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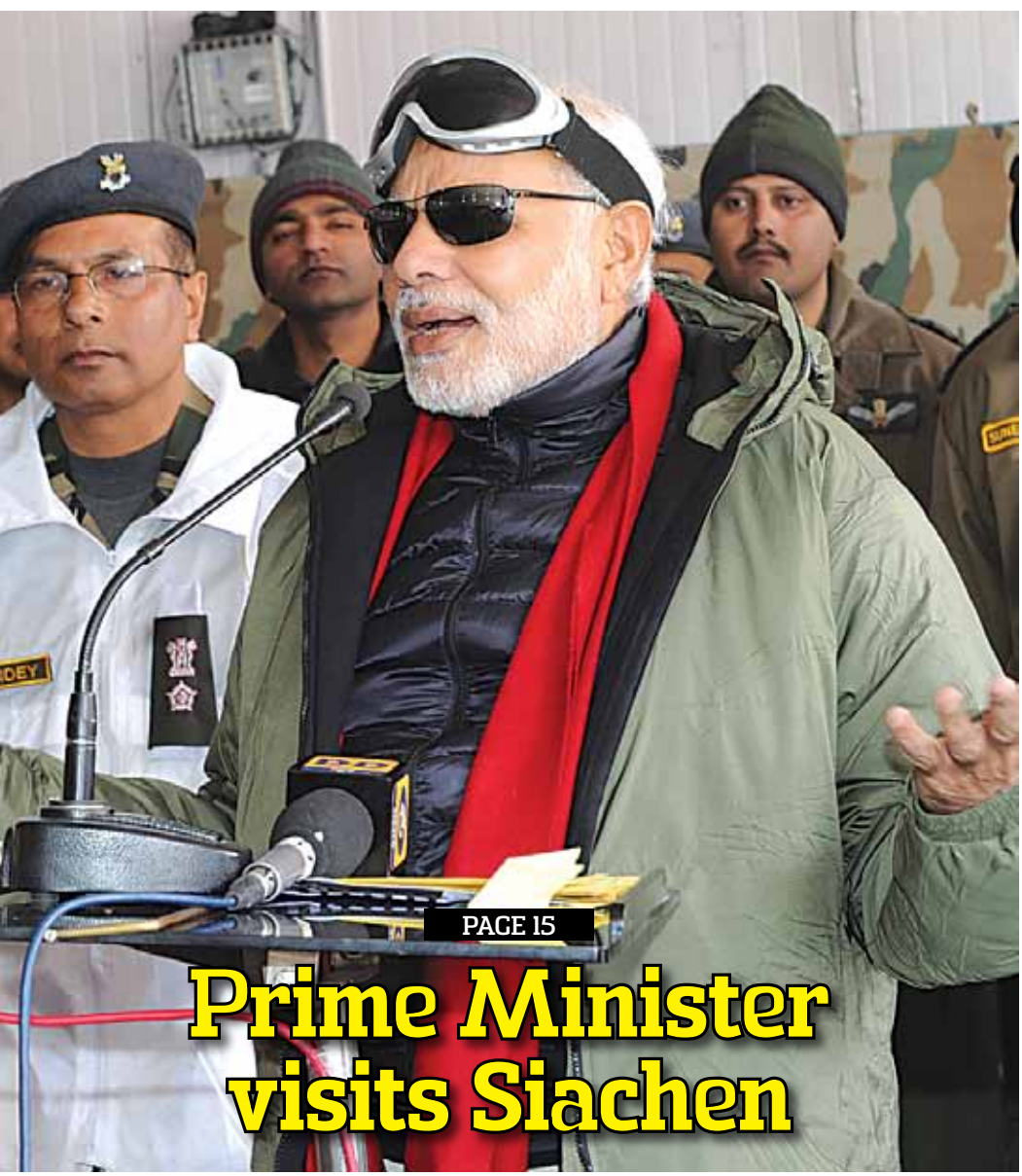

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Prime Minister visits Siachen

Airbus Military's C295

Welcome step: FDI cap is loosening PAGE 10

KC-390 rollout triggers global competition PAGE 17

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Rafale F3.4 tested in Istres

From October 6 to 17, 2014, French Air Force personnel from the integrated flight test team (EIEV) at Istres airbase and the Rafale programme office at the air force operational trials unit (CEAM) at Mont-de-Marsan airbase evaluated a new release of the Rafale F3 standard.

Designated F3.4+, the new standard being developed by industry under the responsibility of the Directorate General of Armaments (DGA), is part of the programme's continuous improvement process. It takes into account the feedback from recent operational deployments, and contributes to the permanent improvement of flight safety. Experts from the EIEV and CEAM form the core of initial users, and monitor the deployment of the new system. "For two weeks, we carried out flight tests," said Major Mathieu Rigg, chief of the Rafale programme office's detachment at Istres. "The aircraft will then be flown to Mont-de-Marsan for the final testing phase before its service introduction."

PHOTOGRAPH: www.defense.gouv.fr

The F3.4+ standard includes many software improvements, such as improved capture and conversion of NATO-standard geographical coordinates (in MGRS format), which save time and significantly reduce crew workload. In the field of flight safety, a new instrument will allow pilots to better evaluate the aircraft's attitude, and will sound an alarm when it detects an unusual position. Likewise, during the take-off phase, another alarm will ensure the aircraft does not exceed the maximum energy that can be handled by its landing gear brakes, which is a valuable aid to manage aborted take-offs. Finally, "in terrain-following mode, the F3.4+ standard introduces a new control to switch, in real time, from radar mode to digital mapping," adds Major Rigg.

During the evaluation phase, which comprised 20 flight hours, pilots from CEAM and EIEV defined the boundaries of the expanded flight envelope before revising the operational flight manual.

The new F3.4+ standard of Rafale should enter operational service in early 2015. SP

Cover:

Prime Minister Narendra Modi made a surprise visit to Siachen on Diwali day. Addressing the Indian armed forces at Siachen Base Camp, he praised their valour and courage, saying that 125 crore Indians could celebrate Diwali, and go about their lives in comfort, because the jawans stood guard at the borders, prepared to make every sacrifice for the nation.

Cover images: PIB, Airbus DS, Embraer

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Enhancing digital capabilities in the armed forces

At the recent Combined Commanders' Conference, the Prime Minister Narendra Modi made a significant point on how the armed forces have to go 'digital' considering that future security challenges will be less predictable, situations will evolve and change swiftly and the like. With full-scale wars becoming rare and the durations of conflict becoming shorter, digital technologies are going to be pivotal in the scheme of things.

The Prime Minister has rightly stated that at the end of the day, capability of the force will be crucial. "When we speak of Digital India, we would also like to see a 'Digital Armed Force'," while urging the defence forces to give serious thought to upgrade technological skills for effective power projection at all levels.

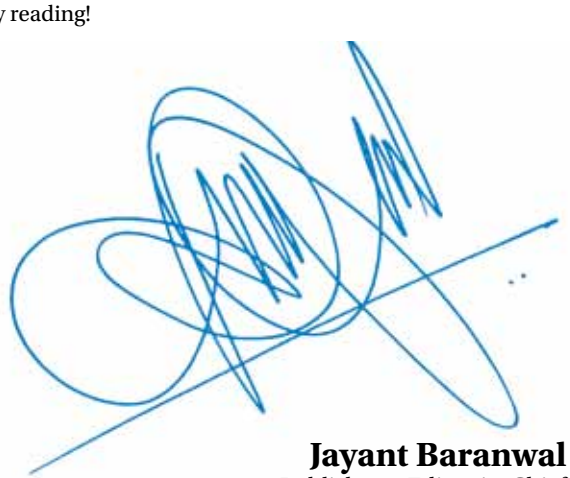
By mentioning the invisible enemy, the Prime Minister was obviously referring to the growing threat of terrorism and insurgency that India is facing, which includes refocusing of Al Qaeda to South Asia, entry of ISIS in Af-Pak region-Maldives and the enhanced terror threat from our neighbourhood; Bangladeshi links to Burdwan blasts, Sri Lankan radicals undertaking surveillance spying in South India and the like.

In line with this thinking, the importance of technologies needs to be overemphasised. It is our endeavour at *SP's M.A.I.* to keep you updated on technological developments. Not just that, we regularly organise seminars/conferences in association with other industry bodies to provide necessary information inputs and also to stimulate thinking. On October 27, in association with FICCI we organised a seminar on 'Digitisation of the Battlefield' which provided a platform for healthy interaction between the armed forces, the private sector and the defence industrial establishments and we hope to see technological advancements in the years to come. India has the capabilities, we just need to channelise our energies, our strengths and our talent. Here, it may not be out of place to mention the efforts of Brazil which through Embraer has led in defence and aerospace industry and the company's latest roll out of KC-390 tactical aircraft is testimony to its prowess.

