

# समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा

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## **Audit Wing Proposed for Strategic Partners**

### **Private Strategic partners Aatre Committee suggests independent regulator and a new ministerial department**

A key government appointed panel has suggested an independent regulator, a special auditing wing and a new ministerial department to deal with private sector players that would be chosen as strategic partners for major defence manufacturing projects.

The VK Aatre led task force on selection of strategic partners has also suggested that for complex weapon development projects that involve a foreign player, a special purpose vehicle (SPV) may be formed and has stressed that any private company wishing to be a strategic partner will have to open up all its records for scrutiny by a specialized audit body .

The report which has suggested several financial and technical criteria for selection that were detailed in an ET story on January 11 -is being studied by the defence ministry. The committee has recommended that the first strategic partner for prioritised segments should be selected within nine months.

#### **Independent Regulator**

The committee report accessed by ET says, “for proper regulation and development of the strategic partnership model, an independent regulatory body will be required.“ The purpose of the committee would be to, “suggest modifications to procurement contracts“ and would have “mediation and conciliation capability“ to avoid “time consuming disputes.“

The report has suggested the independent regulator should be, “independent and outside the MoD.“

#### **Specialised Wing in MoD**

The task force has also suggested that a new specialised department be set up in the defence ministry to exclusively deal with private sector companies selected for strategic partnership projects. The new wing would be a single point contact in the MoD for the partners and would conduct assessments and analysis of projects, besides monitoring developmental programmes.

#### **New Audit Wing**

A new audit wing in the ministry has been suggested that would monitor the cost plus structure that is being formulated for strategic partners. The audit rights suggested include access to all company books for selection and regular progress reports on any contracts placed by the ministry .

#### **SPV Model and IPR**

In projects that require a foreign collaborator, the task force has suggested that a SPV be set up that would be scrutinised by the defence ministry.“SPV shall be wholly owned by the strategic partners and the shareholding of such a strategic partner should be locked in for the term of the partnership,“ the report says.

On IPR, Aatre task force has said the strategic partner needs to ensure that these can be used for 20 years.

#### **Industry Concerned**

The industry has had a lukewarm response to the report. A major concern being that any particular company and its subsidiaries will be eligible to apply for only one for the main categories aircraft, helicopters, aero engines, submarines, warships, guns, armoured fighting vehicles for selection as a strategic partner.

# Govt considering separate set-up for defence acquisition

STATESMAN NEWS SERVICE  
New Delhi, 25 February

In a move aimed at streamlining defence acquisition procedure and keeping in view the recommendations of the Dhirendra Singh Committee recommendations, the government is "actively considering" having a separate set up for defence acquisition, Defence Minister Manohar Parrikar said here today.

The Committee had suggested changes in the Defence Procurement Procedure and that it was also suggested that in countries like France there are exclusive organisations which deal with defence acquisition.

"A separate set up for defence acquisition, at capital level as well as revenue level and OFB needs to be created. We are considering that," Mr Parrikar said at the launch of the Defence Innovators and Industry Association (DIIA). He said it will take another six months for the concept to firm up.

"This concept is under active con-

sideration and definitely during the current calendar year, this set up should be there," Mr Parrikar said replying to questions. He said there should be continuity of information, knowledge and experience. The minister said steps will be taken to ensure that there is career progression of officials and also that complacency does not creep in, besides any possible wrong doings.

When a retired Admiral drew the Minister's attention that in the navy there are some Admirals and senior officers who have been associated with the Arihant submarine project right from being a Lieutenant, Mr Parrikar said, "I will look into it."

The Dhirendra Singh Committee has proposed "Dedicated Procurement Organisation Outside The Government Of India Ministry Structure" in a report submitted last year.

It had said the procurement executive as now established is a result of the recommendations of the Group of Ministers post Kargil, and is one of the

institutions created as part of the re-organisation of the higher defence management structures.

"It has now functioned for more than a decade. Like any organisation it has its strength and weaknesses. It is our recommendation that the time is ripe for it to undergo a second set of reforms."

"Its main drawback is that it essentially performs line functions whilst being embedded in a larger structure, which is designed to perform staff functions," the report had said.

Meanwhile, talking about the proposed strategic partnership scheme, under which the Defence Ministry will tie up with one government and one private company for building strategic assets like submarines, Mr Parrikar said the partner will be obligated to get at least 20 per cent material or technology from small and medium enterprises. He also said the ministry is considering proposals to give a push to at least 200-300 start ups in the defence sector.

जनसत्ता

26 फरवरी, 2016

## रक्षा अधिग्रहण के लिए अलग ढांचा बनाने पर विचार

नई दिल्ली, 25 फरवरी (भाषा)। रक्षा मंत्री मनोहर पर्रिकर ने गुरुवार को कहा कि सरकार रक्षा अधिग्रहण के लिए अलग ढांचा बनाने पर 'तत्परता से विचार' कर रही है। फ्रांस जैसे कई देशों में अलग से संस्थान हैं जो रक्षा अधिग्रहण के मामलों को देखते हैं। धीरेन्द्र सिंह समिति की अनुशंसाओं में यह शामिल है जिसका गठन रक्षा खरीद प्रक्रिया में बदलाव का सुझाव देने के लिए रक्षा मंत्रालय ने किया था।

पर्रिकर ने डिफेंस इनोवेटर्स एंड इंडस्ट्री एसोसिएशन की शुरुआत करते हुए कहा, 'धन के स्तर पर, राजस्व स्तर पर और ओएफबी के लिए अलग से रक्षा अधिग्रहण ढांचे का गठन करने की जरूरत है। हम उस पर विचार कर रहे हैं।' उन्होंने कहा कि इस अवधारणा को ठोस रूप देने में छह महीने और लगेंगे। पर्रिकर ने सवालियों का जवाब देते हुए कहा, 'इस अवधारणा पर तत्परता से विचार चल रहा है और निश्चित रूप से वर्तमान कैलेंडर वर्ष में यह ढांचा शुरू होगा।' उन्होंने कहा कि सूचना, ज्ञान और प्रयोग में निरंतरता होनी चाहिए।

*The statesman*  
26 Feb, 2016

## **Indo-US defence deals close to reality: Harris**

WASHINGTON: The US is close to signing three foundational agreements with India in fields of defence and communications to take bilateral military ties "to the next level", a top American military commander has said ahead of his visit to the country next week.

