



# New battle groups to face Pak, says Army Chief

By Ajay Banerjee

In a major tweak to the existing deployment and readiness levels of the Indian Army, integrated battle groups (IBGs), fully equipped with elements of warfare, are planned to be pre-positioned facing the western (Pakistan) and northern (China) borders. Army Chief General Bipin Rawat, in an interview to The Tribune, said: “We are preparing ground to keep the forces ready for any future eventuality. Our organisational structure is old. It needs change.” Asked about the proposed change or restructuring of the Army, Gen Rawat said: “We are going to test-bed the IBGs very soon. I am suggesting that we be integrated in peacetime to save the time wasted in ‘integrating’ while going for combat. Various battalions (of infantry, armoured, artillery, signals and engineers) are already assigned to an area and we now want them to be ready in peacetime.” “Test-bed” is a term in military parlance for trying out a new concept in field under real conditions. Asked if the IBG will be a bigger form of a traditional brigade (three-four battalions or 3,500 men), Gen Rawat said: “We are looking at two types of IBGs — smaller ones for the mountains (the Himalayas facing China) and the bigger ones for the plains (facing Pakistan).”

On the issue of numbers, the Army Chief said: “Ideally we will know after the test-bed, but it could be eight to 10 IBGs in the west and same in the north. An IBG could have four to six battalions of infantry and armoured, two to three artillery regiments, an engineers unit, integrated signals unit and also dedicated integral logistics.” Going by the numbers given out by the Army Chief, this translates to 8,000-10,000 troops in each IBG. Gen Rawat said the Army was looking to have Brigadiers commanding smaller IBGs and Major Generals the bigger ones. Both will be under the Corps Commander of the area. There are 14 Corps of the Army, including the four Strike Corps.

Explaining the IBG and its working, Gen Rawat said: “A combat group ‘integration’ is done as you are launched into battle. The IBG will be doing ‘integration’ in peacetime.” Refuting suggestions that this could be a tweak to the “cold start doctrine” (first made public in 2004), the Army Chief said: “The adversary had worked out a plan. We have to beat them in time and space.” The “cold start” implies the Army’s readiness for offensive operations from a standing start. Commenting on the future, Gen Rawat said: “The nature of warfare is changing. We have to change and adapt. “To say that along the border there will only be attrition warfare where you attack features and capture is wrong. A lot of non-contact warfare will come into play. It is not just related to military. You can disrupt banking railway, power grids, airport command control systems, etc,” he added.

## ‘Will test-bed IBGs soon’

"We are going to test-bed the IBGs very soon. I am suggesting that we be integrated in peacetime to save the time wasted in ‘integrating’ while going for combat." General Bipin Rawat, Army Chief

## Plan to counter dual threat

- The Army plans two types of integrated battle groups (IBGs) — smaller for mountains (China border) and bigger for plains (Pak border). Each border may have around 8-10 IBGs
- Each IBG may have 8,000-10,000 troops and comprise 4-6 infantry and armoured battalions, 2-3 artillery regiments, an engineers unit, integrated signals unit, dedicated integral logistics
- Brigadiers may command smaller IBGs and Major Generals the bigger ones. Both will be under the Corps Commander of the area

Sat, 03 Nov 2018

## After Army, women eye deployment on warships

Induction of women as sailors and deployment on warships in the deep seas may soon become a reality. The issue was discussed during the conference of senior officers of the Indian Navy held in the Capital, sources said. Currently, women are employed only as officers in the Navy and have a limited role but with changes being discussed this could change. Women officers are not deployed on warships till now but are part of combat performing duties as tactical operators in maritime patrol aircraft.

Defence Minister Nirmala Sitharaman, in her address during the three-day Naval Commanders Conference, also pushed for greater women deployment in the force. "The Navy chief Admiral Sunil Lanba has confirmed to the defence minister that women in sailor ranks were discussed in the conference and inclusion of women as seagoing cadres are also being looked at in the near future," said an official.

At present, women are deployed in different branches of the Navy but are not sent to sea. They, however, work as observers in Navy's IL-38 and P-8i reconnaissance aircraft. The strength of women in the Navy is 639 currently, including 148 medical officers and two dental officers. The Navy has so far deployed women officers in eight branches, including education, law and naval constructions, where women have been given permanent commission as non-sea going cadre. For the deployment of women in sea, future warships are being modified with 'suitable facilities' to accommodate women crew onboard.