The bottom line is that Indian firms need to get foreign investments and foreign technology and for that to happen the foreign direct investment (FDI) and the Defence Procurement Procedure (DPP) need to be addressed conjointly. We believe it will happen considering a proactive government is in place. In SP's Exclusives we have featured an interesting article on how two Indian-born sisters serve as a perfect bridge between India and the US. The sisters are part of a 12-soldier California Army National Guard contingent which was present at exercise Yudh Abhyas.

Continuing on India's re-energised foreign relations, Lt General P.C. Katoch (Retd) writes about the visit of the Vietnam Prime Minister Nguyen Tan Dung and how it pans out in Asian geopolitics. With Modi at the helm, the geopolitics of the region is getting a dynamic shape. He seems to enthuse the region, per se. At home, he continues to enthuse a vast section and this time it was the armed forces personnel with whom he spent time at Siachen on Diwali day.

Happy reading!



Jayant Baranwal
Publisher & Editor-in-Chief

सत्यमेव जयते

CHIEF MINISTER
GUJARAT STATE

Snehi Bhai Shree Baranwal ji,

Namaskar.

I pleasingly acknowledge with thanks the receipt of the copy of *SP's MAI*.

I convey my best wishes to the associates and readers of the SP Guide Publications, New Delhi and hope that your publication house will keep up the good work and will encourage more and more youth to join our defense forces and serve our motherland, India.

With best compliments.

Anandi Patel

(ANANDIBEN PATEL)

Indian sisters in US Army help bridge the gap

PHOTOGRAPH: Capt Jason Sweeney

Last month, when units of the Indian and US armies joined forces for a combat exercise in the lower Himalayas, a pair of Indian-born sisters served as a perfect bridge between the two sides. Staff Sgt. Balreet Khaira and Sgt. Jasleen Khaira were part of a 12-soldier California Army National Guard contingent at exercise Yudh Abhyas 2014, which took place September 17 to 30 at Ranikhet Cantonment in Chaubatia. The US team played the role of a United Nations Force Headquarters staff in a scenario which simulated a UN peacekeeping operation in Africa. According to the US Army, "The Khaira sisters served on the staff for the exercise, but also acted as interpreters and cultural liaisons helping US and Indian soldiers overcome language barriers and find common ground."

Not only were the two sisters part of operations, but were, by default, interpreters and the 'go-to' people for most queries. "Let's ask the sisters," was a commonly heard remark from American soldiers during the exercise, says the US Army. "And Indian soldiers could often be seen crowding around the two sisters asking questions that were answered in fluent Hindi," reports an official dispatch. "The sisters were exceptional, model NCOs for the California Army National Guard," said Colonel Steven Buethe, the officer in charge of the California Army National Guard contingent. "They exuded a positive image all the way around."

Staff Sgt. Khaira was the ops NCO for the Cal Guard team. Sgt. Khaira was the personnel NCO and also served as a medic for the 189 US soldiers who took part. According to the US dispatch, "Both performed a variety of other tasks, everything from managing exercise requests for information to helping US soldiers bargain for the lowest price for Indian jewellery at the Ranikhet market."

The annual Yudh Abhyas exercise is sponsored by the US Army Pacific Command. Each year, it alternates between India and the United States. The exercise has a goal of increasing interoperability between the armies of the world's two largest democracies. A big part of the exercise each year involves cultural exchanges intended to increase understanding between soldiers from two very different nations with different cultural backgrounds and military traditions.

This year's exercise wasn't the sisters' first joint exercise with Indian forces. In 2010, then Cpl. Balreet, a medic for the 79th Infantry Brigade Combat Team and Spc. Jasleen were cultural liaisons for the 14-day exercise at Joint Base Elmendorf-Richardson. They also participated in the 2012 edition of the exercise in Bathinda. "The Khaira sisters have been a living symbol of the strong bonds between India and the United States and a bridge between the US and Indian armies," said Lt Colonel Kenneth Koop, who assembled the California National Guard team. "They are proud of both their ancestral homeland and their adopted homeland, and have worked tirelessly to help soldiers from both countries understand each other and grow towards mutual understanding and interoperability."

"The Indian soldiers obviously love it that we're Indian and in the US Army," Sgt. Jasleen Khaira told the US Army journalism service. "I think the biggest thing the Indian Army has learned from us is that we don't just move to America and lose our roots. America is very diverse and you have all these populations that do keep their culture while still being part of the larger American culture. You can do both. You don't have to get rid of one to participate in the other."

According to US Army, the sisters had an international upbringing spending the first part of their childhood in Africa, Hong Kong, Macao and their native state of Punjab, India, before immigrating to the US when they were 12 and 14, just a week before 9/11. Their family finally settled in Temecula, California.

"Growing up we've always been into doing something that's just a little bit different than what everyone else does," Staff Sgt. Balreet said. Balreet enlisted in the California Army National Guard at 17. She said she wanted the challenge and experience of being an Army medic, which she felt would be an advantage later on in a civilian medical career. During her military career, she deployed to Iraq, while also managing to complete a bachelor's degree at the University of California, Riverside. Her long-term goal is to enter medical school and become a physician. Currently, she serves as a platoon sergeant for C Company, 40th Brigade Support Battalion, out of Montebello, California, And if that isn't enough, she also finds the time to own and operate a 7-Eleven convenience store in Mission Viejo, California. Jasleen serves as a squad leader with Headquarters and Headquarters Company, 578th Brigade Engineer Battalion, out of Manhattan Beach, California, On the civilian side, she was recently hired as a registered nurse at Long Beach Memorial Medical Center and is studying to be a nurse practitioner.

"They are force multipliers," Command Sgt. Major Paul Salinas, the senior NCO for the Califnornia Army National Guard contingent at Yudh Abhyas 2014, said of the sisters. "Both are well educated and come with great interpersonal skills and the experience of working multiple Yudh Abhyas exercises." SP

Fresh 197 light RSH chopper bids invited

Kamov helicopter

Will the Indian Army and the Indian Air Force (IAF) finally get the light helicopters they so desperately need, to augment and replace their obsolescent fleet of Cheetah and Chetak LUHs? After cancelling the reconnaissance and surveillance helicopter (RSH) helicopter procurement process during the final lap earlier this year, the process has been rebooted and officially declared open. The request for information (RFI), as reported by **SP's** in September, will be a 'Buy & Make (India)' procurement, with a certain number of helicopters built and supplied by the winning OEM in flyaway condition, with the remaining number built at a production line in India by an Indian partner through licensed transfer of technology.

The RFI, released on October 31, envisages a far swifter movement through the motions to make up for the huge delays and impact the two scrappings have had on the armed forces. This is made clear: "This RFI is being issued with the aim of identifying probable Indian vendors (including an Indian company forming joint venture establishing production arrangement with OEM) who can provide the helicopters followed by licensed production/ indigenous manufacture in the country."

While the RFI does not indicate any change in the number of helicopters required (133 for the Army and 64 for the IAF), in a break from the earlier requirement, it does not make a single engine platform compulsory, instead inviting information from prospective vendors about the engine configuration of its fielded product. That in itself widens the field of play considerably, though the largely similar mission profiles and other parameters restrict it to products that have at various junctures shown interest in the competition. The set of missions for the RSH platform include: (a) Reconnaissance and surveillance, including armed reconnaissance; (b) Direction of artillery fire; (c) Carry small body of troops/quick reaction teams for special missions; (d) Aerial photography; (e) Scout role in conjunction with attack helicopter; (f) airborne forward air controller (FAC), if required; (g) Casualty evacuation; (h) NBC monitoring; (j) Platform for ESM, ECM and ECCM etc; (k) Provide dynamic response during aid to civil authorities.

While Airbus Helicopters (formerly Eurocopter) and Kamov, the two finalists in the last RSH effort that was scrapped in August, have not confirmed if they will be participating in the fresh competition, it is likely they will – the sheer numbers in the contest are hard to pass over even when seen in the perspective of the misgivings the vendors have had with lack of clarity, arbitrary decision-making and last-minute surprises in the last two attempts in the RSH procurement. Broadly speaking, taking purely the technical requirements into view, the prospective contenders for the fresh competition would reboot old exclusions to now include the AS 550 C3 Fennec from the Airbus stable, the Kamov Ka-226T Sergei from Russia, a militarised scout version of the AW119 Koala LUH from AgustaWestland and a modified version of the OH-58D Kiowa Warrior from US firm Bell Helicopter.

The RFI broadly also sets out the production plan for the new RSH as follows: "It is envisaged that initial few quantities of helicopters will be supplied in fully formed condition. Further manufacture of helicopters by the vendor within the country in keeping with the requirement of 30 per cent indigenous content is envisaged within 3-4 years after the contract is signed. Vendor to indicate specifically the earliest timeframe within which it can meet this requirement. If not, what is the earliest timeframe in which the vendor can commence delivering the helicopters manufactured within the country. Vendor to also indicate as to what is the annual production capability it can achieve in keeping with the above requirement?"