"We were moving out aggressively in technical field with DTTI (Defence Technology and Trade Initiative)," US Pacific Command Commander Admiral Harry Harris said in response to a question on India-US defence relationship.

"There are some what we call foundational agreements that have to be executed with partner nations in order to move, quote unquote, 'to the next level,'" he said during his testimony before the House Committee on Armed Services.

Harris said the US is working with India on the signing of the foundational agreements.

"One of those is the LSA - Logistics Support Agreement - which allows us to do the cross servicing - acquisition cross servicing, for example.

"Another one is called the CISMOA (Communications and Information Security Memorandum of Agreement), and it involves communications security so that we can be assured that India will protect our communications as we would protect theirs," Harris said.

"So these are foundation agreements that we enact with every country we work with. We have not gotten to the point of signing them with India, but I think we're close. We're closer now than we ever have been, and I'm encouraged by what I'm hearing from my colleagues in India, and I look forward to having that discussion with them when I go there next week," Harris said.

The commander is headed to India next week for a wide range of talks with his Indian counterparts and the leadership.

*The Economic Times*  
26 Feb, 2016

## **IAF Rushes 40 tonnes Relief Material to Fiji**

NEW DELHI: The Indian Air Force on Thursday sent 40 tonnes of medicines, food and tents to the cyclone-hit Fiji. The air force has pressed into service a C17 aircraft that carried 20 tonnes from Delhi to Chennai and an additional twenty from Chennai to Fiji, defence sources told ET. The tropical Cyclone Winston that hit Fiji on the weekend has left certain zones of the island country devastated.

## **Women to be brought into combat roles in phases**

Women officers will be inducted into military combat roles in a “phased manner“, with the timeline to be decided after taking into account issues of infrastructure and training, defence minister Manohar Parrikar said on Thursday .

This comes after President Pranab Mukherjee, in his address to Parliament on Tuesday , said the government will induct women “in all fighter streams of our armed forces“ in the future. This had left the forces slightly shell-shocked since they have no plans as of now of inducting women into the infantry , armoured corps and artillery, or allowing them to serve on board sea-faring warships and submarines. The IAF is now training three women cadets as fighter pilots in its academy near Hyderabad, but that too is on an experimental basis.

Parrikar, on his part, said, “We have made our view very clear. It is the timelines which we have to decide now... they will be decided on the basis of factors like facilities or positions. You also need training facilities, accommodation.“

As earlier reported by TOI, though women have been inducted as officers in the armed forces since the early 1990s, they still constitute a minuscule number in the overwhelmingly male-dominated environs of the 1.3 million strong armed forces.

*The Economic Times*  
26 Feb, 2016

## **7 Indian Cos Supplying Parts to ISIS: Report**

Seven Indian companies are among those from 20 countries named in a list whose components were used by the ISIS to make explosives, a EU-mandated study on Thursday said, suggesting that more work needs to be done to track the flow of chemicals and other items to the terror group.

The study by Conflict Armament Research (CAR) showed that 51 companies from 20 countries such as Turkey , India, Brazil, and the US produced, sold or received the over 700 components used by ISIS to build improvised explosive devices (IEDs).

Turkey topped the list of countries with a total of 13 firms involved in the supply chain.

It was followed by India with seven companies, CAR said in a statement. The study was completed in 20 months.

Seven Indian companies manufactured most of the detonators, detonating cord and safety fuses. Under Indian law, transfer of this material requires a licence. Those were all legally exported under government-issued licenses from India to entities in Lebanon and Turkey , the CAR said.

According to the report, the terror group mostly uses Nokia 105 mobile phone for remote detonation.

## **Pak military provides weapons, training to ISIS**

Pakistan's military provides weapons and training to ISIS militants in Afghanistan and instructs them to kill the "infidel" Afghan forces, according to a 10-member faction of the group who laid down their arms on Wednesday.

The group also said that Pakistani military provides light and heavy weapons to ISIS fighters in Afghanistan.

"Pakistani military gave us weapons and used to tell us that Afghan forces are infidels and you must kill them," Zaitoon, a former ISIS fighter who laid down his arms and joined the peace talks, was quoted as saying by the TOLO news.

Arabistan, Zaitoon's co-fighter, said: "I was tasked to fight in Nazian district [in Nangarhar]. We used to present our daily report to Punjabis and Pakistanis and they encouraged us to fight the Afghan government."

The 10-member group has joined the peace process due to efforts by the High Peace Council office in the province and also with the help of the Afghan security forces, said Chairman of Nangarhar Provincial Council Malik Nazir.

"There were 24 men in two groups the first group was 14 Taliban fighters and the second group included 10 Daesh fighters who for the first time joined the peace process," Nazir added.

