. Since November 2018, the MoD has sought three-month extensions on its 2013 RFP. Anticipating project cancellation, the Navy has begun drawing up fresh RFPs. But first, the RFP will have to be withdrawn by the Defence Acquisition Council, headed by Rajnath Singh.

*The writer is Executive Editor, India Today.*



## IAF may acquire armed drones

**AJAY BANERJEE**  
TRIBUNE NEWS SERVICE

NEW DELHI, NOVEMBER 16

The Indian Air Force (IAF) is going in for a change in its unmanned arsenal. Two types of armed drones with capability to carry missiles are being finalised. The IAF is looking at the armed version of a drone made by US company General Atomics and the armed version of the Israeli "heron", which the IAF currently uses for surveillance.

Sources confirm that talks are on to acquire 10 "Heron TP" version of the heron family. The Ministry of Defence had okayed the proposal in May last year. "We are working to finalise the deal that is estimated to be \$400 million," sources said. This could be the first drone in the Indian arsenal to have a missile-strike ability hence can be used to hit at targets without sending a man on the mission on board a fighter jet. The armed forces had proposed buying armed drones in 2012.



### UNMANNED ARSENAL

- Talks are on to acquire 10 'Heron TP' that has missile-strike ability. It can be used to hit at targets without sending a man on the mission on board a fighter jet
- It also plans to acquire 'Predator-B' (designated MQ-9 Reaper by the US Air Force)

At present, the IAF has a fleet of "Harop" drones from Israel, which are self-destructing "kamikaze" style drones which can crash into high-value enemy military targets. The Air Force already has an inventory of around 110 of these and in February another 54 were okayed.

The difference is that the missile carrying drone like

"heron" can return to the base after firing its missiles, while the "harop" self-destructs onto a target after a command from ground.

The IAF is also keen on getting an armed version of the drones the Indian Navy is acquiring for long range reconnaissance.

There is clarity within the IAF that the armed drone will be an important aspect in any future conflict.

The Indian Navy had first announced requirement for 22 Guardian drones in 2016 at an estimated cost of \$2 billion. The Guardian is a variant of the Predator family of drones, which is optimised for maritime surveillance.

The IAF will get the "Predator-B" (designated MQ-9 Reaper by the US Air Force). It can carry up to 1.7 tonnes of external stores, including sensors, anti-tank missiles and guided bombs, weighing up to 230 kg each. The heavier payload gives it greater flexibility in striking a diverse number of targets on the ground.

# India for higher indigenous content in Ka-226 choppers

Rahul Singh

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**NEW DELHI:** India wants higher indigenous content in the Kamov-226T light utility choppers which are to be jointly built in the country with Russia, two officials familiar with the move said on condition of anonymity. The Kamovs will serve as a replacement for the military's ageing Cheetah and Chetak helicopters.

India has told the Russians to review the level of indigenisation to take the local content of the Ka-226Ts to be manufactured at Bengaluru-based Hindustan Aeronautics Limited to beyond the existing figure that stands at around 60%, the first official said.

The Indo-Russian Helicopters Limited (IRHL), a joint venture between HAL and Russian Helicopters and Rosoboronexport, was incorporated in May 2017 for the production and supply of around 200 Kamov helicopters. Of these 60 are expected to come

## KAMOV-226T LIGHT UTILITY CHOPPERS ARE ALL SET TO BE JOINTLY BUILT IN THE COUNTRY WITH RUSSIA

from Russia in flyaway condition and the remaining are to be built at HAL. "We are waiting to hear from them as to how a higher level of indigenisation can be facilitated. That has caused some delay. The final number of helicopters could also be reworked based on the response from the Russian side," said the second official. HAL owns 50.5% of the venture, Russian Helicopters, 42.5% and Rosoboronexport, 7%.

Experts said India should seek higher indigenisation in weapons and systems being jointly manufactured with original equipment manufacturers in the country in line with the Make in India initiative.

"The Ka-226 has been awaited

for long as the Chetak-Cheetah fleet has been overworked and is showing signs of age, witnessed by the large number of incidents that are happening. A high indigenous content should be insisted upon as part of our drive to get manufacturing in India," said Air Vice Marshal Manmohan Bahadur (retd), additional director general, Centre for Air Power Studies.

HAL is also working on a light utility helicopter (LUH) of its own. The locally designed and developed LUH has completed rigorous trials in high altitude and hot weather and is inching towards getting operational clearance.