Vendors have until Christmas to respond to the Army on what they plan to field for the competition. The Army and IAF already have extensive data on the Fennec, Sergei and offerings from Bell, which were demonstrated during RSH I. The new horse in the race could be the AW119 Koala, which is also to be fielded in the rebooted NUH programme. If in fact the new RSH programme indeed keeps an open field for twin-engine helicopters, the light-twin AW119 could be allowed to compete.

All things considered, a degree of fatigue has set in for the Army and IAF (the Navy's plans for LUH replacement are younger but no less urgent), that have grappled for just over a decade trying to get new light helicopters, coming tantalisingly close on two occasions, only to see new equipment swiped from under their nose for a combination of reasons. This time, the slow but steady nose-dive of RSH II made the end more painful, giving the IAF and Army more time to plan their next move, but ultimately hamstrung as far as force accretion is concerned. There is every hope that the 'urgent' theme of the RSH III really intends to deliver equipment quickly to the Army and IAF. There is not a moment to lose. SP

PHOTOGRAPH: Russian Helicopters

Spike-MR man-portable missile system

TAR-21 assault rifle

India to sign $525-million deal for Israeli Spike system

Ending a procurement effort that has meandered for years, India will shortly sign a $525-million deal with Israel's Rafael Advanced Defense Systems Ltd. to procure 8,300 Spike-MR missiles and over 300 launchers. The Spike MR is a lightweight third-generation, man-portable missile system, specially designed for medium-range anti-tank operations, urban warfare, traditional warfare, ground support and special missions. The weapon system operates in fire and forget mode for autonomous and medium range target engagement of up to 2.5 km. According to Rafael, "Its fire and forget operational mode guarantees maximum gunner survivability and high hit probability. The Spike-MR has an optional fire, observe and update mode of operation for the modern, multi-faceted battle." According to official NATO literature on the Spike, "The missiles in this family have sophisticated electro-optic CCD or IR sensors for operation day and night and in adverse weather conditions coupled with a tandem warhead. Their lofted trajectories enable the warhead to hit the target at its most vulnerable part with pinpoint precision. Sporting a shelf life of 20 years, the missile in its cannister weighs 13 kg, the firing post weighs 9 kg, the battery 1 kg and the tripod 3 kg, making the overall system weigh 25 kg. Rafael says the Spike system also boasts of high survivability, pinpoint accuracy, operational flexibility, and importantly for the Indian Army, low ownership cost.

For the infantry and special forces units, the green signal for the deal is massive relief. In the huge list of items required for the infantry battalions, new generation anti-tank guided missiles had prominence of place alongside sniper rifles and assault rifles. However, the purchase of the Spike does not cover India's total requirement, which will run into many thousands of more missiles and launchers, including possibly the extended range variants of the Spike. It is also not clear if the Spike deal means that the next lot of missiles will be another competitive bid—similarly protracted to the one that has just ended in a decision. SP

IAF floats tender for 32,000 assault rifles

The Indian Air Force (IAF) has floated a tender for the procurement of 32,000 assault rifles under the 'Buy & Make (Indian)' route using an Indian partner. The IAF has stipulated that the assault rifles should be compact, foldable, easy to carry, handle, operate, simple to maintain and with high effective range. The new RFI is only the latest in a spate of efforts by the IAF to arm its Garud commando units as well as other personnel with new modular weapons as part of a more extensive modernisation thrust. The new weapons will be for units guarding airfields and other assets round the year, and especially in hostile environments, the new weapons will be required for units that may operate in hostile territory as part of cover operations in conjunction with the special forces of the Army and Navy. The Army special forces and certain infantry units are armed with the Israeli TAR-21 assault rifle that would presumably fit the bill for the IAF too, though the process will be a competitive bid. The quantity of rifles required by the IAF alone, when tagged to the numbers still required by the Army make it a test case for the 'Buy & Make (Indian)' procurement route. The Ministry of Defence sources suggest the new assault rifle procurement could be testing ground for manufacture of infantry weapons by private sector firms too in a shift beyond the Ordnance Factory Board. SP

Indian Army for upgrade of 2,600 BMPs

The Indian Army has declared interest in undertaking a comprehensive upgrade of its BMP-2/2K that effects mobility, firepower and survivability upgrade. The upgrades are to be incorporated in both the existing fleet of BMPs and the ones which are likely to be produced in future. The Army has revealed that approximately 2,600 vehicles (including retrofitment and new production) are likely to be covered under the new requirement. The upgrade is the most comprehensive effort to modernise the huge number of BMP-2 and 2Ks currently in service, with more in the pipeline. While the onus on the upgrade has been broadly categorised and placed on interested vendors in their preliminary responses, the Army has made some specifics clear as far as its expectations. For instance, it has asked vendors to state their capability to integrate existing instant fire detection and suppression system, environmental control unit, digitised communication system, advanced land navigation systems as part of the upgrade. Significantly, the upgrade also envisages a comprehensive armament capability upgrade, including primary weapons and anti-tank guided missile deployment capabilities. SP

PHOTOGRAPH: Rafael, DPR Defence, Indian Army

LT GENERAL
P.C. KATOCH (RETD)

India and Vietnam – firming partnership

A parallel trilateral dialogue with Japan and Vietnam should be a good initiative or better still inclusion of Vietnam in the proposed US-Japan-India-Australia quadrilateral dialogue may be a better idea for stability in the Indo-Pacific region.

Prime Minister Narendra Modi shaking hands with the Prime Minister of Vietnam, Nguyen Tan Dung, before commencement of delegation-level talks in New Delhi on October 28, 2014

PHOTOGRAPHS: PIB

If China is distressed about growing Indo-Vietnamese ties, she forgets the manner in which she has been flexing her muscles exhuming territorial claims from the grave of medicinal history without any basis. If Chinese coast guards (directly under the PLA and CCP) were jostling and pushing Vietnamese naval vessels in Vietnamese waters, her border guards (also directly under the PLA and CCP) were pushing and jostling Indian soldiers on land under equally jaundiced claims – South Tibet problem and all that. But in her territorial greed, China forgot more recent history that when she launched the campaign to 'teach Vietnam a lesson', she ended up learning the lesson herself that her methods were antiquated and ineffective. She also seems to have forgotten the bloody nose during the 1967 Nathu La spat and later at Sumdorong Chu. But then China may not know that cultural and economic links between India and Vietnam actually date back to the 2nd century even though extensive official ties including oil exploration, agriculture and manufacturing were officially established in 1992. Then, India had condemned the US invasion of Vietnam and also helped the latter during the Cambodia-Vietnam War. Vietnam is an important pillar of India's 'Look East' policy and defence ties include sale of military equipment, sharing of intelligence, joint naval exercises and training in counterinsurgency and jungle warfare. India provides training support for Vietnam's Kilo

Prime Minister Narendra Modi welcoming the Prime Minister of Vietnam Nguyen Tan Dung and Madame Tran Thanh Kiem, at the Ceremonial Reception at Rashtrapati Bhavan, New Delhi

class submarines. Both countries are members of the Mekong-Ganga Cooperation committed to enhance ties between India and South East Asian countries. A joint declaration of 2003, creating an "Arc of Advantage and Prosperity" in South East Asia was envisaged that included Vietnam. Vietnam has backed the UN Security Council seat for India, as well as full APEC membership. Both countries are strategic partners including for extensive cooperation in developing nuclear power, enhancing regional security and countering terrorism, transnational crime and drug trafficking.

The recent state visit by Prime Minister Nguyen Tan Dung of Vietnam has cemented the strategic relationship further. This is the Vietnamese Prime Minister's third visit to India. He was previously here in 2007 and in 2012.During his visit in 2007, India had issued the Joint Declaration on Strategic Partnership with Vietnam. In 2012 he came here as part of the India-ASEAN Commemorative Summit in New Delhi. Recently, President Pranab Mukherjee had visited Vietnam in September this year while General Secretary of Vietnamese Communist Party visited India in 2013. India and Vietnam relations have been characterised by high-level exchange of visits. Institutional architecture of India-Vietnam relations is robust and is based on the dialogue process at the Ministerial level with the Joint Commission, and sectoral Working Groups in virtually every important area. Key agreements in the defence, security, economic and cultural spheres underpin the relations. India has offered Vietnam a line of credit for purchase of defence equipment for $100 million during the visit of President in September. This has been reconfirmed by Prime Minister Modi during the visit of premier Nguyen Tan Dung. The $100-million credit line to Vietnam which allows Vietnam to buy defence equipment from India. India is also selling Vietnam four large patrol vessels which will enable Vietnam to patrol its waters more effectively.