# पाक को एफ-16 देने से भारत- अमरीकी संबंधों पर असर

वाशिंगटन, (भाषा): अमरीका के एक शीर्ष सैन्य कमांडर ने कहा है कि पाकिस्तान को परमाणु क्षमता से संपन्न आठ एफ-16 लड़ाकू विमान देने के अमरीका के फैसले से भारत और अमरीका के संबंधों के 'कुछ पहलुओं' पर असर पड़ेगा। भारत 70 करोड़ डॉलर के इस सौदे पर कड़ा विरोध जता चुका है। अमरीकी प्रशांत कमांड (पेकाम) के कमांडर एडमिरल हैरी हैरिस ने कल कांग्रेस की एक सुनवाई के दौरान सांसदों को बताया, "पाकिस्तान को एफ-16 विमानों की बिक्री के संदर्भ में कहा जाए तो हालांकि मेरे पास इस बिक्री के बारे में कोई पेशेवर राय नहीं है लेकिन निश्चित तौर पर इससे भारत के साथ हमारे संबंध के कुछ पहलुओं पर असर पड़ेगा।" अगले सप्ताह भारत की यात्रा पर जाने वाले हैरिस सदन की सशस्त्र सेवा समिति के सदस्यों के सवाल का जवाब दे रहे थे।

हैरिस ने कहा, "मैं जानता हूँ कि जब मैं भारत जाऊंगा तो मुझसे इस बारे में पूछा जाएगा। मैं उम्मीद करता हूँ कि मैं उन्हें बता पाऊंगा कि यह बिक्री दुनियाभर में हमारी ओर से की जाने वाली सैन्य बिक्रियों का एक पहलू मात्र है और हम भारत के साथ अपने संबंध को बहुत महत्व देते हैं।" कांग्रेस की सदस्या तुलसी गब्बार्ड की ओर से एफ-16 पर पूछे गए सवाल के जवाब में एडमिरल हैरिस ने कहा, "मैं उम्मीद करता हूँ कि हम इस बिक्री और इसे लेकर उनकी धारणा पर काम कर सकें और भारत के साथ अपने संबंध को



## विरोध

**तुलसी गब्बार्ड ने  
ओबामा प्रशासन के  
इस फैसले पर गंभीर  
चिंता जताई थी**

सुधारना जारी रखें।"

अमरीकी प्रतिनिधि सभा की पहली हिंदू सदस्या गब्बार्ड ने पाकिस्तान को लड़ाकू विमान बेचने के ओबामा प्रशासन के निर्णय पर गंभीर चिंता जाहिर की। उन्होंने कहा, "पाकिस्तान को आठ एफ-16 की संभावित बिक्री पर मैंने और कांग्रेस के अन्य सदस्यों ने गंभीर चिंताएं जाहिर की हैं क्योंकि पाकिस्तान ने लंबे समय से उन आतंकी संगठनों को सुरक्षित ठिकाना उपलब्ध करवाया है, जिन्होंने भारत के साथ-साथ अफगानिस्तान के भीतर

अस्थिरता पैदा करने के लिए हमले जारी रखे हुए हैं।" उन्होंने कहा, "छह अमरीकी नागरिकों की मौत की वजह बने वर्ष 2008 के मुंबई हमलों के मास्टरमाइंड हाफिज सईद की संयुक्त राष्ट्र के विरोध के बावजूद की गई हालिया रिहाई के अलावा हमारी कई चिंताएं हैं।" भारत ने पाकिस्तान को लगभग 70 करोड़ डॉलर के आठ एफ-16 विमान बेचने के ओबामा प्रशासन के फैसले के मुद्दे पर अपनी 'नाराजगी और निराशा' जाहिर करने के लिए अमरीकी राजदूत रिचर्ड वर्मा को समन किया था।

भारत ने अमरीका के इस तर्क पर असहमति जाहिर की कि वह पाकिस्तान को आतंकवाद से निपटने में मदद देने के लिए हथियार दे रहा है। भारत का मानना है कि अमरीका की ओर से पाकिस्तान को दी गई सैन्य मदद भारत-विरोधी गतिविधियों में इस्तेमाल होती है।

## **Need restraint in S China Sea: India**

As China and the US muscle up in the South China Sea, India on Thursday asserted that all states should avoid “unilateral action“.

“India has repeatedly stressed for respect for freedom of navigation in international waters, the right of passage and overflight, unimpeded commerce and access to resources in accordance with the 1982 UN Convention on the Law of the Sea (UNCLOS). All states should avoid unilateral action in South China that will lead to tensions in the region,“ foreign ministry spokesperson Vikas Swarup said when asked about Chinese military build-up in the disputed South China Sea.

This week, the government informed Parliament that India was working towards the establishment of a satellite tracking and data reception station and data processing facility in Vietnam or Asean countries.

This facility is intended to acquire and process Indian remote sensing satellite data pertaining to Asean region and disseminating it to Asean member countries. It is the first overt activity by India in the region that is intended to buttress capacities of Asean nations in the face of growing aggression by China.

*The Asian Age*  
26 Feb, 2016

## **US to sail more in South China Sea**

The US Navy plans to increase “freedom of navigation” operations in the South China Sea as Beijing continues its military buildup in the contested waterway, a US admiral has said.

The sailings involve a US warship coming within 12 nautical miles of islets claimed by China as a way of rebutting Beijing’s assertions of sovereignty. Since October, the Navy has carried out two such freedom of navigation operations in the South China Sea, saying the missions are an important way of upholding international law.

“We’ll be doing them more and we’ll be doing them with greater complexity in the future,“ Adm. Harry Harris, the commander of the US Pacific Command, told legislators in Washington Wednesday. “We’ll fly, sail and operate wherever international law allows.” China’s claims to almost all of the South China Sea are widely disputed and the body of water has long been viewed as a potential flashpoint.

“China’s intent to militarise the South China Sea is as certain as a traffic jam in DC,“ Adm. Harris told the House Armed Services Committee in reference to congestion on the streets of Washington. He did not offer specifics on the upcoming freedom of navigation sailings but suggested they be carried out by a type of destroyer that “is well able to defend itself should those operations go awry.”