The LUH is expected to meet a combined army and air force requirement for 187 choppers. It is being developed as a replacement for the Cheetah and Chetak helicopters, which are a lifeline for troops in high-altitude areas. The Chetaks and Cheetahs will be replaced by a mix of LUH and the Kamov-226T choppers.



# Indian Ocean in India-UK defence focus

**Rezaul H Laskar**

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**NEW DELHI:** The Indian Ocean is emerging as a focus area for defence cooperation between India and the UK, with the two sides planning sophisticated naval exercises and London deploying an officer to a key Indian surveillance facility.

The aircraft carrier HMS Queen Elizabeth, the largest warship built for the Royal Navy and capable of carrying 70 aircraft, will operate in the Indian Ocean region on her maiden voyage after entering service in 2020. The move reflects the importance attached to security and freedom of navigation in the region.

"HMS Defender, a Royal Navy destroyer, visited Goa this week and the 2021 version of the bilateral naval exercise Konkan 21 could be the most complex and sophisticated so far," British high commissioner Dominic Asquith said on Friday.

The UK is also placing a liaison officer at the Indian Navy's Information Fusion Centre in Gurugram, a facility for friendly nations to exchange non-sensitive information on merchant shipping in the region. The centre integrates India's coastal radar systems to generate a real-time picture of waters around the 7,500-km coastline, and France too has deployed an officer at the facility. Besides, the UK is help-

ing with the planning of the next edition of Milan, a multilateral biennial naval exercise held in the Andaman and Nicobar Islands, Asquith said.

Sixteen countries, including Australia, Malaysia, Singapore and Tanzania, had participated in the last edition of Milan in 2018. The Konkan exercise, hosted in rotation by the two countries, was institutionalised in 2004 and has helped enhance inter-operability between the two navies.

Cooperation in the Indian Ocean had figured in interactions during a visit to India last month by Admiral Tim Fraser, the UK's vice chief of defence staff. This month, the civil service head of the UK's defence ministry and a

homeland security trade mission led by the director of the UK's Defence and Security Organisation will visit India to discuss security cooperation and defence procurements.

In December, the India-UK defence equipment sub-group will meet to discuss cooperation. It is understood the UK has also highlighted to the Indian side its willingness to cooperate on systems to be used in the next generation of combat aircraft.

Cooperation in the Indian Ocean also fits the interests of the two sides in protecting merchant shipping and fishery resources and ensuring freedom of navigation, people familiar with developments said.

## MAIL TODAY

Mon, 18 Nov 2019

# India, US to sign deals worth \$7 bn

By **Manjeet Singh Negi**  
 in New Delhi

INDIA and US are close to inking deals worth more than \$7 billion, including that of acquiring Sea Guardian armed drones and P-8I anti-submarine warfare and surveillance aircraft.

"Indian Navy, Air Force and Army are coordinating their requirements and specifications for the acquisition of these Sea Guardian armed drones from the US under the FMS route," Defence sources said.

They said since some of the capability requirements of the three services would be different from each other, their collation would take a few months and a Letter of Request is expected to be issued to the American government for the government-to-government deal in the February-



Indian Navy, Air Force and Army will be acquiring P-8I anti-submarine warfare and surveillance aircraft from US.

March time frame.

The Trump administration had approved the sale of armed drones to India in June this year and offered it to be equipped with required missiles and other systems. Earlier, among the three services, only the Navy seemed to

be interested in the procurement but now all the three services are showing interest in the project, the sources said.

The project is expected to cost over \$4.5 billion to the defence services. Once the Letter of Request (similar to a Request for

Proposal) is issued to the American government for the deal under its Foreign Military Sales route, the American side would send the Letter of Acceptance in which it will specify the terms and conditions for the project.

The other major deal in the pipeline is the project for the acquisition of the 10 P-8I anti-submarine warfare and long-

### Trump approved sale in June this year

range surveillance aircraft which would be adding to the existing fleet of 12 such planes in the Indian Navy.

Sources said the project was supposed to be fielded before the Defence Acquisition Council in its last meeting but was withheld due to some reasons.

## Russia to deliver S-400 missile systems to India on time: Putin

PRESS TRUST OF INDIA

Brasilia, 15 November

Russia plans to deliver the S-400 surface-to-air missile systems to India as per schedule, President Vladimir Putin has said, amidst warnings from the US against the multi-billion deal.

India announced its intention to acquire S-400 'Triumf' surface-to-air missile systems in 2015. The contract worth \$5.43 billion was signed during the visit of President Putin to India last year.

