

## **The missile man**

*DRDO fellow D.S. Reddy has been conferred with a LifeTime Achievement Award.*

India made history when the country's first Ballistic Missile, Prithvi, was successfully tested in 1988. It meant that India had finally taken the first step towards becoming self-sufficient in producing wide-range ballistic missiles. On March 25, a scientist who played a vital role in development and flight evaluation for the project and a Defence Research and Development Organisation Fellow, D. Sreenivasulu Reddy of Hyderabad, was conferred with a Lifetime Achievement Award for four decades of his contribution to the organisation by the Defence Minister, Arun Jaitley. He was also instrumental in the successful flight test of the ship-launched Dhanush missile.

"I'm honoured that the organisation decided to confer this rare award to me," says 68-year-old D.S Reddy, recalling that the Integrated Guided Missile Development Programme (the umbrella programme which included the Prithvi project), would have been nothing without Dr Abdul Kalam.

"He initiated the programme in 1983 and I joined DRDO in 1973. Before Dr Kalam joined us, we had no great expectations. The vision and leadership was missing and we didn't know what we were capable of. He turned it all around. I interacted with him for the first time when I was being interviewed for a promotion and Dr Kalam said I did well. I also felt gratified when he asked my teammates, 'Can you launch this missile without Mr Reddy?', indicating that my work was valued."

In the 43 years of his service in the field, he has also been conferred with the Agni Award for Excellence and the Self-Reliance and the DRDO Performance Excellence Award. He says that he got into this field by chance. "I had completed my MSc and in the '70s, finding a job was very tough. I saw an advertisement in a newspaper that said DRDO was hiring. I didn't know much about it, but I applied. That was my first and last job, and I didn't think of quitting because the work environment was excellent. Superiors would give us freedom and help us out if we got stuck," he says, stressing that the Ballistic Missile Programme is important to defend ourselves. "Developing and under-developed countries are not allowed to import missiles but our adversaries have got them through clandestine means. It is all the more necessary now to be ready to defend ourselves," he says and adds that he is grateful for his family's support. "I would hardly be able to spend time with the kids, but they understood the importance of my job," he says.



## **BDL, L&T sign MoU for export of torpedoes**

Bharat Dynamics Limited (BDL) entered into an MoU with L&T for export of torpedoes (LWT- XP), designed and developed at NSTL, Visakhapatnam and manufactured by BDL.

V Udaya Bhaskar, CMD, BDL and Jayanth Patil, Head of Defence, L&T exchanged the MoU documents in the presence of Arun Jaitley, Union Minister of Defence and Dr Subhash Bhamre, Raksha Rajya Mantri at a ceremony in New Delhi recently.

Dr S Christopher, Chairman, DRDO and Secretary, Department of Defence R&D, Dr SC Sati, Director General, Naval Systems & Materials, DRDO, K Divakar, Director (Technical), BDL, Arun T Ramchandani, Head of Guns, Missiles and Armoured Vehicles, L&T were present on the occasion.

## 3 बड़े रक्षा मसलों पर फैसला जल्द

■ नई दिल्ली : राजनीतिक हलकों में वित्त मंत्री अरुण जेटली को भले ही थोड़े समय के लिए रक्षा मंत्री के तौर पर देखा जा रहा हो, लेकिन रक्षा मंत्रालय में लंबे समय से पेंडिंग कई बड़े मसलों पर वह जल्द फैसला ले सकते हैं। रक्षा मंत्रालय के सामने 'रणनीतिक भागीदारी' की गाइडलाइंस फाइनल करने का मसला बेहद अहम है। इस भागीदारी के तहत प्राइवेट कंपनियों के साथ मिलकर देश में रक्षा उत्पादनों की मात्रा और गुणवत्ता बढ़ाने की योजना है। रक्षा उत्पादन में अब तक पब्लिक सेक्टर यूनिटों का एकाधिकार सा रहा है, लेकिन अब सिफारिश की जा रही है कि वे प्राइवेट कंपनियों के साथ स्पर्धा की ओर बढ़ें।