Meanwhile, China’s defences in the South China Sea are “absolutely necessary”, Beijing said Thursday.

The defence ministry spoke out as tensions rose between the two powers over reports that Beijing has deployed surface-to-air missiles, fighter jets, and radar installations in the contested region. “The US is truly the one pushing militarisation in the South China Sea,“ said ministry spokesman Wu Qian at a regular monthly briefing. “China’s building of defence facilities on the South China Sea islands and reefs is absolutely necessary.”

“It is China’s legitimate right to deploy defence facilities within its own territory — no matter whether that deployment was in the past or at the present, no matter whether for a temporary or long-term basis, and no matter what kind of equipment has been deployed.”

American broadcaster Fox News said Tuesday that US intelligence services had spotted Chinese Shenyang J-11 and Xian JH-7 warplanes on the same island.

Reports also surfaced this week of probable radar installations on reefs in the nearby Spratly islands that would “exponentially improve” the country’s monitoring capacities. China is using dredgers to turn reefs and low-lying features into larger land masses for runways and other military uses to bolster its claims of sovereignty in the region. Satellite imagery released by a Washington think tank this week shows China is installing radar facilities on its artificial islands.

China has also deployed surface-to-air missiles and lengthened a runway to accommodate fighter jets on one such islet, Woody Island.

*The Asian Age*  
*26 Feb, 2016*

## **US, China agree to expand North Korea sanctions**

The United States will submit to the UN Security Council on Thursday a draft resolution that would expand sanctions against North Korea over its latest nuclear test, a spokesman for the US mission to the United Nation said.

“Ambassador (Samantha) Power intends to submit for consideration by the Security Council a draft sanctions resolution in response to (North Korea’s) recent nuclear test and subsequent proscribed ballistic missile launch,” spokesman Kurtis Cooper said in a statement. “We look forward to working with the council on a strong and comprehensive response to the DPRK’s (North Korea’s) latest series of tests aimed at advancing their nuclear weapons program,” he said.

On Wednesday council diplomats said the United States and China had agreed on a draft resolution and hoped to put it to a vote in the 15-nation council in the coming days.

The two veto powers had been negotiating on the text for the past seven weeks following Pyongyang’s fourth nuclear test on January 6. “It’s a substantive, long, full draft,” a senior council diplomat said.

In Beijing, Chinese foreign ministry spokeswoman Hua Chunying said “important progress” had been made on the resolution and that “hopefully consensus can be reached soon”.

“We hope and believe this new resolution can help effectively constrain North Korea from further developing its nuclear missile program,” Mr Hua told a regular press briefing on Thursday.

The draft resolution is expected to call for the blacklisting of a number of individuals and entities, diplomats said. They were reluctant to provide further details. North Korea’s ministry of atomic energy industry and its national aerospace development agency, the body responsible for February’s rocket launch, will be amongst the sanctioned entities, South Korea’s Yonhap news reported.

The secretive General Reconnaissance Bureau, already sanctioned by the United States for its suspected role in the 2014 cyber attack on Sony Pictures, was also included in the blacklist, Yonhap said.

The council is scheduled to discuss the UN North Korea sanctions regime on Thursday at 3 pm (20:00 GMT), the UN press office said.

China and the United States have had different views on how strong the response should be to North Korea since Pyongyang’s nuclear test last month, with Washington urging harsh punitive measures and Beijing emphasising dialogue and milder UN steps confined to non-proliferation.

## **Australia unveils ‘massive’ spike in defence spending**

Australia unveiled a massive new investment in the nation’s defence capabilities on Thursday to address what Prime Minister Malcolm Turnbull called “high stakes” and “momentous times” in Asia.

Citing increased defence spending around the region and potential flashpoints in the South China Sea and the Korean peninsula, he said the government was committed to combating the most challenging strategic environment “we have faced in peacetime”. “These are momentous times. The stakes are high. And as the opportunities expand, so does the cost of losing them,” Mr Turnbull said.

“A stronger Australia supports a safer Australia, a safer region and a safer world.” The government said it would spend Aus\$195 billion (US\$139 billion) over the next decade, including a doubling of its submarine fleet to 24, three additional destroyers, nine new frigates and 12 offshore patrol boats. Maritime surveillance would also be boosted by the purchase of seven US-made MQ-4C Triton drones and eight P-8A Poseidon aircraft.

New air defence weapons would boost the force’s capabilities with 72 F-35s, known as Joint Strike Fighters, added from 2020, while the Army’s equipment and armoured vehicle fleet will be upgraded. Some 2,500 new military roles will be created to expand the total defence force to 62,400 personnel, with 900 jobs focused on improved cyber, intelligence and space security.

The cash injection would take Australia’s defence spending to two percent of GDP by 2020-21, three years earlier than previously outlined, Mr Turnbull said.

*The Hindu*  
26 Feb, 2016

## **Get out there and try new things: Sunita Williams**

*Sunita Williams holds the record for the highest number of spacewalks by a woman astronaut.*

From enduring “the attack of the wasabi” on the International Space Station to momentarily forgetting how to walk, NASA astronaut Captain Sunita Williams has been through many other worldly experiences.

Ms. Williams, an American Naval pilot and astronaut, is in India on a three-day visit. Addressing the FICCI Ladies Organisation here on Thursday, she talked about her time in space, a total of 321 days, and how she got the job.

She holds the record for the highest number of spacewalks by a woman astronaut at seven and has received several awards, including the Padma Bhushan. But, to her she was just at the right place at the right time.

“I wasn’t a triple A student. I failed two college courses. But I learned from the failure,” says Ms. Williams, of both Indian and Slovenian descent.

She ended up at the Naval Academy, not because she had always planned to study there, but because she was looking for an affordable college education. She ended up becoming a pilot, because her first choice, diving, had no vacancies.