"When it comes to S-400 deliveries, everything goes according to plan," President Putin told reporters on Thursday on the sidelines of the just-concluded BRICS Summit here



**Russian President Vladimir Putin during the press conference at the BRICS emerging economies** PHOTO: AP/PTI

in the Brazilian capital.

"Indian colleague (Indian Prime Minister Narendra Modi) did not ask to speed up anything, as everything goes well," Putin was quoted as saying by the official Tass news agency.



## भारत को एस-400 की आपूर्ति तय कार्यक्रम के मुताबिक : पुतिन

ब्रासीलिया, 15 नवंबर (भाषा)।

रूसी राष्ट्रपति व्लादिमीर पुतिन ने कहा कि रूस की भारत को सतह से हवा में मार करने वाली 'एस-400 प्रेक्षपात्र' प्रणाली की आपूर्ति तय कार्यक्रम के मुताबिक करने की योजना है। उनका यह बयान ऐसे वक्त आया है जब इस सौदे को लेकर अमेरिका की तरफ से चेतावनी दी जा रही है।

भारत ने 2015 में सतह से हवा में मार करने वाली प्रेक्षपात्र प्रणाली 'एस-400 ट्रिम्फ' को हासिल करने की इच्छा जाहिर

### अमेरिकी चेतावनी की परवाह नहीं, ब्रासीलिया में पुतिन ने दी जानकारी

की थी। राष्ट्रपति पुतिन के पिछले साल हुए भारत दौर के दौरान 5.43 अरब अमेरिकी डालर के इस करार पर दस्तखत किए गए थे। ब्राजीलियाई राजधानी में संपन्न हुए ब्रिक्स शिखर सम्मेलन के इतर संवाददाताओं से बात करते हुए गुरुवार को उन्होंने कहा, 'जब एस-400 की आपूर्ति की बात आती है तो सब कुछ तय योजना के

मुताबिक होगा।' आधिकारिक समाचार एजेंसी ताज्ञ ने पुतिन को उद्धृत करते हुए कहा, 'भारतीय समकक्ष (प्रधानमंत्री नरेंद्र मोदी) ने किसी भी चीज में तेजो लाने को नहीं कहा क्योंकि सबकुछ ठीक चल रहा है।' रूस के साथ 'एस-400' सौदे का अमेरिका विरोध कर रहा है और ट्रंप प्रशासन ने धमकी दी थी कि वह रूस से

हथियार और सैन्य सामग्री हासिल करने वाले राष्ट्रों पर पाबंदी लगाएगा।

अमेरिका के वरिष्ठ अधिकारियों ने भारत को चेतावनी दी कि अमेरिका के विरोधियों से निपटने के कानून (सीएटीएसए) के तहत एस-400 सौदे को लेकर उस पर प्रतिबंध लग सकता है। यह कानून रूस, ईरान और उत्तर कोरिया से रक्षा खरीद पर रोक लगाता है। भारत ने हालांकि अमेरिका को बता दिया था कि रूसी 'एस-400 वायु रक्षा प्रेक्षपात्र प्रणाली' की खरीद को रद्द करने का उसका कोई इरादा नहीं है।

## THE HINDU

Sun, 17 Nov 2019

## Wildcraft to make rucksacks for Army

It will supply 1.8 lakh units of 90-litre bags that can carry supplies for 30 days

MINI TEJASWI  
BENGALURU

For the first time in the history of the Indian Army, a third-party firm will make rucksacks for its jawans.

The private outdoor gear firm Wildcraft India has bagged an order from the Ministry of Defence to design, develop and deliver 1.8 lakh units of 90-litre rucksacks equipped to carry supplies for 30 days.

"Our R&D has been accredited by the Ministry of Defence. All trials and final sampling of the product are over and the Ministry has given the go-ahead for production of rucksacks," said Gaurav Dubish, co-founder of Wildcraft.

Production of the gadget that comes with high technical specifications will be

gin soon and delivery will be completed in 12 months.

Siddharth Sood, also co-founder of Wildcraft India, said this work order came through a commercial tender and the company would design the rucksack as per the specifications given by the Army and the product will be proprietary to the Indian Army. Wildcraft is expecting more such orders from the Ministry on behalf of the Army, which has more than 1.4 million jawans.