कॉरपोरेट इंडिया को इसके लिए रक्षा खरीद परिषद की अगली मीटिंग का इंतजार है, जब गाइडलाइंस को फाइनल किया जाएगा। इस पर फैसले का मामला अंतिम दौर में था, तभी पांच राज्यों के विधानसभा चुनाव आ गए, फिर पुराने रक्षा मंत्री मनोहर पर्रिकर मुख्यमंत्री बनकर गोवा चले गए।

सूत्रों का कहना है कि रक्षा मंत्री का पदभार संभालने के बाद अरुण जेटली ने तीन मुद्दों पर अधिकारियों से प्रेजेंटेशन मांगा। ये हैं – रणनीतिक भागीदारी की गाइडलाइंस, चीफ ऑफ डिफेंस स्टाफ के पद का गठन और शेकतकर कमिटी की सिफारिशों के मुताबिक सेना को 'राइटसाइज' करना। प्रेजेंटेशन के बाद जेटली ने अधिकारियों को इन मुद्दों पर काम आगे बढ़ाने के निर्देश दिए।

जेटली इस हफ्ते के आखिर में पहली बार रक्षा खरीद परिषद की बैठक की अध्यक्षता करेंगे। अभी इस बैठक की तारीख तय नहीं हुई है, लेकिन सूत्रों का कहना है कि बैठक रविवार को होने के आसार हैं। रक्षा खरीद परिषद की बैठक में गाइडलाइंस को मंजूरी के बाद इसे कैबिनेट की मंजूरी के लिए भेजा जा सकता है।

सेनाओं में तालमेल बिठाने और सरकार को सिंगल पॉइंट सलाह के लिए चीफ ऑफ डिफेंस स्टाफ पद का गठन जरूरी समझा जा रहा है, लेकिन सेनाओं के अंदर इस बात को लेकर

अलग-अलग विचार हैं। इस अहम मसले पर रक्षा मंत्री तीनों सेनाओं के प्रमुखों से विचार करेंगे, फिर फैसला होने पर मामले को कैबिनेट के पास भेजा जाएगा।

रक्षा मंत्री की नजर शेकतकर कमिटी की रिपोर्ट पर भी पड़ी है, जिसने सशस्त्र बलों को 'राइट साइज' करने का उपाय बताया है। कहा जा रहा है कि उसकी सिफारिशों पर अमल से अगले पांच बरस में करीब 25 हजार करोड़ रुपये बचेंगे और इस रकम का इस्तेमाल जंगी क्षमता बढ़ाने में किया जा सकता है। इस मसले पर रक्षा मंत्री खुद अपने स्तर पर फैसला ले सकते हैं।

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## Gadget hangs up; Indian soldiers go nearblind at night

*Reduced battery life of handheld thermal imagers hamper night operation of soldiers posted in J&K*

New Delhi: Poor battery life of hand-held thermal imagers (HHTI) is restricting the army's ability to conduct night operations in Jammu and Kashmir.

Reduced battery life of HHTI was hampering operations during poor visibility conditions and affecting the morale of soldiers, a new army report has revealed.

“Also, as most of the infiltrations along the Line of Control take place during night/poor visibility conditions, limited life of HHTI hampers the operations,” said a report prepared by the Army Design Bureau (ADB), headed by deputy army chief Lieutenant General Subrata Saha. The report has highlighted 28 problems that the army wants to fix swiftly with the help of the private sector.

The report said the battery was supposed to last three to four hours but had a life of barely 20 minutes due to extensive use by soldiers.

“The problem is further compounded due to extreme climatic conditions, it said. The men rely heavily on HHTI for carrying out operations in poor visibility conditions and night.

The report said soldiers were forced to carry additional batteries during operations, adding to their load and reducing efficiency. The army is looking at finding indigenous solutions to at least 78 problem areas – 28 listed in the new report and another 50 spelt out in an earlier volume.