### Now they Serve Only as Officers

- At present, only the Army has decided to induct women as soldiers or jawans, and 800 of them will be recruited for the Corps of Military Police.
- Currently, women are serving as officers in the Army, Indian Air Force (IAF) and Navy.
- The recruitment of women jawans in the Army will begin in a phased manner with the selection and training of 52 candidates every year.



Sat, 03 Nov 2018

## Navy considered entry of women sailors

*By Ajay Banerjee*

The Indian Navy is considering entry women as sailors—equal to jawans of the Indian Army—and separately to permit existing women officers on board warships. While addressing the Naval Commanders on Friday, Defence Minister Nirmala Sitharaman asked the top-brass of the Indian Navy to give more impetus to enrolment of women in the Navy. Navy's Chief Admiral Sunil Lanba confirmed that the enrolment of women in sailor-ranks is one of the agenda of the three-day Naval Commanders' conference that concluded Friday, official sources said. So far, the armed forces do have not women in non-officer ranks.

In March this year, the Army announced that it will start recruiting women in other ranks in the Corps of Military Police. The Navy has 639 women officers (including 148 doctors). The only combat-related role they have is as 'observers' on the maritime reconnaissance aircraft the Boeing P8-I, the IL-38 and the Dornier. Women officers are also in logistics, law, education and naval constructors, etc.

The Defence Minister was assured at the conference that Navy was considering inclusion of women in the sea-going cadre. That is being looked at in the near future, official sources said. The Defence Minister complimented the Navy for maintaining a high operational tempo and ensuring maritime security of the country. She reiterated the need for the nation to be strong at sea and the Navy to be ready and vigilant to counter any challenge in the maritime domain. She appreciated Navy's efforts in the area of indigenisation, self-reliance and support to the 'Make in India' initiative of the government. She expressed her satisfaction at Navy's initiatives to achieve 'Digital Navy' vision in line with the Government's initiative of 'Digital India Programme'.

She lauded the navy for the outstanding and efficient rescue operations undertaken in the wake of the recent floods in Kerala wherein close to 17,000 personnel were rescued. The conference undertook a review of the Navy's modernisation plan, including induction of aircraft carrier, ships, nuclear powered submarines, conventional submarines, re-vitalisation of the aviation and sub-surface assets and induction of certain state-of-the-art weapons, sensors and equipment. Further, development of technical and support infrastructure for maintenance of these assets were also discussed in consonance with the 'Indian Naval Indigenisation Plan 2015-30', which has formulated the requirements of the Indian Navy towards indigenous development of equipment and systems over the next 15 years.



Mon, 05 Nov 2018

## **'Every year, we will deliver one submarine to the Navy'**

*By Piyush Pandey*

*We now have a ₹53,000-crore order book, says MDL CMD*

Commodore Rakesh Anand, CMD, Mazagon Dock and Shipbuilders Limited (MDL) explains the reasons behind the ₹3,000-crore cost overrun and a delay of six years in delivering six submarines to the Indian Navy. Edited excerpts:

### **There are three defence public sector undertaking (DPSU) shipyards. Where do you stand?**

Besides, MDL, we have Garden Reach Shipbuilders and Engineers (GRSE) and Hindustan Shipyard, that was taken under the wings of the Defence Ministry almost 10 years back. In Cochin, Shipping Ministry have their own shipyard, which traditionally builds merchant ships. MDL has since 1960 built practically the entire range of warships other than landing platform dock (LPD) and landing ship tank (LST) which were smaller versions and given to GRSE.

### **What's your USP among the three DPSUs?**

GRSE is focused by virtue of its infrastructure available on its LST, LPDs and corvettes. We have built an entire range of platforms which one can think of from naval vessels to offshore platforms at Bombay High for ONGC. Our USP today is building state-of-the-art destroyers and conventional submarines. Destroyers are most highly concentrated level of equipment for both propulsion systems and for the weapons systems.