This is a 'heavily-engineered' accessory meant for jawans, who are exposed to extreme envi-

ronments and climatic conditions. These high torso bags will be made out of high grade nylon and will have high resistance to abrasion. They come with a lightweight alloy back



• This is the first time that a third-party company will make rucksacks for jawans

• These bags are made using high grade nylon and will be resistant to abrasion

• They come with a lightweight alloy back frame so that they comfortably stay on the back of soldiers even after they are mounted with armament

frame so that they comfortably stay on the back of soldiers even after they are mounted with armament.

The Indian Ordnance Factories, an industrial organisation under the Department of Defence, currently makes such bags for the Army.

### ₹1,000-cr in revenue

Wildcraft, which specialises in outdoor gear, clothing and footwear, said that in a couple of years, it would be a ₹1,000-crore revenue firm, up from ₹630 crore currently.

It had raised \$11 million from Sequoia Capital for a 20% stake in 2013. Myntra and its parent firm Flipkart have also taken minority stake in Wildcraft for an undisclosed sum.

# India-US '2+2' talks in Dec

Rajnath, Esper discussed the broad contours of dialogue at Bangkok meet

STATESMAN NEWS SERVICE  
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**I**ndia and the US will hold the '2+2' dialogue, involving their foreign and defence ministers, in Washington in December.

The broad contours of the dialogue were discussed at a meeting between defence minister Rajnath Singh and US Secretary of Defence Mark T Esper on the sidelines of the ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus) in Bangkok on Sunday.

Expressing happiness on the growing relationship between India and US, Singh said the bilateral coopera-



tion between the two sides has increased across a wide range of sectors, including defence and security, economy, energy, counter-terrorism and people-to-people ties.

The minister added that there was a growing convergence between India and US in the Indo-Pacific region and India's vision for Indo-Pacific was for a free and open,

peaceful, prosperous and inclusive region supported by a rules-based order and respect for sovereignty and territorial integrity.

The two ministers noted that their countries were working in the area of maritime security, including elements such as joint exercises, Humanitarian Assistance and Disaster Relief (HADR) operations and maritime domain awareness.

The two ministers also discussed a number of other issues concerning regional security and bilateral defence cooperation.

Singh told his US counterpart that he looked forward

to have substantial discussions during the '2+2' dialogue.

Later, in a tweet, the minister described his meeting with the US Defence Secretary as excellent. "We talked about ways to expand defence cooperation between India and the US," he said.

The inaugural '2+2' Indo-US dialogue was held in New Delhi in September last year. The special format reflects the growing proximity between the two countries in defence, security and counter-terrorism.

The two countries are said to be close to finalising an agreement to deepen defence industry collaboration.



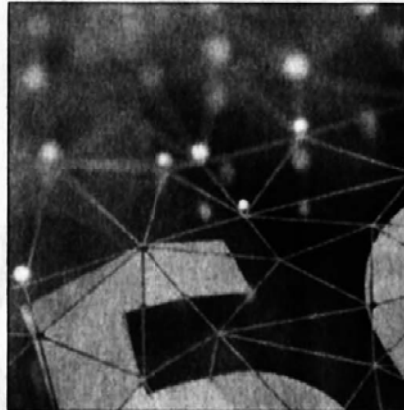
# India Joins China, Russia, Japan to Oppose Use of 26 Ghz Band for 5G

Press Trust of India

**New Delhi:** India is learnt to have aligned with China, Russia and Japan to oppose use of 26 Ghz spectrum band for 5G operations, but industry bodies have expressed their reservations about the decision. China and Russia have opposed 5G operation in 26 Ghz band to defend their military operations, while India has aligned with them as the Indian Space Research Organisation (ISRO) wants this spectrum band for satellite services.

At the ongoing World Radiocommunication Conference (WRC) 2019, China, Russia and Japan were in support of using alternative bands for 5G services with around 3000 Mhz of frequencies, while India is yet to decide on alternative bands having large chunk of airwaves to support the next generation telecom services, according to industry bodies.

According to industry body Global Mobile Suppliers Association (GSA), China is working to deploy 5G in 3.3-7.125 Ghz range. Signal transmitted in low frequency bands provide higher coverage compared to the transmission in a higher frequency bands. This also



leads to proportionate reduction in cost of telecom network.

Industry body COAI has written to telecom secretary Anshu Prakash saying that the proposal submitted by the Department of Telecom (DoT) to use low power of 7 decibel-watt for 5G base station will require 16 times more base stations to adequately provide coverage, thus making the rates of service unaffordable for the people.