“There was a pilot opportunity open, so I said I would try it. Getting out there and trying things, and not being afraid to try things are important,” she said, highlighting the need for science, technology, engineering and mathematics education, especially for girls.

Once she tried it, she succeeded. In 1998, she was selected by the NASA and had her first flight in 2006. Since then, she has been up to the ISS four times – being the commander during her last trip in 2012.

In the vacuum of space, staring out of the window of the ISS can take up hours of an astronaut's time. A 24-hour period has 16 sunrises and sunsets on the ISS. On her 2007 mission, Ms. Williams ended up having to contend with a formidable foe – wasabi. The spicy Japanese condiment was going to be the highlight of an otherwise bland meal, when the mismatch of the pressure led the jar to explode.

In another incident on the ISS, she remembered being unable to deal with the thought of walking.

“You just always float. There was a module that stuck down from the ISS and I would float by it every day. One day, I thought if I had to walk, I'd have to be very careful and jump. I just couldn't get my head around how it would be to walk there because I had been floating for so long,” she said.

*The Pioneer*  
*26 Feb, 2016*

## **India's Space Ambitions**

### **Global collaborations opening up new avenues**

The emergence of space cooperation as an important leitmotif in India's foreign policy is perhaps best evidenced in two areas: India's relationship with the US, and in its interactions with its immediate neighbours. For the first case, one has to look at how significantly the India-US Space Security Dialogue has evolved. An outcome of the 2014 US-India summit, when Prime Minister Narendra Modi hosted President Barack Obama in this country, the Dialogue is now in its second year and was held in New Delhi on Thursday. Already, it has set the pace for strong bilateral cooperation — while Indian and US diplomats talked in New Delhi, a team from the National Aeronautics and Space Administration was meeting its counterpart at the Indian Space Research Organisation in Bangalore for the third Isro-Nasa Mars Working Group, building on the successes of the US-India Civil Space Joint Working Group meeting last September. The two agencies are collaborating on a number of ventures, including the first-ever joint earth science satellite mission. Additionally, India and the US are also coordinating their actions on multilateral platforms such as the Committee on Earth Observation Satellites and the inter-Governmental Group on Earth Observations. The international regimes to govern outer space activities are still being developed there is not one treaty-based agreement in this sphere and India, as a space-faring nation and a rising power, is keen to help shape the new global governance structures. The Missile Technology Control Regime, which regulates space trade among others and to which India applied for membership last year, is a good example. India is also hoping to join the other three major regulatory regimes in this area the Nuclear Suppliers Group, the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, and the Australia Group. The White House has already announced its support for India's entry to all four regimes, and in fact, it was the historic India-US nuclear deal that laid the foundation for India's new role.

Indeed, it is India's growing profile as a space power that is allowing the country to add space cooperation to the sub-continent's diplomatic mix. The most high-profile project in this regard is the satellite for the South Asian Association for Regional Cooperation, which is to be launched in December this year. Additionally, the Indian Regional Navigation Satellite System, India's own GPS satellite, can also cover some parts of the sub-continent. However, cooperation in this regard as in almost every other aspect, from trade to transport has suffered because of socio-economic and political concerns. The Saarc satellite that is being pushed by the Modi Government today, was first proposed in 1995. With countries such as Sri Lanka and Bangladesh now seeking to better leverage space technologies, there is an opportunity for India to lead the way.

## The benefits of open science

*A team of scientists shares results and even raw data of its Zika study in real time. Could this set a precedent for scientific research?*

University of Wisconsin-Madison researchers working with Brazilian collaborators have started publicly sharing on a daily basis results and data of a study undertaken to assess **Zika viral dynamics** in three Indian rhesus macaques.

The study was started on February 15 by principal investigators David O'Connor and Jorge Osorio; the latter was one of the two from the university to identify the Zika virus circulating in Colombia in October.

“Hoping to start understanding Zika virus dynamics in macaques tomorrow. Real-time study results shared at <https://goo.gl/IXF79u>,” Prof. O'Connor tweeted on February 14. It was quickly followed by another tweet: “Never tried sharing data like this before. Feels like walking into a country for the first time. Exciting, but don't know what to expect.”

The main objective of studying **Zika infection** in rhesus macaques is to help understand why the Zika virus has recently been associated with diseases such as microcephaly and to find out if the virus indeed causes the abnormalities. This information will help in the development and evaluation of interventions to minimise future Zika virus-associated disease.

A week following the start of the novel initiative, the researchers, who call themselves ZEST (the Zika experimental science team), have been true to their word and have been sharing information, raw data included. “We decided to share data publicly because we hoped it would be useful. Many groups that study HIV are beginning to contribute expertise to understanding Zika virus, so we hope that our data can help them design better experiments... and learn from any mistakes that we make along the way,” Prof. O'Connor said in an email to *The Hindu*.

“I think this is a very important and remarkable step. Considering that this is an urgent public health emergency, the faster we can learn from each other, the faster progress will be made,” Koen Van Rompay, a specialist in non-human primate models of HIV infection at the California National Primate Research Center at the University of California, Davis said in an email to *The Hindu*. “Receiving the latest data fast will allow researchers to modify their own studies to get optimal results.”

Prof. Rompay, who is part of a consortium that plans to inject pregnant macaques with Zika, will embark on his project in the next few weeks and also plans to share the data openly in real time so others can learn from it. According to him, the Zika virus is still a “very large black box”, so anything that can be learnt from it and shared will help others to make progress. “Together, we can make a bigger dent in the black box. True researchers want to make a difference and help those who need it, rather than thinking about their own fame and prestige,” he said.

In a note posted on the website, Prof. O'Connor's team has expressed its commitment to answering “as quickly and accurately as possible” as many questions about the data. It has gone one step further by assuring that it would share specimens of the experiment with as many interested researchers as possible.