Premier Nguyen Tan Dung has pitched for 'active support' of India to peacefully resolve all disputes and sought its greater linkages across the region. Indian ships have been visiting Vietnam and Premier Dung reiterated that Vietnam will continue to allow ship visits by India. This is significant in the wake of Chinese obduracy and aggressiveness in the South China Sea though territorial disputes in the South China Sea involve both island and maritime claims among seven sovereign states within the region—Brunei, the People's Republic of China, Taiwan, Malaysia, the Philippines, Vietnam and Indonesia. But China has little regard for her neighbours. In September this year, the Indian naval ship INS Airavat was asked to exit so-called Chinese waters as it was approaching a Vietnamese port. INS Airavat was on a routine call at a Vietnam port and was travelling in open international waters in the South China Sea. But China asked the vessel to leave the waters terming them as "Chinese waters". This is direct fallout of China's Middle Kingdom mentality and the ancient belief conceived hiding behind the 'great wall' that everything under the sun belongs to China.

Vietnam has offered some blocks in the South China Sea. If they are commercially viable India will be looking at the same for exploration discounting past Chinese objections. China, as the self-appointed bully, continues to illegally occupy large chunks of Pakistan occupied Kashmir (PoK) in Aksai Chin and Shaksgam, and if this was not enough, is digging tunnels in Gilgit-Baltistan area of PoK under garb of development projects for deployment of missiles to support her operations in the Indian Ocean. Rightfully, Premier Dung explained that Vietnam and other ASEAN countries have consistently underlined the importance of complying with the international law, the 1982 UNCLOS and maintaining peace, stability, maritime security and safety and freedom of navigation in the East Sea. But then China has been overlooking international norms and has scant regard for international forums other than where she can bulldoze her way through.

Indo-Vietnamese agreement of India supplying naval vessels to Vietnam and also securing oil exploration rights from Vietnam in the South China Sea comes at a time when the Vietnam, along with several other South East Asian nations, is locked in territorial disputes with Beijing over territorial claims in the South China Sea. Chinese muscle-flexing is also egged on because of the belief that Vietnam's economic dependence on China precludes territorial conflict. Same is also true in the Sino-Indian context to a large extent. Logically, China should not be looking to destabilise a region in which it has economic interests but then China's rise has characteristically been erratic and consistently violence ridden. Both Vietnam and India are growing closer to China economically, and a recent visit to New Delhi by Chinese President Xi Jinping yielded agreements worth $20 billion. Neither India nor Vietnam seek conflict and China being a master at the psychological game despite her military might surely understands her own weak points.

In any event, the fear of being administered her own medicine is something even she cannot ignore. She should expect India and Vietnam to continue to act in their respective national interests in resolute manner. After his meeting with Prime Minister Nguyen Tan Dung, Premier Modi said, "Our defence cooperation with Vietnam is among our most important ones. India remains committed to the modernisation of Vietnam's defence and security forces. This will include expansion of our training program…joint exercises and cooperation in defence equipment. We will quickly operatioanalise the $100-million line of credit that will enable Vietnam to acquire naval vessels from India." Looking at the defence equipment that China is providing to our neighbouring countries, in addition to the nuclear technology supplied to Pakistan, India should actually accelerate the supply of BrahMos missiles to Vietnam that latter has been seeking for some time. Russia is already supplying submarines to Vietnam. Further firming of Indo-Vietnamese ties is very much needed. India already has a trilateral dialogue with US and Japan, with US proposing a quadrilateral to include Australia. A parallel trilateral with Japan and Vietnam should be a good initiative or better still inclusion of Vietnam in the proposed US-Japan-India-Australia quadrilateral may be a better idea for stability in the Indo-Pacific region. SP

LT GENERAL
P.C. KATOCH (RETD)

Defence indigenisation takes off

FDI cap **Loosened**?

Airbus Military C295 is a new generation, very robust and reliable, highly versatile tactical airlifter

The bottom line is that Indian firms do need foreign investments and foreign technology, which will not come till we address the FDI and DPP conjointly.

In a second major boost to fill up the defence forces voids the government has cleared ₹80,000-crore worth defence projects, which includes the decision to indigenously build six submarines and purchase of over 8,000 Israeli anti-tank guided missiles and 12 upgraded Dornier surveillance aircraft. The six submarines will be built in India at a cost of about ₹50,000 crore rather than import them from abroad.

Import of 8,356 anti-tank guided missile from Israel worth ₹3,200 crore has been approved over the other contender – the American Javelin missile for the Indian Army. The Army will also purchase 321 launchers for the missile. 12 Dornier surveillance aircraft with enhanced sensors will also be bought from HAL at a cost of ₹1,850 crore. Government has also decided to purchase 362 infantry fighting vehicle from the Ordnance Factory Board (OFB) at a cost of ₹662 crore. The Defence Acquisition Council (DAC) also approved the purchase of equipment for special operations for the Navy which remained classified.

The long-term integrated perspective plan (LTIPP) was also approved and additionally it was also decided to buy 1,761 units of five spoke 7.5-tonne radio containers at the cost of ₹662 crore besides acquiring 1,768 critical rolling stock — open and closed wagons for transport of military equipment at a cost of ₹740 crore.

What is most significant in all this is the decision

PHOTOGRAPHS: Airbus Military, DCNS

to manufacture the submarines in India in line with Prime Minister Narendra Modi's 'Make in India' pitch. A committee is being formed to study both public and private shipyards over the next six to eight weeks following which the Ministry of Defence (MoD) will issue request for proposal (RFP) to specific ports identified on the basis of the study. The submarines are to be air-independent propulsion (AIP) capable enabling them to stay underwater for longer than conventional submarines and are to have enhanced stealth features. These submarines will have the capacity to be equipped with land attack cruise missiles. Though six Scorpene submarines are being built in India under licence and the first is likely to be delivered sometime in 2016, the irony is that India has added just one submarine in the last 14 years which means the Navy will be desperately short of its original targets.

Much the same kind of shortages applies to most other capital equipment of the Army, Navy and Air Force including vital supplies of ammunition. This noteworthy decision of building six submarines indigenously is in addition to the government earlier approving indigenous development of mid-sized military transport aircraft and light utility helicopters, latter for the Navy and the Army.

Post the Prime Minister's call for 'Make in India, Sell Anywhere' and hiking of the FDI in defence sector limit from 26 per cent to 49 per cent, doubts persisted that the FDI capped at 49 per cent is not going to be lucrative enough for foreign firms, some of them even having voiced such concerns. Ulrich Grillo, President, Federation of German Industries having met our Defence Minister, had told reporters that German Industries would not like to invest in India since with 49 per cent FDI they would not have control over selling the products. It is for this reason that the Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry had been recommending 74 per cent FDI in case of transfer of technology (ToT) in cutting-edge and 100 per cent FDI in case of state-of-the-art technology recommendations obviously made after thorough study and analysis.

Though no formal government announcement was made post raising FDI in defence from 26 per cent to 49 per cent, apparently government has realised this cannot be lucrative enough for investments and in bridging technological voids. The media in last week of October has reported that in August, the Cabinet had also decided that FDI beyond 49 per cent would be allowed in state-of-the-art defence equipment manufacturing, with ToT under Indian control and management. This is a welcome step and perhaps was kept under wraps in interest of bargaining - 51 per cent and beyond.

Airbus Defence and Space and Tata Advanced Systems (TASL) have already submitted *(also see page 20 of this issue)* a joint bid to replace IAF's ageing fleet of Avro aircraft with the market-leading Airbus C295 medium transport. A total of 56 Avro aircraft are to be replaced. In the event of contract award, Airbus Defence and Space propose to supply the first 16 aircraft in 'fly-away' condition from its own final assembly lines. The subsequent 40 aircraft will be manufactured and assembled by TASL in India. This will include undertaking structural assembly, final aircraft assembly, systems integration and testing, and management of the indigenous supply chain. The C295 has proved itself in difficult operating conditions globally and is flying/has been ordered by 19 countries. This is just one example of how the defence sector in India has opened up and the tremendous boost in indigenisation under initiative of the Prime Minister.

The decision to permit FDI in defence beyond 49 per cent is most sensible. It would not only help bridge the defence technology deficit in an early time frame, as per a recent study it would create up to one million jobs in the next five years itself. Issue of recent regulations relaxing requirement of licence to produce a large number of components and sub-systems required in fighting equipment other than heavier battle field systems like tanks, armoured vehicles, aircraft and warships, and relaxing control on the dual use items with both defence and civilian applications are welcome steps. There is encouragement in R&D also, one example being development of prototypes for a battlefield management system (BMS) for the Army, where government will foot 80 per cent of the costs. In case of the six submarines to be built indigenously, this implies a big step with several Indian shipyards both public sector and private now come into the running.

However, another major hurdle is the Defence Procurement Procedure (DPP) which in its present shape is not attractive enough for private industry and more importantly not conducive enough to facilitate and absorb foreign technology because it has ignored time required by foreign firms, accommodate procedure of concerned country for exports, requirement of government to government negotiations, as required and the like.