At WRC 2019, the matter will be under consideration from November 28 to December 23 at Sharm El Sheikh, where a decision is expected on the use of 26 gigahertz (Ghz) spectrum band for 5G services.

The DoT has accepted the de-

mand of ISRO to use 26 Ghz band, in which 5G ecosystem has been developed, primarily for satellite service. Consequently, the department has submitted this proposal for consideration to the International Telecommunication Union (ITU), which sets global benchmark for wireless services, for discussion at WRC 2019.

The GSA in its communication to the DoT on November 10 said that 188 member countries out of 192 are having liberal view over use of 26 Ghz band for 5G services and India, Russia, Japan and China are having a common and highly restrictive position.

The GSA said that ISRO has not taken any global position and in the absence of global resolution, satellite services will be hampered by interference from other countries.

In another communication to the DoT, the GSA said that with hard position adopted by India at WRC 2019, it is clear that high frequency band in the range of 26 Ghz band and 40 Ghz are not at all a priority for India.

## US Marines to showcase skills for first time in India

AJAI SHUKLA

New Delhi, 16 November

For decades, elite troops of the United States Marine Corps (USMC) have protected Washington's Embassy in New Delhi. On Sunday, for the first time ever, the USMC will showcase its professional skills in India, as the joint US-India tri-service exercise "Tiger Triumph" hits the sea at Kakinada, off Visakhapatnam.

Over the next five days, Indian and American soldiers, sailors, marines and airmen will operate together in a simulated "humanitarian aid and disaster relief" (HADR) situation — jointly providing succour to an Indian Ocean country that has been hit by a natural disaster.

But the HADR scenario is only a convenient backdrop. In fact, the two militaries are honing their capability to work together in an amphibious landing — such as a joint invasion of an enemy coast; or an operation to free one's own territory that has been captured by an enemy country, a terrorist group, or mercenary force.

Ironically, it was a joint US-Indian HADR effort — in the wake of the Indian Ocean tsunami of 2004 — that birthed the current era of US-India military cooperation. Operating with the Indian Navy to deliver relief to Indonesia and Sri Lanka, the US Navy reported to Washington that here was a regional partner worth having. The next year saw the US-India defence cooperation agreement.

HADR and a real combat beach landing require similar

military resources. The Indian side will deploy its biggest amphibious assault ship, INS Jalashwa; a tank landing ship, INS Airavat; and INS Sandhayak, a survey ship that will function as a hospital ship.

The US Task Force will include the naval landing ship USS Germantown, which is equipped with landing craft and amphibious assault vehicles needed to land large numbers of marines onto a beach. Specially trained troops from the Third Marine Expeditionary Force — a specialist unit for combat beach landings — will be accompanied by a medical team.

The exercise will involve sailing from Visakhapatnam to Kakinada, and then staging a shore landing and setting up a joint command centre and a joint relief and medical camp.

For the Indian Army, this will be a chance to learn from amphibious landing masters, whose tactics date back to the Pacific Campaign in World War II, where they captured one island after another from the Japanese — Midway, Wake Island, Iwo Jima and Guadalcanal.

For the exercise, India is fielding a battalion group, from 19 MADRAS, and BMP-II armoured vehicles from 7 GUARDS. The Indian Air Force (IAF) will deploy one C-130J Super Hercules aircraft, Mi-17 transport helicopters and a

Rapid Action Medical Team.

While Exercise Tiger Triumph is an early step in learning, and is therefore being carried out with fewer resources, a full-scale, tri-service beach landing operation is the capability that India is seeking to build.

In such a combat operation, INS Jalashwa, or another Indian landing platform dock, would carry a battalion of soldiers (850 men), with armoured assault vehicles, to within 30-50 kilometres of the beach, from where smaller, flat-bottomed landing craft mechanised would carry the invasion force to the beach.

To protect the invasion force during the beach landing, the Jalashwa's six helicopters would heli-drop marine commandos

behind the enemy troops that are defending the beach. In addition, naval frigates or destroyers would provide fire support, with their 100 millimetre main guns plastering the enemy's coastal defences. Simultaneously, IAF fighters, operating from shore bases, might also support the beach landing.

Since 2000, the navy's Maritime Warfare Centre in Visakhapatnam has been refining these tactics. An Indo-US planning exercise, called "Habunag", has coordinated expeditionary HADR activities with the US Navy. Now the USMC will have its word.

**Over the next five days, Indian and American soldiers, sailors, marines and airmen will operate together in a simulated "humanitarian aid and disaster relief" situation**