### Sharing for a larger cause

The team's novel approach is a marked departure from the shroud of secrecy that usually surrounds highly sensitive and competitive research. “I'm not overly worried about other scientists ‘scooping’ us. I hope others benefit from our data,” Prof. O'Connor said. “Our research programs are largely funded by the U.S. National Institutes of Health, whose budget is in turn funded by taxpayers. If anyone should have precedence in seeing the data as quickly as possible, it is the public — ultimately, they provide the money for the work to be done.”

In fact, the open science initiative has led to a two-way learning process between the team and other researchers in conducting the experiments. Apparently, the team has been sending samples to people who learned about the study from viewing the results for specialised analyses that they hadn't even considered. Some of the data has been re-analysed using other tools, and these scientists are working together with others to figure out which approaches are the best.

In terms of openness, the duo's initiative has surpassed a 2011 unique open research venture by Rosie Redfield, a microbiologist at the University of British Columbia in Vancouver. Dr. Redfield did her research in full public glare detailing all the elements of her work in an open lab notebook on her blog. She was trying to replicate a NASA (National Aeronautics and Space Administration) astrobiologist's disputed study published in the journal *Science* of a bacterium's capability to substitute arsenic for a small percentage of phosphorus and still sustain its growth.

While the main intent of sharing data in real time is to assist their peers planning or undertaking similar work on macaques to take the data into account, Prof. O'Connor's team has only one caveat to those using its data — acknowledge the source of funding. This condition is at once strange as attributing the source of data is either taken for granted or is considered redundant.

Traditionally, sharing data or even partial results of a study publicly is viewed dimly by journal publishers and greatly jeopardises the publication process. But Prof. O'Connor's and Prof. Osorio's unique exercise may not suffer the same fate, thanks to a timely agreement reached in September 2015 by the World Health Organisation (WHO) and the International Committee of Medical Journal Editors (ICMJE).

With the Ebola crisis in West African countries turning the spotlight on the deficiencies of existing data-sharing mechanism during public health emergencies, the WHO had urged the ICMJE to take a less rigid stand on accepting manuscripts for publication when data are shared publicly. Following the support by the members of the committee, the ICMJE has “explicitly confirmed that pre-publication dissemination of information critical to public health will not prejudice journal publication in the context of a public health emergency declared by the WHO”.

While the medical journals have kept their word and are ensuring minimal delay in sharing critical public health results, the WHO has done its part — posting online in the “Zika Open” collection within 24 hours any research manuscripts related to Zika epidemic that are submitted to WHO Bulletin even as the peer review process is under way.

*The Times of India*  
26 Feb, 2016

## Hope for Zika vaccine as 2 virus strains are isolated

Chinese scientists have successfully isolated two Zika virus strains, which will assist research into a possible vaccination and the transmission pattern of the mosquito-borne disease that has triggered a global health emergency .

The two strains were isolated from blood and urine samples from two patients, Xinhua news agency reported on Thursday . The urine test was the first successful isolation from a sample such as that, according to the Academy of Military Medical Sciences and Guangzhou No. 8 People's Hospital. With five confirmed imported Zika virus cases and the weather beginning to warm up across the country , China is on high alert.

The isolation can help scientists study the transmission pattern of the virus while provide a foundation for the invention of reagent and vaccine. Chinese scientists announced on Monday they had decoded the gene sequence of the first imported Zika virus. The virus has been reported in at least 34 countries.

## **Elusive 'missing matter' confirmed**

***Melbourne: Astronomers have for the first time identified the location of a fast radio burst from six billion light-years away, and used it to weigh the cosmic matter through which it travelled, which helped confirm the presence of the elusive 'missing matter'.***

In April last year, a fast radio burst (FRB) was detected by the Commonwealth Scientific and Industrial Research Organisation (CSIRO)'s Parkes radio telescope in Australia.

An international alert was triggered to follow it up with other telescopes and within a few hours, a number of telescopes around the world were looking for the signal.

FRBs are mysterious bright radio flashes generally lasting only a few milliseconds. Their origin is still unknown, with a long list of potential phenomena associated with them.

FRBs are very difficult to detect; before this discovery only 16 had been detected.

"In the past FRBs have been found by sifting through data months or even years later. By that time it is too late to do follow up observations," said Evan Keane, Project Scientist at the Square Kilometre Array Organisation.

To remedy this, the team developed its own observing system to detect FRBs within seconds, and to immediately alert other telescopes, when there is still time to search for more evidence in the aftermath of the initial flash.

With the CSIRO's Australian Telescope Compact Array, the team was able to detect a radio afterglow that lasted for around 6 days before fading away.

This afterglow enabled them to pinpoint the location of the FRB 1,000 times more precisely than for previous events.

The team then used the National Astronomical Observatory of Japan's Subaru optical telescope in Hawaii to look at where the signal came from, and identified an elliptical galaxy some 6 billion light years away.

The optical observation also gave them the redshift measurement (the speed at which the galaxy is moving away from us due to the accelerated expansion of the universe), the first time a distance has been determined for an FRB.

FRBs show a frequency-dependent dispersion, a delay in the radio signal caused by how much material it has gone through.

"Until now, the dispersion measure is all we had. By also having a distance we can now measure how dense the material is between the point of origin and Earth, and compare that with the current model of the distribution of matter in the universe" said Simon Johnston, from CSIRO's Astronomy and Space Science division.

"Essentially this lets us weigh the universe, or at least the normal matter it contains," he said.

In the current model, the universe is believed to be made of 70 per cent dark energy, 25 per cent dark matter and 5 per cent 'ordinary' matter that makes everything we see. However, through observations of stars, galaxies and hydrogen, astronomers have only been able to account for about half of the ordinary matter, the rest could not be seen directly and so has been referred to as 'missing'.