Scorpene class submarine built by state-owned Mazagon Docks

The bottom line is that Indian firms do need foreign investments and foreign technology, which will not come till we address the FDI and DPP conjointly. Indigenous defence industry in conjunction with foreign companies has to play a major role, as would the FDI since the total estimated defence products required are assessed to be to the tune of $80 billion to $100 billion annually, since by the end of the Fourteenth Five Year Plan, the cumulative capital expenditures over 2012–27 are projected to exceed $235 billion. Future of the defence-industrial sector in India sure looks bright with steps being taken in the right directions. What government needs to ensure is speedy and effective implementation. SP

Towards a digitised security sector

(From left to right) Jayant Baranwal, Editor-in-Chief, SP Guide Publications welcomes Lt General Philip Campose, Vice Chief of Army Staff; Inaugural address by Lt General Philip Campose, Vice Chief of Army Staff and Indian Industry Perspective by Dr Sundeep Oberoi, Global Head for Niche Technology Delivery Group, Tata Consultancy Services;

[By **Lt General P.C. Katoch (Retd)**]

During his address to the Combined Commanders' Conference on October 17, 2014, Prime Minister Narendra Modi had stated, "Beyond the immediate, we are facing a future where security challenges will be less predictable; situations will evolve and change swiftly; and, technological changes will make responses more difficult to keep pace with. The threats may be known, but the enemy may be invisible. Dominance of cyberspace will become increasingly important. Control of space may become as critical as that of land, air and sea. Full-scale wars may become rare, but force will remain an instrument of deterrence and influencing behaviour; and the durations of conflict will be shorter."

Equally importantly, he added, "We should remember that what matters is the capability of the force. When we speak of Digital India, we would also like to see a 'Digital Armed Force'" also asking the defence forces to give serious thought to upgrade technological skills for effective power projection at all levels. By mentioning the invisible enemy, the Prime Minister was obviously referring to the growing threat of terrorism and insurgency that India is facing, which includes refocusing of Al Qaeda to South Asia, entry of ISIS in Af-Pak region-Maldives and the enhanced terror threat from our neighbourhood; Bangladeshi links to Burdwan blasts, Sri Lankan radicals undertaking surveillance spying in South India and the like. The Prime Minister's emphasis on a Digital India and Digitised Armed Force was in context of the need to sharing of information.

In the above context, the joint FICCI-SP Guide Publications seminar on 'Digitisation of the Battlefield' held on October 27, 2014, at the FICCI House was a special one. Many such seminars have been held in the past but this time it was in the backdrop of the Prime Minister's emphasis on optimising technology, his call for a Digital India and Digitised Armed Force, and above all his call from the ramparts of the Red Fort on August 15 for "Make in India, Sell Anywhere" which has resulted in the opening of up of the defence-industrial complex to the private sector including foreign firms and investors. A day prior to the seminar, media reported the welcome news that in August this year the Cabinet had also approved FDI in defence sector beyond 49 per cent for state-of-the art defence manufacturing. This would jettison bridging the technological voids. Government has also liberalised licensing besides measures like government bearing 80 per cent costs for developing prototypes for Army's battlefield management system (BMS) will help digitisation of the military. In his address to the Combined Commander' Conference the Prime Minister also called upon the defence establishment to reform procurement processes including corrective measures to avoid delays in domestic development and production of defence equipment. Streamlining the Defence Procurement Procedure (DPP) will be a vital step in leapfrogging technology through joint ventures and transfer of technology. The FICCI-SP Guide Publications seminar comprised three sessions; one each on 'Battlefield Milieu at the Cutting Edge,' 'Enabling Network Centric Technologies' and 'Information Assurance: Vulnerabilities and Solutions.' The culmination was a CEOs' Panel Discussion prominently represented by senior executives/board members of Defence & Aerospace, L&T Heavy Engineering, FICCI Defence Committee and Sub-Committee on Indian Defence SME, Tata Power SED, Precision Electronics Ltd and Rhode & Schwarz India Pvt Ltd.

Session I had presentations on: Technical Constraints at the Cutting Edge; Electromagnetic Pulse (EMP) – New Era Warfare; Converged Communications for BMS, and; Role of Private Industry in the TBA. Presentation by DRDO representative covered the challenges in developing SDRs, cognitive radios, satellite terminals and space-based sensors. The presentation on EMP covered threats, challenges and protective measures. The EMP threat is one of a few potentially catastrophic threats. Though measures are expensive, by taking action, the EMP threat can be reduced to manageable levels. A national strategy needs to be evolved to address the EMP threat and to balance prevention, preparation, protection, and recovery.

PHOTOGRAPHS: SP Guide Pubns

(Top, left to right) Lt General Anil Chait (Retd), former CISC; Lt General J.S. Matharu, DGIS and U.K. Kalyana Ramudu, Vice President, Larsen & Toubro
(Above, left to right) Major General R.P. Bhadran, ADGIS; Raghavan Muralidharan, CTO, Tata Power SED; and AVM Dev Ganesh (Retd), Customer Business Manager (Space), Honeywell

The hallmark of the presentation of the Converged Communications for BMS was the innovations required at the indigenous end for 'Make India', comprising: integrating the platform, both for the vehicle and the soldier; multi-blade, multi-component chassis hosting services; form factors PCI/PC104/others for the end points; mall form factor computers at the battalion and company HQs for the tactical compute, wide area application services, AAA/ISE, SRE to host indigenous security services; wearable computer as the platform to host software components (Router, IPICS, Jabber, Security/VPN; adaptive (Tactical) protocols integration; ruggedisation; integration of OEM/foreign platforms with C3I application (open interfaces provided OEM/foreign vendor); security and hardening, and; Leveraging software to indigenise and control the network. Presentation on the role of Indian industry in the TBA covered characteristics of TBA including fifth-generation war, communications in the TBA as well as areas of engagement in the TBA. Issues elaborated were industry development of TCS, BMS, combat net radios, SDRs, mobile ad hoc network, cellular technology, Tetra, rugged network and computing, and GIS.

Session II had presentations on: Compressing the OODA Loop, Blue Force Tracking & Situational Awareness, BMS as edge of Counter Terrorism, Tactical Lightweight GIS, and Soldier Applications. The presentation on compressing the OODA loop was comprehensively made by the ADG IS of Indian Army. The presentation on blue force tracking (BFT) & situational awareness (SA) covered the requirements for BFT, SA functionality, data flow for both, sensor inputs, challenges in acquisition, fusion, communications and consumption, finally surmising that BFT and SA is an integrated solution looking into: sensor integration (pre-processing and networking); distributed, heterogeneous and energy efficient data fusion engine; communication solution which understands BFT & SA requirements; "Communication Middleware" solution to effectively handle SA data, and; Tactical GIS for real time and local algorithm execution. The highlight of the session was the presentation on use of BMS by an Israeli Defence Forces army veteran who also showed live video clips of conflict situations with Hamas terrorists during 2009 and 2014. This included identifying terrorists entering tunnels and accurately targeting the openings of these tunnels. The presentation of the light weight GIS brought out that the weight of the GIS was reduced by putting some functionalities in the cloud. Of course the security of data in the cloud has been under debate for many years. As part of soldier applications the representative from Honeywell gave a presentation on enhancing situational awareness. The interesting part was the Dead Reckoning Module that can be used in case the GPS goes out of range. The Osprey terminal, its viewpoint application, screenshot through the inmarsat satellite network was also explained.

Session III presentations comprised of: Critical Info Assurance Requirements in TBA: Cyber Warfare, and; Management of the Electromagnetic Battlespace. There was considerable interest with the importance and application cyber warfare having gone up in recent years. The taxonomy of cyber attacks based on the dimensions of the attack vector, attack target, vulnerabilities and exploits, and possibility of a payload or effect beyond itself were discussed along with steps required for critical infrastructure in India, and the imponderables like: is cyber warfare just a hype or is it a grave threat to the national security; can cyber warfare win a war on its own; what is the threshold after which an attack can be termed as a cyber war, and; what international treaties are available to protect India against cyber war. The presentation on electromagnetic battlespace operations covered dimensions and characteristics of the electromagnetic

(Top, left to right) Lt General P.C. Katoch (Retd), former DGIS; Brigadier S.C. Sharma (Retd), Director, AxisCades Aerospace and Technologies Ltd; and Colonel Sanjeev Relia, Senior Research Fellow, United Services Institution of India (Above, left to right) Ashok Kanodia, Managing Director, Precision Electronics Ltd; Rahul Chaudhry, CEO, Tata Power SED and Jayant Patil, Executive Vice President Defence & Aerospace, Larsen & Toubro Ltd

battlespace, the problems and solutions, simulation and its constraints, concepts in vogue, and procedures and tools for managing the electromagnetic battlespace.