Improving the situational awareness of tank commanders during night has also been identified at a priority in the report. “While manoeuvring on the battlefield, very often, tanks have to move with their cupolas closed down. Under such conditions and especially at night, the tank commander finds it very difficult to observe all around and can lose orientation rapidly,” the report said. It highlighted the need to provide commanders with 360-degree panoramic viewing devices for improved situational awareness.

## नवभारत टाइम्स

Wed, 29 Mar, 2017

मौसम के खतरों से बचकर उड़ेंगे नेवी के विमान	
नौसेना के विमानों को मौसमी खतरों से बचाने के लिए ऑटोमैटेड निगरानी सिस्टम की शुरुआत कर दी गई है। आधुनिक सेंसरों से लैस यह सिस्टम मौसम की निगरानी प्रक्रिया का ऑटोमेशन करेगा, जिससे विमानन सुरक्षा बढ़ेगी। नौसेना प्रमुख एडमिरल सुनील	लांबा ने मंगलवार को अरककोनम (तमिलनाडु) के आईएनएस राजली में पहली 'इंटीग्रेटेड ऑटोमैटिक एविएशन मीटियॉरोलॉजिकल सिस्टम (IAAMS) की शुरुआत की है। नौसेना ने अपने नौ एयर स्टेशनों के मौसम संबंधी बुनियादी ढांचे के आधुनिकीकरण के लिए इस महत्वाकांक्षी परियोजना की शुरुआत की है।

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## Army chief in Nepal for honorary rank

Kathmandu: Indian Army chief Gen Bipin Rawat arrived in Kathmandu on Tuesday for a four-day official visit during which he will be conferred the honorary rank of general of the Nepal Army.

The title will be conferred by President Bidhya Devi Bhandari at a special function on Wednesday. Nepal and India have a long tradition of conferring such titles on the chiefs of their armies.

Rawat will also hold talks with Bhandari, PM Pushpa Kamal Dahal “Prachanda” and defence minister Bal Krishna Khad. He will visit Pokhara and Muktinath, where the Nepal Army has a warfare training centre.

## भारत-रूस संबंधों में पुरानी गर्माहट लाने की कोशिश, जून में रूस का दौरा करेंगे मोदी

सहयोग के नये आयाम :

1. रूस निर्मित एस-400 ट्रफ एयर डिफेंस मिसाइल सिस्टम ले रहा है भारत
2. मेड इन इंडिया कार्यक्रम के तहत बनाए जाएंगे 200 कामोव हेलीकॉप्टर, दूसरे देशों को भी होगा निर्यात
3. रूस जहाज निर्माण के लिए भारत में स्थापित करेगा विशेष संस्थान
4. द्विपक्षीय कारोबार बढ़ाने के लिए बने फंड के इस्तेमाल की रणनीति बनेगी
5. गैस पाइपलाइन पर भी बात काफी आगे बढ़ी

नई दिल्ली। क्या रूस दशकों पुराने अपने मित्र भारत की शर्त पर चीन व पाकिस्तान के साथ रिश्तों को आगे बढ़ाना जारी रखेगा? कूटनीति में इस तरह के सवाल का जवाब मिलने में थोड़ा वक्त लगता है। लेकिन पीएम नरेंद्र मोदी की आगामी रूस यात्रा के बाद इसका जवाब तलाशा जा सकता है। मोदी एक जून से तीन जून तक रूस की यात्रा पर होंगे जहां वह दोनों देशों के राजनयिक संबंधों के 70 वर्ष पूरा होने के अवसर पर आयोजित कार्यक्रमों में हिस्सा लेंगे।