"The good news is our observations and the model match, we have found the missing matter," Keane added.

## **Shrunk radar cams to fit into palm**

Singapore, PTI: Scientists have developed a microchip that can be used in new radar cameras that are a hundred times smaller than current ones and consume at least 75 per cent less power.

With the technology, radar cameras that usually weigh between 50 kg and 200 kg and are commonly used in large satellites can be made to become as small as palm-sized.

Despite being small, they can produce images that are of the same high quality if not better compared to conventional radar cameras, researchers said.

They are also 20 times cheaper to produce and consume at least 75 per cent less power, researchers said.

The radar chip has attracted the attention of several multinational corporations, and is now being researched for use in Unmanned Aerial Vehicles (UAVs) and satellite applications, they said.

"We have significantly shrunk the conventional radar camera into a system that is extremely compact and affordable, yet provides better accuracy," said Zheng Yuanjin from Nanyang Technological University (NTU) in Singapore.

"This will enable high resolution imaging radar technology to be used in objects and applications never before possible, like small drones, driver-less cars and small satellite systems," said Yuanjin.

Current radar camera systems are usually between half and two metres in length and weigh up to 200 kg. They can consume over 1000 watts in electricity per hour, the energy equivalent of a household air-conditioning unit running for an hour.

Known as Synthetic Aperture Radar (SAR), these large radar cameras are often carried by large satellites and aircraft that produce detailed images of the earth's surface.

Objects longer than a metre, such as cars and boats, can be easily seen by the radar camera mounted on an aircraft flying at a height of 11 kilometres.

Unlike optical cameras which cannot work well at night due to insufficient light or in cloudy conditions, a radar camera uses microwaves for its imaging, so it can operate well in all weather conditions and can even penetrate through foliage, researchers said.

## **Particles that need company to shine**

**For years, scientists trying to develop fluorescent molecules grappled with a tricky problem: The molecules' light went out when they were too crowded.**

Ben Zhong Tang was stumped. A chemist at the Hong Kong University of Science and Technology, he was looking at a powder that glowed bright green under ultraviolet light. But when the powder was dissolved in a clear solution, the glow disappeared.

It was 2001, and Tang's observation defied everything then known about light-emitting molecules. "I was very excited," he said in an interview, "but in another way, I was bothered, because I didn't know what was going on."

What he had, he later determined, were molecules that lit up only when crowded together - in solid form, for example. Tang's study of that chemical and its unusual behaviour has led to an emerging class of small, non-metal compounds with applications in unusually diverse arenas, from vastly improving

optoelectronic devices like organic light-emitting diode (OLED) televisions to advancing the use of fluorescent technology in the human body.

"For example, they could provide surgeons with better ways to visualise tumours, or enable non-invasive destruction of tumours," said Richard Conroy, the director of the division of applied science and technology at the National Institute of Biomedical Imaging and Bioengineering.

For years, scientists trying to develop fluorescent molecules grappled with a tricky problem: The molecules' light went out when they were too crowded. Because fluorescent molecules are almost always used as a group, the problem of quenching, as this phenomenon is known, prevented many otherwise promising compounds from reaching real-world applications. "We hope the fluorescent dye will go to the tumour site so that we'll see the tumour, but we also hope that not too many go so that it will not quench," Tang said. "You see the dilemma there."

For OLED technologies like slim, energy efficient, high-contrast TVs, "we should want organic compounds that emit light in the solid state," said Masaki Shimizu, a professor at Kyoto Institute of Technology in Japan, who designs light-emitting materials for optoelectronic devices.

That has been hard to achieve. Fluorescence occurs when materials absorb energy and then emit it as light. Conventional fluorescent molecules are flat, and they stack on top of one another like pancakes when they are too close, killing the light. In contrast, the molecule that Tang was studying was propeller-shaped, with five flat "blades" connected to a central ring. "It's like an electric fan," he said.

With that molecule, a different mechanism was at work. Together with a postdoctoral fellow, Junwu Chen, Tang reasoned that when the molecules were free to move around, they wasted their energy by rotating their blades, producing heat rather than light. But once space was restricted, they theorised, the molecules would be unable to move, and thus forced to release their energy as light. They named this phenomenon "aggregation-induced emission."

To prove this, Chen performed a series of experiments. First, he froze a solution of the molecules in liquid nitrogen so they could not move. Next, he added glycerol, a thick liquid, to slow the molecules. Chen left the lab in 2002, but Tang's students continued investigating. They applied pressure on the solid powder, squeezing the molecules further. They chemically changed the molecules by adding bridges to lock the blades in place. In all the experiments, the molecules shone brighter.

Establishing this mechanism took two years. Then Tang's group began to look for other molecules with similar shapes that would also undergo aggregation-induced emission - AIE for short. The first AIE molecule, which Tang named "AIE-gen" after mesogens, or liquid crystals, contained silicon and was difficult to prepare. For the next AIE-gen, Tang wanted something easy to make that was carbon-based. He tried tetraphenylethylene (TPE), a hydrocarbon molecule shaped like a dog bone with two big blades at each end.

Under ultraviolet light, TPE produced a disappointingly weak sky-blue glow. What TPE lacked in brilliance, it made up for in versatility. Tang and his team soon realised that they could easily make TPE brighter or change the light's colour by tweaking its structure or placing it in different environments. "This is a star molecule," Tang said.

The next major advance came when Tang realised that AIE-gens could be attached to other materials like metal-detecting compounds, proteins or DNA fragments, and still keep their light-emitting properties.