All in all, the seminar was an apt boost and well timed with the Make in India concept taking off, the panel discussion by the CEOs focusing on the nuances of it. For a digitised military, the issues that need to be accelerated are integrating the three services; development of common standard protocols, common security algorithm, common GIS etc whereas intra-army the BSS, CIDSS and BMS need to be given the push. We are also horribly behind in terms of mapping both by the Survey of India and Military Survey. The thrust towards developing comprehensive joint services 'Systems of Systems' approach must be specific. A dedicated defence band from the spectrum is needed considering the security requirements. The government should appoint a Chief of Defence Staff (CDS) with full operational powers without further delay. The political hierarchy should make jointness a top priority.

While the Prime Minister has called for a digitised military, the threats that India faces requires a national response. To this end, the security sector per se, especially the fighting elements, need to be fully digitised and integrated. This would include all the PMF and CAPF forces involved in counter-terrorism, counter-insurgency and border security, in addition to the military. We need information dominance under these circumstances at all levels of conflict. We must have the ability to not only see the enemy well before he sees us but take him out earliest. In looking for optimising technology, we should be looking at building capacities like identifying infiltration through dense foliage by air and ability to take out that threat through armed drones. Similar ability is needed for counter-terrorism which also threatens the backyard of our border security. Success in combat depends greatly upon fused, tailored intelligence which is communicated securely and rapidly. Speed is a critical component. The critical elements of sensor grids and engagement grids are hosted by a high-quality information backplane. These are supported by value-adding command and control processes many of which need to be automated to achieve speed. This in essence personifies the essential characteristics of a command, control, communications, computers, information and intelligence (C4I2) system. Therefore, there is a need for a tremendously flexible and robust C4I2 architecture which functions as a process of organisations, doctrines and technologies. We need to progressively develop foolproof security at our borders and comprehensive security of all vulnerable points and vulnerable areas against threats of all types. The challenge is to harness the power of sensors, information processing and communication technologies to develop concepts of operation and command and control approaches that will ensure comprehensive all-round security in any given situation or circumstance.

Steps should be taken to establish network-centricity at the national as well as the military levels, taking a holistic view and adopting a top down approach. At the national level, we need to accelerate the establishment of the NATGRID. The new government had indicated that it would be taking a relook at the National Counter-Terrorism Centre (NCTC). Incidents like the Burdwan blasts underline the need for the NCTC with subsidiary State level Counter Terrorism Centres (SCTCs) established in 'all' States of India. All this is essential to integrate the security sector with an effective command, control, communications, computers, information and intelligence, surveillance and reconnaissance (C4I2SR) system in place to ensure our national interests and security of the nation. SP

PM Modi celebrates Diwali in Siachen with armed forces personnel

The Prime Minister, Narendra Modi, made a surprise visit to Siachen on Diwali day. Addressing officers and jawans of the Indian armed forces at Siachen Base Camp at a height of over 12,000 feet, he praised their valour and courage, saying that 125 crore Indians could celebrate Diwali today, and go about their lives in comfort, because the jawans stood guard at the borders, prepared to make every sacrifice for the nation. The nation is proud of all three wings of the armed forces, the Prime Minister added.

The Prime Minister said he had come unannounced, and the jawans may be surprised, but one does not need to announce arrival when coming to one's own (family).

The Prime Minister said the jawans at Siachen worked in one of the remotest places in the world. It is a rare opportunity to be called upon to defend the country in such difficult conditions, he said. He said he is privileged that his first Diwali as Prime Minister will be spent partly with the jawans of Siachen, and partly with those affected by the floods in Srinagar.

The Prime Minister said the Indian armed forces were unique—because while they spelt trouble for the enemy on the battlefield, they spelt life for all the countrymen affected by disasters or natural calamities. He recalled the immense contribution made by the armed forces during the recent floods in Srinagar.

The Prime Minister also appreciated the fact that women too were now contributing to the Indian armed forces in a significant way. The Prime Minister assured the jawans that wherever they are, and serving or retired, the country stands shoulder to shoulder with them. He said their dreams and responsibilities are the entire country's responsibility. He said he would do his utmost to ensure a life of dignity for them.

The Prime Minister said "the promise of One Rank, One Pension had been fulfilled, and preparations were being made for a

National War Memorial, that we could all be proud of." The Prime Minister wished the entire country Happy Diwali from the icy heights of Siachen, adding that "as countrymen light *diyas* today, they should recall that the warmth of the earthen lamps has been fuelled by the sweat and toil of the jawans of the Indian armed forces. Let those jawans inspire the rest of the country to work towards achieving the dreams and aspirations of the common man," he added.

The Prime Minister later handed over a cheque for ₹5 lakh for the welfare of the jawans, and personally offered them sweets. He wrote in the visitors' book, saying that the soldiers in uniform who guarded the nation's frontiers in such difficult conditions were no less than 'rishis' and sages. The Prime Minister was at Siachen Base Camp for over an hour. SP

Visit of Commander of Sri Lanka Navy Vice Admiral Jayantha Perera

Vice Admiral Jayantha Perera, Commander of the Sri Lanka Navy, was on an official visit to India from October 26 to 30. The visiting Chief was accorded a Guard of Honour on his arrival at the South Block. He thereafter called on the Chief of Naval Staff Admiral R.K. Dhowan and also met the officers in the Ministry of Defence and the National Security Adviser.

He also travelled to the Headquarters Eastern and Southern Naval Commands and visit various training and operational facilities at Visakhapatnam and Kochi.

Indian and Sri Lankan navies have been cooperating regularly to ensure maritime security and good order at sea. The cooperation between the two navies covers a wide spectrum of activities including training, operations, hydrography, material and logistics and also information sharing for maritime domain awareness.

The Sri Lankan naval chief's visit gave an opportunity to review and further strengthen navy-to-navy cooperation. SP

PHOTOGRAPHS: PIB, Indian Navy

Indian warships enter Saint Denis Port of Reunion Islands, France

Indian naval ships Mumbai, Talwar, Teg and Deepak under the Command of Rear Admiral R. Hari Kumar, the Flag Officer Commanding Western Fleet, are on a two-month long Overseas Deployment to East Africa and the South Indian Ocean region. Three of the four ships, INS Mumbai, INS Talwar and INS Deepak arrived Saint Denis Port of the Reunion island, France, on October 27, towards bolstering bilateral ties and reinforcing cooperation in maritime security between India and France.

India and France have traditionally maintained close and friendly relations with bilateral cooperation being extended to various fields. The establishment of the Strategic Partnership in 1998 witnessed further rise in bilateral ties with regular high level exchanges at the Head of State and government levels, thus boosting the cooperation in trade and investment, culture, science and technology, education, nuclear energy, space and defence to name a few. The scale and quantum of defence cooperation between the countries has progressively been stepped up in the last decade.

During the stay the ships would be kept open to public. In addition, various cultural events and games between the two navies are also scheduled. SP

Operational consolidation and enhanced combat effectiveness top priorities: Naval Chief

At the second edition of the biannual Naval Commanders' Conference held recently, Admiral R.K. Dhowan, Chief of the Naval Staff, focused on the thrust areas outlined by him during the previous edition in June which are: sustaining combat readiness, building capabilities for the future and addressing human resource challenges.

The CNS emphasised that enhancement of combat capabilities of the fleet and efficacy of weapon systems along with readiness of other operational formations is of prime importance and focused efforts, as hitherto, are required at all levels to ensure sustained growth of the Navy and peak combat efficiency. He stated that the readiness levels of Navy's frontline fighting units, which have been strengthened through institution of safety audits, needs to be monitored with due earnestness. He further stressed that the combat readiness of the Fleet must be supported by ingenious repairs and responsive operational logistics. Operational consolidation and effective management of new inductions are of highest priority, he said.

The Admiral stressed that the major exercises being undertaken by both the fleets be optimally utilised to further improve operational and material preparedness, integrate newly inducted platforms, refine war-fighting doctrines as also to improve the interoperability with sister services.

Coastal security issues were also discussed during the conference wherein the Admiral said that the Indian Navy must continue to provide requisite focus to our coastal security responsibilities through proactive coordination with other maritime agencies and coastal states. He stated that steady progress has been made in strengthening the coastal security construct, with induction of FICs, ISVs and Sagar Prahari Bal.

The CNS reviewed Indian Navy's Foreign Cooperation Road Map, with specific emphasis on what has been achieved, and the way ahead. "Foreign cooperation being a vital component of our strategy of 'shaping the maritime environment," he said that this area be addressed at multiple levels with due impetus. Stressing that Indian Navy is an "important asset to India's diplomatic outreach," he said.

He further highlighted that Indian Navy needs to be seen as a dependable partner and the "first port of call" for the friendly navies in the Indian Ocean region.

The International Fleet Review (IFR), planned in early 2016, a major event on the anvil for the Indian Navy, was also discussed during the conference. The Admiral said that apart from being a ceremonial and diplomatic naval event, it is also an exercise in bringing together the navies of the world on a common platform with an aim to have a better understanding of each other and share best operational practices. He urged that this event of national significance be planned and coordinated in a most professional manner.