### **How many warships have you delivered to the Indian Navy so far?**

We have delivered 795 platforms since 1960 and a large number of them have been exported. We have built passenger ships to cargo ships. The last ships which were exported were the multi-support vessels to Bahamas and Mexico in 2014. We have also exported conventional submarines. There are 26 front line warships that have been delivered to the Indian Navy.

### **When was the last submarine delivered to the Indian Navy?**

We are the only ship building yard in the country to have built conventional submarines. The last SSK submarine was delivered in 1994 and currently, we are building six Scorpene class submarines. The first of the Scorpene class submarines has been delivered to the Indian Navy last year.

This month, we will be delivering the second submarine Khanderi and the third submarine, next year by September-October. So, every year, one submarine is going to be delivered to the Indian Navy with the last one being delivered in 2022.

**Any of the submarines made by Mazagon Dock have ever been used in wars?**

No, our last war was in 1971 and unfortunately we missed that operation. At the time of Kargil, I was also on a ship and we were all deployed at appropriate places in the readiness that in case something happens we would be ready. The issue is we have not seen any war after the 1971. We were not building indigenous platforms at that time. The first major platform that we started building was Leander Class which we delivered in 1972 after the 1971 war to Indian Navy.

**During 1971 Ghazi Attack, which submarine was used if it was not an indigenous built ship?**

During the Ghazi Attack in 1971 we had some submarines. In 1968, we had this Foxtrot class Russian submarines. Our Kalvari class submarines was decommissioned 1968, but the name still carries on today. So during that time we didn't had indigenous warships.

How many submarines used by Indian navy are indigenous and what would be the ratio by 2022?

We have three indigenous submarines out of the total 13 and the rest of them are imported. There are eight Russian EKM submarines and four SSK submarines and one Kalvari. By 2022, we will have 18 submarines, of which eight will be indigenous.

The order for six submarines was awarded in 2005 and yet, you delivered just one so far. Why the huge delay?

This contract came in 2005 and we were supposed to deliver the first submarine in 2012. But, there were certain issues in this contract related to the materials. The cost went up and additional sanctions had to be taken.

The contract said that the material procurement was the responsibility of MDL. The material was to be supplied by our collaborator and there were a number of equipments which were to be procured by MDL from a number of small suppliers from whole of Europe and these small time suppliers were not willing to participate, leading to huge delays. They were all nominated by all our collaborator. We decided to bundle up all and ask our collaborator to supply all this.

Even after the orders were placed, there were delays in supply. So, this material issue was the prime problem causing the delay.

**The six submarines were awarded to you on nomination basis or bids were called?**

It was a nomination. Because as I said we are the only shipyard, which has built submarines in the past and there is a consensus that we want to become self-reliant in submarine construction by 2030 so it is part of that on which MDL got this order.

**What's the cost escalation due to delay?**

The cost, which was originally envisaged was ₹16,000 crore, went up to ₹19,000 crore and we had to take additional sanctions and the delays happened because of the procurement of material which has caused the total impact on the delivery of these submarines. So, each submarine is costing between ₹3,000-₹3,500 crore.

The government is planning to award another six submarines. Will you participate in the bids?

Yes, we are waiting for that now. The follow on the P75 India is awaited now so we are all hoping for the RFP that should be coming in. Let's see, we are eagerly waiting for this order.

The last order you got was on nomination basis. How competitive you will be this time given there will be **competition from private payers as well?**

We don't want to take names but we have been in this industry for more than 60 years so a new company cannot start from scratch and be better than us. There are private shipbuilders as well no doubt in that, our work speaks for our self. We need to see that this shipyards can do that overnight and can reach where we reach in less than the years we took.

## **How the competitive bids are going to help you compared to bagging projects on a nomination basis?**

All the government policies today are totally focused towards Make in India. The existing project was the first project in 2005, such mandates probably did not exist that are existing now. You know about the offset clause, we didn't had the offset clause at that time and consequently there was no benefit. But next time I am very sure that the government will ensure that we get much more out of the next series of submarines and not like how it was

### **What is your order book?**

Our order book at the moment will be roughly ₹53,000 crore to be executed by 2025.