पिछले वर्ष जब से रूस ने पाकिस्तान के साथ सैन्य अभ्यास करने पर भारत की आपत्तियों को नजरअंदाज किया था तभी से मोदी सरकार रूस के साथ कूटनीतिक रिश्तों में नई गर्मजोशी लाने की कोशिश कर रही है। केंद्र सरकार ने रूस के साथ हथियार खरीदने के लंबित प्रस्तावों को न सिर्फ तेजी से मंजूरी दिए बल्कि द्विपक्षीय आर्थिक कारोबार को बढ़ाने का नया प्रस्ताव भी तुरंत ही तैयार कर लिया गया। रूस की तरफ से भी संतोषप्रद प्रतिक्रिया मिली है। केंद्र सरकार नजाकत को समझ रही है तभी हर मंत्रालय को अपने स्तर पर रूस के साथ लंबित मामलों पर तेजी से फैसला करने को कहा गया है।

**हकीकत बनेगी गैस पाइपलाइन** - पेट्रोलियम व प्राकृतिक गैस मंत्री धर्मेंद्र प्रधान ने बताया कि भारत जिन देशों के साथ गैस पाइपलाइन पर बात कर रही है उसमें सिर्फ रूस के साथ ही सकारात्मक दिशा में बात आगे बढ़ी है। हाल ही में दोनों देशों ने अपनी अपनी तैयारियों का एक दूसरे से आदान प्रदान किया है। इस परियोजना पर पिछले वर्ष गोवा में ब्रिक्स बैठक के दौरान बातचीत हुई थी। पेट्रोलियम मंत्रालय के अधिकारी बताते हैं कि पिछले छह महीने के दौरान जो प्रगति हुई है उससे साफ है कि यह परियोजना संभव है। जल्द होने वाली मोदी व पुतिन की शीर्ष बैठक में इस मामले को और आगे ले जाने का रास्ता निकलने की उम्मीद है।

**रक्षा के साथ कारोबार भी अहम -**

भारत अब द्विपक्षीय रिश्तों को सिर्फ रक्षा तक ही सीमित नहीं रखना चाहता है बल्कि उसे व्यापक आयाम देना चाहता है। भारत द्विपक्षीय कारोबार को तेजी से बढ़ाने का प्रस्ताव कर रहा है जिस पर मोदी की रूस में बातचीत होगी। हाल ही में भारत व रूस ने इसके लिए एक अरब डॉलर का विशेष फंड बनाने का फैसला किया है। भारतीय रणनीतिकार रूस के साथ मौजूदा 10 अरब डॉलर के द्विपक्षीय कारोबार को 10 वर्षों में 30 अरब डॉलर करने का खाका तैयार कर रहे हैं।

## Feldstein Expects Surge in US; India May Benefit

*Martin Feldstein George F Baker Professor of Economics at Harvard University*

**The economist advocates strengthening military capacities and mutual cooperation between US and India to counter possible China adventurism**

Martin Feldstein foresees a decade of robust growth for the US, some turbulence in asset prices notwithstanding, accompanied by some tax cuts and a rise in the defence budget. He expects all these developments to favour India, which has to invest in education, better land ownership and progress steadily on economic reforms to take advantage of new opportunities thrown up by changes in the US.

The eminent economist, Harvard don and policy wonk who has participated in several US administrations also has an interest in foreign policy. He advocates the US and friendly democracies such as India strengthening military capacities and mutual cooperation to safeguard against adventurism that a steadily rising China may be tempted into, if it perceives no serious check to unbridled use of power.

Feldstein outlined these views in a standalone lecture and as part of a panel discussion at the Global Business Summit. He sees US tax policy changing in four ways under President Donald Trump. One is to lower rates steeply, from the 35% at present to some 20%. This would boost investment and growth. The second leg of tax reform under Trump would be to bring in taxation on a territorial basis. This would mean that US subsidiaries in foreign jurisdictions would not have to pay additional tax in the US when they repatriate their profits back home. This, he expects, will boost American companies' incentive to invest abroad and India could be a huge beneficiary, especially as Chinese wages rise and companies there seek to relocate their production elsewhere.