The Admiral discussed the self-reliance programme of the Navy and stressed that indigenisation of platforms, weapons, sensors and equipment, through public as well as private sectors, should remain a priority area of focus. Indian Navy's varied contributions to indigenisation and unflinching faith in 'home grown' capabilities is a matter of pride and needs to be strengthened further. He further said that the ongoing mechanisms to enhance the Indian Navy-Defence Research and Development Organisation (IN-DRDO) synergy must be continued.

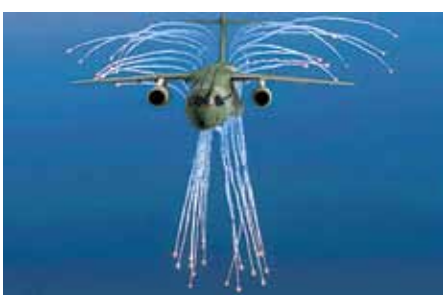
Chief of the Naval Staff Admiral R.K. Dhowan addressing the biannual Naval Commanders' Conference in New Delhi

The top naval commanders took stock of the substantial boost provided to the Navy's capabilities with the induction of Vikramaditya with integral fighter aircraft, INS Kolkata (P15 A Destroyer), INS Kamorta (P 28 ASW Frigate) and INS Sumitra (OPV). The CNS also expressed satisfaction at the steady augmentation of assets in the aviation arm of the Navy with progressive induction of P 8I LRMR and Hawk trainer aircraft. Discussions were also held on the ongoing LCA (Navy) project. Capability gaps in the submarine fleet, ship borne helicopters and Mine Counter Measure Vessels were also discussed.

The Admiral also discussed about the utilisation of resources allocated to the Indian Navy. Ensuring that every rupee is stretched to the maximum and optimally utilised through adherence to cost consciousness and stringent budget management, especially in the acquisition of spares, equipment and machinery, was stressed upon by the CNS.

The CNS concluded the conference by complimenting all personnel of the Indian Navy for their professionalism and patriotism, and exhorted them to prepare themselves and the Navy to meet the maritime security challenges being faced by the nation. He stated that Indian Navy, which is amongst the best in the world, is set to grow further and there is an immense role and responsibility on each one of us to prepare ourselves and the Navy to fully meet the needs and expectations of a resurgent nation. "We need to pull on the oars together to propel the Navy to greater heights", he said. SP

PHOTOGRAPH: PIB



Embraer's KC-390 triggers global airlifter competition

With the launch of the multinational programme, Embraer has signalled to the world that it is a formidable force in the air transport segment

[By **R. Chandrakanth**]

Brazil's aerospace and defence behemoth Embraer Defense & Security recently rolled out the first prototype of the KC-390 programme, thus heating up global competition in the 20-tonne transport category. With the launch of the multinational programme, Embraer has signalled to the world that it is a formidable competitor in the air transport segment.

Embraer KC-390 is a tactical transport aircraft designed to set new standards in its category, while presenting the lowest life-cycle cost of the market. It can perform a variety of missions, such as cargo and troop transport, troop and cargo air delivery, aerial refuelling, search and rescue and forest firefighting. It is the heaviest aircraft the company is making.

Brazilian Air Force backing

It is a project of the Brazilian Air Force (FAB). In 2009, FAB hired Embraer to perform the aircraft development. Under the programme, industrial partnerships were also established with Argentina, Portugal and the Czech Republic. Currently, the programme is in the testing phase prior to the first flight, scheduled to take place

PHOTOGRAPHS: Embraer

Technical specifications - KC-390	
Manufacturer:	Embraer S.A.
Wingspan:	35.05 m
Length:	35.20 m
Height:	11.84 m
Maximum cruising speed:	470 knots (870 kmph)
Maximum altitude:	36,000 feet (11,000 m)
Range (w/23 metric tonnes of load):	1,380 nautical miles (2,556 km)

Source: Embraer

in late 2014. After the first flight, Embraer will begin the development and certification flight test campaign. The first delivery of the KC-390 is scheduled for the second half of 2016. In May 2014, Embraer opened the hangar where the final assembly of the KC-390 military transport jet was installed, in Gavião Peixoto. On the occasion, Embraer and the Brazilian Air Force signed the contract for serial production of the KC-390, which provides for the acquisition of 28 aircraft, marking the beginning of a new phase of the project. Besides the order by the Brazilian Air Force, there are currently intentions to purchase 32 aircraft by Argentina, Chile, Colombia, Portugal and the Czech Republic.

Equipped with two V2500 turbofan engines produced by International Aero Engines, next-generation avionics, rear ramp and an advanced cargo handling and aerial delivery system, the KC-390 will have an excellent operational productivity.

The aircraft will be produced at the plant in Gavião Peixoto, São Paulo state, in facilities of over 30,000 square metres of hangars to house parts, components and assembly lines of the KC-390. The development of the KC-390 project takes place in Eugênio de Melo, a district of São José dos Campos, and about 1,500 Embraer employees are directly involved in the programme, which also means the creation of approximately 7,500 indirect jobs. When series production has stabilised, the KC-390 programme will generate another 1,100 direct jobs and 5,500 indirect jobs. More than 50 Brazilian companies are participating in the development and production of the KC-390.

The KC-390 is capable of carrying up to 26 tonnes of cargo at a maximum speed of 470 knots (870 kmph), with ability to operate in austere environments, including unpaved or damaged runways. The fuselage can accommodate large loads, with access through a rear ramp. The modern cargo handling system allows to quickly reconfigure the aircraft using retractable rollers for moving cargo on pallets or flat floor for transporting troops or vehicles. Different types of loads can be transported, such as pallets, vehicles, helicopters, troops (up to 80 equipped troops), paratroops (up to 66 equipped paratroops, which can jump using the lateral doors or the rear ramp), stretchers for medical evacuation (up 74 standard NATO stretchers) or mixed configurations.

The aircraft can further be used as a tanker using two removable inner tanks, and has great flexibility to refuel both helicopters at low altitudes and speeds as high performance fighter aircraft at high altitudes and speeds. Piloting the aircraft is facilitated by a modern integrated avionics system and a fly-by-wire control system, which reduces the workload of pilots and increases mission efficiency.

Replacement market of C-130

Embraer has estimated that the replacement market of the C-130 to be around 700 and that it was well placed with the KC-390 to take on the likes of the C-130J of Lockheed Martin, A400M of Airbus, An-12 of Russia and the MRTA project of Irkut and HAL.

"This significant milestone of the KC-390 programme demonstrates Embraer's ability to manage such a complex and high-technology project and to perform it on track," said Jackson Schneider, President and CEO, Embraer Defense & Security. "It paves the way for the beginning of the ground tests to prepare for the first flight."

"The KC-390 will be the backbone of the FAB's air transportation network. It will be able to operate in both the Amazon and Antarctica. The jet engines give the aircraft enormous agility in fulfilling all of its missions, faster and better," stated Aeronautics Commander, Lieutenant-Brigadier General Juniti Saito.

Replacement of about 700 units

It was in 2006 that Embraer started looking at military tactical transport design of size similar to the C-130 Hercules and the following year it announced a medium-size airlifter with the designation C-390. The aircraft is said to incorporate many of the technological solutions from the Embraer E-Jets series. It features a rear ramp for loading and unloading a wide range of cargo. The unit price is estimated to be around $50 million, while the competition sells similar models up to $62 million.

The Vice President of Embraer, Luís Carlos Aguilar, said that according to their estimates, some 695 military transport aircraft in the world will need to be replaced during the next decade, and that there is potential market for this kind of plane. Potential powerplant options have been studied in the 75.6 to 98 kN (17,000–22,000 lb) thrust range, including engines such as Pratt & Whitney's PW6000 and Rolls-Royce's BR715.

Partnerships and manufacturing

The multinational programme has announced partnerships with Argentina, Chile, Colombia and Portugal, besides Boeing sharing technical knowledge and market information. Several multinational companies are part of the programme and they include Czech company Aero Vodochody which was selected to build the rear fuselage section, etc; Argenitina's Fabrica Argentina de Aviones the spoilers, nose landing gear doors, ramp floors, etc; DRS Defense Solutions the tanker/transport's cargo handling and aerial delivery system; Rockwell Collins the Pro Line Fusion Avionics Systems; Esterline Corporation supplying the autothrottle system; Messier Bugatti Dowty (Safran Group) the wheels, carbon brakes, etc; Liebherr Aerospace the environmental and cabin pressure control system; BAE Systems the hardware, embedded software, system design and integration support of the flight control electronics; Goodrich Corporation the contract to design and produce a fully integrated fly-by-wire primary flight control system, etc; Selex Galileo's Gabbiano Tactical radar; Elbit System's subsidiary AEL to develop the self-protection suite, etc; Hispano Suiza (Safran Group) to supply electrical power distribution systems; LMI Aerospace to build the complete wing slat system; Eaton Corporation to supply airframe fuel system components; Cobham plc to supply refuelling receiver probes; Hamilton Sundstrand to supply electric power generating system and the auxiliary power unit; Thales Group to provide inertial navigation system; Sagem (Safran Group) the actuator system; L-3 Avionics systems to supply GH-3900 electronic standby instrument system; Honeywell Aerospace to provide eNfusion AMT-3800 inmarsat high gain antenna system; Northrop Grumman to supply hybrid global positioning system, etc; and IAE V2500-E5 turbofan engine for the KC-390. SP

An F-35C Lightning II carrier variant joint strike fighter conducts its first arrested landing aboard the aircraft carrier USS Nimitz (CVN 68). Nimitz is underway conducting routine training exercises.