*Sun, 04 Nov 2018*

## **IEDs, Myanmar-based insurgents pose threat along Manipur border**

*By Dinakar Peri*

While the intensity of Manipur's decades-old insurgency has been contained, with security forces ensuring there are no insurgent camps left in the State, militants continue to take advantage of the hilly terrain and porous border with Myanmar to carry out attacks with IEDs and sophisticated weapons, army officials said. "A number of insurgent groups were active in Manipur," Major General V.K. Mishra, General Officer Commanding of the Leimakhong based 57 Mountain Division, told a group of visiting journalists. "We have been able to control them, most of their activities have been contained. However, the effort by insurgent groups to disrupt the peace continues, which is evident by the recoveries of weapons, IEDs and apprehension of cadres. This pressure needs to be maintained," he added.

With the forces conducting intelligence based operations that have limited the militants' operational ability, Improvised Explosive Devices (IEDs) and ambushes have become the insurgents' mainstay and pose the biggest challenges for the Army and the Assam Rifles. "Yes, IEDs are a threat. It is so easy to assemble, easy to hide and it can be placed anywhere. And it has lethality," Maj. Gen. Mishra acknowledged.

There have been 17 IED blasts so far this year, compared with 44 explosions in 2017. At the same time, 30 IEDs and 112 weapons were recovered this year, compared with 29 IEDs and 98 weapons in 2017. Maj. Gen. Mishra said the terrain posed challenges, as it is mostly hilly and thickly forested and added, "Wherever there is insurgency, there are a number of over ground workers and there is also an element of agitation which is engineered." Addressing the media team before its departure to Imphal, Army Chief Gen. Bipin Rawat had said, "Nagas and Manipuri insurgents were given advanced weapons by outside powers. They have AK-47s, rocket launchers and missiles." Gen. Rawat observed that as part of the government's Act East policy Manipur assumed greater significance. It becomes a key centre as the "Asian Highway 1 will link India to the Association of South East Asian Nations (ASEAN) through Moreh," he added.

This adds to the responsibility of the armed forces to ensure security along the highway to enable free movement. With the threat of IEDs and ambushes, the Army is already forced to conduct operations employing Road Opening Parties (ROP) to comb every inch of the 1,630 km of roads to ensure military movement. It takes up to three hours to sanitise a 10-km road stretch depending on the topography and needs more than 100 personnel. In addition, Manipur and Myanmar have a 16-km Free Movement Regime along the border which allows local residents to move freely.



## Deep in Myanmar

The insurgents have moved their camps, across the border in Myanmar, deeper into the neighbouring country's territory after retaliatory strikes by the Army in the wake of a 2015 ambush of an Army convoy in Chandel district using IEDs, which killed 18 soldiers. "Insurgent groups have moved deeper into Myanmar" following the strikes, an Army officer, who did not wish to be identified, observed. Myanmar has its limitations in acting and joint cooperation between the two armies has been limited so far, he added.

Another officer, speaking on condition of anonymity, said: "there are an estimated 200-250 active insurgents in the State outside the camps monitored as part of the Suspension of Operations (SoO)." The 2008 SoO was signed between the Centre, State and two Kuki insurgent groupings, the Kuki National Organisations (KNO) and United Peoples' Front (UPF). Under this, more than 1,800 insurgents are housed in monitored camps and their weapons are locked.

## MAIL TODAY

Mon, 05 Nov 2018

### US military puts to test self-flying helicopters

**SOON, FLYING** a Black Hawk helicopter will be as easy as operating a tablet.

That's because the US Army is equipping its Sikorsky S-76B helicopters with a new set of automation software that could one day limit the need for human pilots.

The Army conducted tests of the new system last month, successfully lifting off and landing an S-76B commercial helicopter in Virginia.

The Aircrew Labor In-Cockpit Automation System (ALIAS) is developed by DARPA, the Defense Department's unit that specialises in developing emerging technologies to be used by the military.

Almost anyone can operate the system with a little training, according to DARPA.

For the demonstration in October, the pilot had only had 45 minutes of training.

The project is part of the Army's broader Future Vertical Lift program, which is revolutionising how helicopters are used by the military, *Army Times* explained.

With ALIAS, pilots operate a helicopter using just a tablet and other control interceptors.