"That's very powerful," said Tim Cook, an assistant chemistry professor at the University at Buffalo. Independent of Tang's research, Cook has prepared self-assembling, light-emitting materials by attaching AIE-gens to compounds already known to self-assemble. "You can basically adapt it to any system," he said.

## **Exciting area of research**

Living systems are of particular interest. AIE-gens do not contain metals, unlike competing fluorescent materials like quantum dots. This makes them one of the most promising candidates for use in humans, to guide surgeons or deliver light therapy. "That's probably one of the most exciting areas of research for us," Conroy said.

In 2011, Bin Liu, a chemical engineering professor at the National University of Singapore, packed a few different AIE-gens from Tang into capsules, creating a series of very bright and robust nanoparticles. In experiments to track cancer cell migration in mice, the nanoparticles were at least 10 times as bright and lasted three times as long as quantum dots developed for the job. Last year, Liu's spinoff company, LuminiCell, began producing and selling the AIE-gen nanoparticles.

Besides AIE-gens for biological applications, there are AIE-gens that can detect heavy metals, cyanide, explosives or harmful bacteria. Others can help improve OLED displays by eliminating the quenching problem, making OLEDs much easier to manufacture.

But commercialisation of AIE materials may not be so easy. "There are a great many fluorescent technologies," Chris Geddes, the director of the Institute of Fluorescence at the University of Maryland, said. "Whether the AIE technology will make it, only time will tell."

Still, 15 years in, Tang and others say that the known AIE-gens may be just the beginning. Now, researchers are reporting that other materials like clusters of gold atoms, not just small organic molecules, can undergo AIE as well. "This opens up huge opportunities," Tang said. "I am very optimistic."

*The Hindustan Times*  
26 Feb, 2016

## **Under the Skin**

Scientists have for the first time successfully turned skin cells into cancer-hunting stem cells that destroy brain tumours, an advance that can offer a new and more effective treatment for the deadly disease

### **Poor survival rate**

The survival rate beyond two years for a patient with brain tumours known as glioblastoma is 30% because it is so difficult to treat, researchers said

### **Why is Deadly**

Even if a surgeon removes most of the tumour, it is nearly impossible to get the invasive, cancerous tendrils that spread deeper into the brain and inevitably the remnants grow back

### **The Study**

Researchers reprogrammed skin cells known as fibroblasts – which produce collagen and connective tissue — to become induced neural stem cells Working with mice, researchers showed these neural stem cells have an innate ability to move throughout the brain and home in on and kill any remaining cancer cells.

*The Times of India*  
26 Feb, 2016

## **New bio-inspired material to harvest water from thin air**

Harvard scientists have designed a new material inspired by organisms such as cacti, pitcher plants and desert beetles that can effectively harvest water from thin air..

The research is the first step towards developing a system that can efficiently collect water and guide it to a reservoir, researchers said.

Certain organisms can survive in arid environments because they have evolved mechanisms to collect water from thin air.

The Namib desert beetle, for example, collects water droplets on the bumps of its shell while V-shaped cactus spines guide droplets to the plant's body .

Researchers from Harvard have drawn inspiration from these organisms to develop a better way to promote and transport condensed water droplets.

“Our research shows that a complex bio-inspired approach, in which we marry multiple biological species to come up with non-trivial designs for highly efficient materials with unprecedented properties, is a new, promising direction in biomimetics,” said Joanna Aizenberg from Harvard. .

The system is inspired by the bumpy shell of desert beetles, the asymmetric structure of cactus spines and slippery surfaces of pitcher plants.

The material harnesses the power of these natural systems, and Slippery Liquid-Infused Porous Surfaces (SLIPS) technology , to collect and direct the flow of condensed water droplets.

The study was published in the journal Nature.

*The Asian Age*  
26 Feb, 2016

## **Wildlife drones help thwart rhino poaching in South African**

In hills where Zulu royalty once hunted wildlife, South African conservationists now scan live video from a thermal-imaging camera attached to a drone, looking for heat signatures of poachers stalking through the bush to kill rhinos.

The unarmed drone, which resembles a model airplane, flies several miles (kilometers) from a van where an operator toggles a customized video-gaming control, zooming and swiveling the craft's camera. The nocturnal surveillance in Hluhluwe-iMfolozi Game Reserve comes amid international discussion about whether technology, particularly drones, will make a real difference in anti-poaching efforts that often rely on the “boots on the ground” of rangers on patrol.

Everal years ago, drones were touted by some as a silver bullet for conservation, but some experiments have foundered. Even so, drone technology is developing quickly and the aircraft have been used around the world, including:

In Belize, where the Wildlife Conservation Society helped deploy drones to successfully monitor a protected reef area for illegal fishing, according to David Wilkie, director of conservation measures for the group. In Indonesia, where drones have surveyed threatened orangutan habitats. In Africa, where the World Wildlife Fund is exploring the use of drones and other anti-poaching technologies, using funding from Google.

"It's a very dynamic battle space where the poachers are continually responding to advances in technologies," said Arthur Holland Michel, co-director at the Center for the Study of the Drone at Bard College in Annandale-on-Hudson, New York.

Poachers could, for example, seek vegetation cover to try to avoid being spotted by drones or use informants to monitor drone teams and learn when the skies are clear.

"They have great potential," Wilkie said of drones. "I think they're not there yet."

Wilkie said groups with limited budgets often opt for types of drones used by hobbyists. A military-grade, aluminum drone with a powerful engine and sophisticated radar that can look through canopy and detect metal — a poacher's car or motorcycle, for example — could be more effective, he said.

Searching for poachers with drones in Africa's vast wildlife reserves can seem like a needle-in-a-haystack operation. Costs mount, crashes are frequent, equipment breaks down, rain or high wind can scrap a mission and even before operations start, legal and bureaucratic obstacles must often be overcome in countries that tightly regulate airspace.