The third change in tax laws being debated is cash-flow tax. It would allow companies to write off investment expenditure immediately, boosting incentive to spend on new capital formation. The downside is that interest payments would cease to be tax deductible. The fourth change is border adjustments, which would impose a 20% tax on imports and subsidise exports to the same extent. Feldstein said this would not materially affect trade deficit because the dollar would appreciate, as a result of the tax, as much as is required to leave deficit unchanged. The deficit is a product of savings and investment behaviour, being the gap between domestic investment and savings, and not directly affected by export-import taxes.

Since this is not particularly obvious, importers and exporters are busy lobbying Congress against and for such border adjustment.

President Trump would like to increase manufacturing jobs, and that is not easy on a scale that would make a significant difference to the employment market. Manufacturing accounts for only 10% of all jobs in the US, said Feldstein. He does not believe clamping down on H-1B visas will help create US jobs. Most H-1B visas go to highly skilled people, who help create yet more jobs in the US.



Tue, 28 Mar, 2017  
(Online)

## India not participating in UN talks on nuclear weapons ban

*By Yoshita Singh*

United Nations, Mar 28 (PTI) India is not participating in the first UN conference in more than 20 years on a global nuclear weapons ban which opened here amid objections from major nuclear powers. More than 120 nations in October last year voted on a UN General Assembly resolution to convene the conference to negotiate a legally binding treaty to prohibit nuclear weapons, leading towards their total elimination.

Britain, France, Israel, Russia and the US voted no, while China, India and Pakistan abstained from voting on that resolution.

The first substantive session of the conference began here yesterday.

In its Explanation of Vote (EoV) given for its abstention on the resolution in October, India had said that it was "not convinced" that the proposed conference could address the longstanding expectation of the international community for a comprehensive instrument on nuclear disarmament.

India also maintained that the Geneva-based Conference on Disarmament (CD) is the single multilateral disarmament negotiation forum.

It had further said that it supports the commencement of negotiations in the Conference on Disarmament on a Comprehensive Nuclear Weapons Convention, which in addition to prohibition and elimination also includes verification.

It had said that international verification was essential to the global elimination of nuclear weapons, India feels that the current process does not include the verification aspect.

In line with its position that India articulated in the EoV, India has decided not to participate in the current conference that will run through March 31.

It will, however, continue to follow the developments in the event.

The US, France and the UK led a group of over 40 nations that are strongly protesting the UN talks.

The US envoy to the UN Nikki Haley said the Assembly "suddenly" wants to have a hearing to ban nuclear weapons and while as a mother and daughter, she wants a world with no nuclear weapons, one also has to be "realistic".

She said given the current times "bad actors" cannot be allowed to keep their nuclear weapons while other nations try to maintain peace and safety.

"We would love to have a ban on nuclear weapons but in this day and time we cannot honestly say that we can protect our people by allowing the bad actors to have them (nuclear weapons) and those of us who are good trying to keep the peace and safety not to have them," Haley told reporters.

Haley, joined by UKs Ambassador to the UN Matthew Rycroft and her French counterpart François Delattre, spoke just before the General Assembly convened its first substantive session of the conference.

"We have to be realistic. Is there anyone who believes that North Korea would agree to a ban on nuclear weapons? So what you would see is that the General Assembly would go through, in good faith, trying to do something but North Korea would be the one cheering and all of us and the people we represent would be the ones at risk," she said.

She said Washington believes in the Nuclear Non-Proliferation Treaty and had reduced its weapons by 85 per cent since the treaty went into place.

She added that while the US would want to see a world without nuclear weapons, the time for it is not today and it will defend its citizens as well as its friends and allies.

"One day we will hope we no longer need nuclear weapons. But today, in this day and time, in the situations that we are in, we unfortunately don't have the ability to do that," she said. PTI



*Wed, 29 Mar, 2017*

## **N. Korea accuses US of activating Asian version of NATO**

North Korea on Tuesday accused the US of trying to form an Asian version of the North Atlantic Treaty Organisation (Nato) through a US-Japan-South Korea military alliance.

The official daily Rodong Sinmun (Labor News) said the US-Japan-South Korea triangular military alliance had "reached the phase of full-scale activation", Xinhua news agency reported.