So far, the program has logged more than 300 hours of autonomous flight.

A pilot uses the tablet for things like changing the mission's destination, while the interceptors control more precise things like moving to the left or the right or up and down.

The controls have proven to be just as precise as if the pilot were physically in the cockpit.

In the test, a novice pilot was able to hover over a field, move out of the way of another vehicle and safely land the helicopter. The test lasted more than an hour and included 'realistic missions', such as low-level terrain flight, confined area take-offs and landings, landing zone selection, trajectory planning, and wire-obstacle avoidance, DARPA said.

# North Korea warns of returning to nuclear policy

AFP

SEOUL, 4 NOVEMBER

North Korea has warned the United States it will "seriously" consider returning to a state policy aimed at building nuclear weapons if Washington does not end tough economic sanctions against the impoverished regime.

For years, the North had pursued a "byungjin" policy of simultaneously developing its nuclear capabilities alongside the economy.

In April, citing a "fresh climate of detente and peace" on the peninsula, North Korean leader Kim Jong Un declared the nuclear quest complete and said his country would focus on "socialist economic construction".

But a statement issued by the North's foreign ministry said Pyongyang could revert to its former policy if the US did not change its stance over sanctions.

"The word 'byungjin' may appear again and the change of the line could be seriously reconsidered," said the statement carried by the official KCNA news agency late Friday.

At a historic summit in Singapore in June, US President Donald Trump and Kim signed a vaguely-worded



statement on denuclearisation. But little progress has been made since then, with Washington pushing to maintain sanctions against the North until its "final, fully verified denuclearisation" and Pyongyang condemning US demands as "gangster-like".

"The improvement of relations and sanctions are incompatible," said the statement, released under the name of the director of the foreign ministry's Institute for American Studies.

"What remains to be done is the US corresponding reply," it added.

The statement is the latest sign of Pyongyang's increasing frustration with Washington.

Last month, the North's state media carried a near 1,700 words long commentary accusing the US of playing a "double game", implicitly criticising Trump for his

comments aimed at barring Seoul from lifting sanctions against Pyongyang.

Despite a flurry of diplomacy on and around the peninsula differences are emerging between Seoul and Washington, which stations 28,500 troops in the South to protect it from its nuclear-armed neighbour.

The South's doveish president Moon Jae-in has long favoured engagement with the North, which is subject to multiple UN Security Council sanctions over its nuclear and ballistic missile programmes.

He has dangled large investment and joint cross-border projects as incentives for steps towards denuclearisation, while the US has been adamant pressure should be maintained on Pyongyang until it fully dismantles its weapons programmes.



# Mysterious asteroid could be seeking life

**A** MYSTERIOUS asteroid called 'Oumuamua, the first interstellar object ever seen in the solar system, could be a gigantic alien solar sail sent to look for signs of life, a new study has claimed.

Astronomers from the Harvard Smithsonian Center for Astrophysics (CfA) analysed the strange cigar shape of the object, and an unexpected boost in speed and shift in trajectory as it passed through the inner solar system last year.

They concluded that the strange asteroid "might be a lightsail of artificial origin."

The study — 'Could Solar Radiation Pressure Explain 'Oumuamua's Peculiar Acceleration?', which recently appeared online — was conducted by Shmuel Bialy, a postdoctoral researcher at the CfA's Institute for Theory and Computation (ITC) and Professor Abraham Loeb, the director of the ITC, the Frank B. Baird Jr. Professor of Science at Harvard University, and the head chair of the Breakthrough Starshot Advisory Committee.

The researchers say the strange acceleration could be the result of solar radiation pushing a giant solar sail.

They found a sail that was only a fraction of a millimeter thick (0.3-0.9 mm) would be sufficient for a sheet of solid material to survive the journey through the entire galaxy. Lightsails with similar dimensions have been designed and constructed by humans, including the Japanese-designed IKAROS project and the Starshot Initiative with which he is involved.

"Considering an artificial origin, one possibility is that 'Oumu-

mua is a lightsail, floating in interstellar space as debris from an advanced technological equipment," they wrote.

"Alternatively, a more exotic scenario is that 'Oumuamua may be a fully operational probe sent intentionally to Earth vicinity by an alien civilization," they added.

Another option, which explains the lack of communication, is that a lack of any kind of signal could mean the giant object is actually an 'alien shipwreck'.

Professor Loeb previously wrote in *Scientific American*, "'Oumuamua could be the first known case of an artificial relic which

floated into our Solar System from interstellar space.

"This opportunity establishes a potential foundation for a new frontier of space archaeology, namely the study of relics from past civilizations in space."

"Finding evidence for space junk of artificial origin would provide an affirmative answer to the age-old question 'Are we alone?'. This would have a dramatic impact on our culture and add a new cosmic perspective to the significance of human activity."

Loeb told *Universe Today*, "'Oumuamua could be an active piece of alien technology that came to explore our Solar System, the same way we hope to explore Alpha Centauri using Starshot and similar technologies"

The cigar-shaped object, named 'Oumuamua, was spotted by the Haleakala observatory in Hawaii on October 19 last year.

## **‘NASA’s historic Dawn mission to asteroid belt comes to end’**

NASA’s pioneering Dawn spacecraft — which orbited the two largest objects in the asteroid belt — has run out of fuel, ending a historic 11-year mission that unravelled many mysteries of our solar system, the US space agency said. The USD 467 million Dawn mission, launched in 2007 to study the protoplanet Vesta and the dwarf planet Ceres, missed scheduled communications sessions with NASA’s Deep Space Network on October 31 and November 1, NASA said in a statement.

After the flight team eliminated other possible causes for the missed communications, mission managers concluded that the spacecraft finally ran out of hydrazine, the fuel that enables the spacecraft to control its pointing. “Today, we celebrate the end of our Dawn mission — its incredible technical achievements, the vital science it gave us, and the entire team who enabled the spacecraft to make these discoveries,” said Thomas Zurbuchen, associate administrator of NASA’s Science Mission Directorate here. “The astounding images and data that Dawn collected from Vesta and Ceres are critical to understanding the history and evolution of our solar system,” Mr. Zurbuchen said.

It was an expected end to the mission, although the spacecraft lasted two years longer than originally planned. On Tuesday, NASA announced that its exoplanet-hunting Kepler Space Telescope had run out of hydrazine fuel, and the craft would be commanded to cease operations. Dawn can no longer keep its antennae trained on Earth to communicate with mission control or turn its solar panels to the Sun to recharge, according to the US space agency.

## **GSAT-11 returns to Guiana for December launch**

*By Madhumathi D.S.*

GSAT-11, the heaviest Indian communication satellite built to date, for faster Internet connectivity, is back once again at the Guiana Space Centre for an early December launch. It returns to the South American port for the second time in six months after it was taken back to Bengaluru in April for inspections.

K. Sivan, Chairman of the Indian Space Research Organisation (ISRO) and Secretary, Department of Space, confirmed on Wednesday that the 5,700 kg spacecraft was shipped out of Bengaluru last week and has reached the European launch port. “GSAT-11 is already in Kourou. It was flown out last week. We are targeting December 4 for its launch,” Dr. Sivan said.

Arianespace, ISRO’s long-time European launch services contractor, has paired GSAT-11 with South Korea’s weather satellite GEO-Kompsat 2A. The two are slated to go to space on the same Ariane 5 launch vehicle, numbered VA246. Arianespace’s CEO Stephane Israel tweeted a pictorial welcome on October 29 local time as the satellite arrived at the port halfway across the globe by a special Russian Antonov cargo flight. GSAT-11 is built to provide the Indian region superior communication and 12 GBPS connectivity with its multiple spot beams in Ka and Ku bands.

## **Demystifying Science: What are van der Waals (VdW) materials?**

Until six years ago, such materials did not exist but today, researchers believe that they hold the key to a 'post-silicon' electronics. VdW materials are made of piles of ultra-thin layers that are held together by weak van der Waals bonds, which arise when atoms are in close proximity. The success of graphene — a well known vdW material — stimulated scientists to look for other 2D crystals, where layers can be changed, added or removed in order to introduce new physical properties such as magnetism. Controlling magnetism, as is typical of such materials, could replace the current hard drive assemblies in computers and even become the key to quantum computing.