"The US aggressor forces, the 'Self-Defense Forces' of Japan and the South Korean puppet army recently conducted a large-scale drill for intercepting missiles from the DPRK," it said.

"The US is claiming the drill and the naval joint drill with Japan are independent of Key Resolve and Foal Eagle joint military drills. But this is no more than a lame excuse," it said.

The daily claimed that the missile intercepting drill is directly related to the drill being staged under the simulated conditions of executing "Operation 4D" and deploying Terminal High Altitude Area Defence (THAAD), "the key phase of Key Resolve and Foal Eagle."

"The same can be said of the joint drill conducted by a US nuclear aircraft carrier task force and warships of the Japan Self Defence Forces," it said.

The US and South Korea have been conducting a large scale joint military exercise "Foal Eagle", which was condemned by Pyongyang as aimed at staging precision strikes against targets in North Korea.



Wed, 29 Mar, 2017

## China's military facilities on SCS islands nearly ready

China is almost ready to operationalise dozens of aircraft hangars and highend radar facilities on artificial islands in the disputed South China Sea, which experts say could help Beijing establish a controversial Air Defense Identification Zone in the area. According to new satellite imagery released by a US-based think tank show nearly completed defense infrastructure on Fiery Cross, Mischief and Subi reefs, three of China's largest artificial islands in the disputed Spratly chain. Each of the islands has new aircraft hangers, capable of holding 24 military aircraft, as well as several larger hangars that can hold bombers or surveillance planes, according to the images released by the Asia Maritime Transparency Initiative, AMTI.

The new facilities will further establish China's military dominance over the highly contested region, experts told CNN, and could help China establish a controversial Air Defense Identification Zone (ADIZ) in the area. Chinese Ministry of Foreign Affairs spokeswoman Hua Chunying said today she was not aware of the report's details but reiterated the Spratly Islands were Chinese territory. "Whether we decide to deploy or not deploy relevant military equipment, it is within our scope of sovereignty. It's our right to selfdefense and self-preservation as recognised by international law," Hua said. Fiery Cross, Mischief and Subi reefs are the largest of seven artificial islands built by China in the Spratlys.

China claims the majority of the South China Sea as its territory, despite overlapping claims by a number of other Southeast Asian countries, including the Philippines and Vietnam. Four bigger hangars have already been completed on Subi Reef, as well as another four on Fiery Cross Reef, the AMTI said, citing imagery taken this month.



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## Heart cells grown on spinach leaves

*Ensures delivering of blood into artificial tissues*

Scientists have successfully cultured beating human heart cells on spinach leaves, solving the long-standing problem of delivering blood into artificially developed tissues. Current bioengineering techniques, including 3D printing, cannot fabricate the branching network of blood vessels down to the capillary scale that are

required to deliver the oxygen, nutrients and essential molecules required for proper tissue growth. Researchers, including those from Worcester Polytechnic Institute (WPI) in the US, turned to plants. They cultured heart cells on spinach leaves that were stripped of plant cells - a process called decellularisation, using a detergent. They flowed fluids and microbeads similar in size to human blood cells through the spinach vasculature, and they seeded the spinach veins with human cells that line blood vessels.

These proof-of-concept studies open the door to using multiple spinach leaves to grow layers of healthy heart muscle to treat heart attack patients. Other decellularised plants could provide the framework for a wide range of tissue engineering technologies. “Plants and animals exploit fundamentally different approaches to transporting fluids, chemicals and macromolecules, yet there are surprising similarities in their vascular network structures,” researchers said.

“The development of decellularised plants for scaffolding opens up the potential for a new branch of science that investigates the mimicry between plant and animal,” they said. When the plant cells are washed away what remains is a framework made primarily of cellulose, a natural substance that is not harmful to people. “Cellulose is biocompatible and has been used in a wide variety of regenerative medicine applications, such as cartilage tissue engineering, bone tissue engineering, and wound healing,” researchers said.