F-35C First Landing

[By **R. Chandrakanth**]

On November 3, F-35C Lightning II carrier variant Joint Strike Fighters were launched from the aircraft carrier USS Nimitz (CVN 68) off the coast of San Diego. The launches and recoveries were part of initial at-sea developmental testing phase I (DT-I) for the F-35C. The testing is expected to last two weeks. The F-35C is the carrier variant (CV) of the F-35 Lightning II Joint Strike Fighter designed for the US Navy as a first-day-of-war, survivable strike fighter complement to the F/A-18E/F Super Hornet. The F-35C is designated to replace the US Navy's F/A-18C/Ds, but not the E/F Super Hornet and E/A-18G Growler electronic attack aircraft.

The F-35C flight test aircraft, CF-3, and CF-5 flew in from Yuma, Arizona. CF-3 hooked the wire perfectly, while the CF-5 performed a fly-by, then a touch-and-go and finally an arrested landing, thus marking a significant milestone for the programme which has been affected by delays and costs.

Vice Admiral Dave Buss, Commander of US Naval Air Forces, termed the event as a "great and historic day" that will be used "as a springboard into the future of naval aviation. The most remarkable thing was how steady and stable it was on approach. I didn't see a lot of control surface movement. Both aircraft landed exactly where we wanted them to."

The development testing phase I will happen over the next two weeks, during which time the envelope for flight operations will continually be opened. Night landings are scheduled for November 13-15. Developmental testing phase II is scheduled to begin in 10 months, aboard an undesignated carrier. The final testing is scheduled for 2016. SP

PHOTOGRAPHS: US Navy

Airbus Defence and Space and Tatas bid for India's Avro replacement programme

Airbus Defence and Space and Tata Advanced Systems (TASL) have submitted a joint bid to replace the Indian Air Force´s fleet of Avro aircraft with the market-leading Airbus C295 medium transport.

The teaming follows a detailed industrial assessment and stringent evaluation of the Indian private aerospace sector by Airbus Defence and Space, which concluded with the selection of Tata Advanced Systems as the Indian Production Agency (IPA) exclusive partner for this prestigious programme.

A total of 56 Avro aircraft are to be replaced. In the event of contract award, Airbus Defence and Space will supply the first 16 aircraft in 'fly-away' condition from its own final assembly line. The subsequent 40 aircraft will be manufactured and assembled by Tata Advanced Systems in India. This will include undertaking structural assembly, final aircraft assembly, systems integration and testing, and management of the indigenous supply chain.

Airbus Defence and Space Executive Vice President Military Aircraft, Domingo Ureña Raso said: "We firmly believe that, in the C295, we have clearly the best aircraft to replace the IAF Avro fleet and, in Tata Advanced Systems, we have secured the cream of the Indian private aerospace sector as our partner for this project.

"The C295 is a superbly reliable and tough aircraft with outstanding economics which is proven in the most difficult operating conditions all over the world. It has already been ordered by 19 countries, many of which have placed repeat orders. And just this year it has dominated the market with orders for no fewer than 20 aircraft from five countries."

S. Ramadorai, Chairman, Tata Advanced Systems, said, "We are extremely pleased to announce our partnership with Airbus Defence and Space for the Avro replacement programme for the Indian Air Force. It is a landmark for the development of aircraft manufacturing capability in India, now that Tata Advanced Systems is poised to take this step towards building entire aircraft in India. The selection of Tata Advanced Systems by Airbus demonstrates the confidence that has been built in our ability to undertake this complex programme." SP

Boeing delivers 300th CH-47F Chinook to US Army ahead of schedule

Boeing this month delivered to the US Army, 75 days ahead of schedule, the 300th CH-47F Chinook helicopter.

"This marks another benchmark for the CH-47F programme," said Lt Colonel Michael Hauenstein, the Army's CH-47F product manager, Office of the Project Manager, Cargo Helicopters. "More importantly, we have met this benchmark ahead of schedule, within cost, and produced an aircraft that performs as required worldwide. We wouldn't have been able to achieve this if it wasn't for the partnership of the entire Chinook community."

The CH-47F has a modernised airframe, common avionics architecture system (CAAS) cockpit that improves crew situational awareness and the digital automatic flight control system (DAFCS), which offers enhanced flight-control capabilities for the multitude of conditions in which the helicopter is used.

"The Chinook provides a lifeline to soldiers," said Steve Parker, Boeing Vice President, Cargo Helicopters & H-47 Program Manager. "There are soldiers alive today because of the dedication of this team." SP

Northrop Grumman-built E-2D advanced Hawkeye reports for duty

The US Navy has declared initial operational capability (IOC) for the E-2D advanced Hawkeye aircraft, designed, developed and manufactured by Northrop Grumman Corporation. It is the newest and most technologically advanced variant of the venerable E-2 Hawkeye airborne early warning command and control (AEW&C) platform.

"This significant milestone is a result of the strong partnership between the fleet, the acquisition community and our industry partner," said Captain Drew Basden, commander, Airborne Command Control and Logistics Wing. "By achieving IOC, we can effectively deploy the E-2D for operational missions and continue our successful transition from the E-2C Hawkeye."

Developed and produced by Northrop Grumman, the E-2D Advanced Hawkeye is the world's only aircraft specifically designed as a carrier-based AEW&C system. The E-2D's structurally distinctive design – which includes a rotating rotodome and four vertical stabiliser tail configuration – provides unprecedented, 360-degree surveillance to the warfighter. SP

PHOTOGRAPHS: Airbus Military, Northrop Grumman, Boeing

SilverSky acquisition to enhance BAE growth strategy

BAE Systems has entered into a definitive agreement to acquire Perimeter Internetworking Corp., which trades as SilverSky, a commercial cyber service provider, for $232.5 million on a cash free and debt free basis.

Ian King, Chief Executive, BAE Systems, said: "The acquisition of SilverSky enhances our strategy to grow our Applied Intelligence commercial cyber security business. SilverSky has an established sales force, a complementary suite of scalable products and a large installed customer base, providing a proven route to commercial markets in the US and other countries for our combined capabilities.

"SilverSky's cloud-based e-mail and network security solutions, its highly skilled resource in marketing and engineering, plus an experienced management team are an ideal fit for Applied Intelligence. Together, the enlarged business will offer corporate clients a suite of products and services to protect critical information and networks and detect cyber threats and financial crime. The enlarged business has outstanding growth opportunities."

SilverSky is a leading independent cloud-based managed security services provider operating in the fast-growing cyber security market offering services including e-mail protection, network security and managed applications. Its customer base includes approximately 5,500 customers in the financial services, retail, health care, energy, critical infrastructure and manufacturing sectors.

SilverSky is largely focused on the US market with a growing business in Asia and Europe. The business currently employs around 400 people with its headquarters in the Greater New York Area and principal operations in the US and the Philippines. SilverSky is expected to generate sales for the 12 months ended December 31, 2014, of approximately $75 million.

The proposed acquisition is expected to be accretive to earnings in the third year following closing with post tax returns expected to exceed BAE Systems' cost of capital in the fourth year following closing.

The acquisition will be funded from BAE Systems' existing cash resources. The transaction is conditional upon receiving certain regulatory approvals and is expected to close before the end of 2014. SP

MDA completes acquisition of Advanced Systems

MacDonald, Dettwiler and Associates Ltd., a global communications and information company, announced that it has closed the acquisition of Advanced Systems, a line of business from General Dynamics Advanced Information Systems, Inc.

Located near Detroit, Michigan, the Advanced Systems business has approximately 170 employees and generates annual revenues of approximately $40 million. The business has over 50 years of in-depth experience in development and application of radar and other information sensors for the US Government. This unique capability is expected to strengthen the company's ability to pursue future opportunities in the US market. SP

Selex ES acquires Tactical Technologies Inc

Selex ES has completed the acquisition of Tactical Technologies Inc. (TTI) operating out of Ottawa, Canada. TTI is a well-respected independent supplier of electronic warfare analysis software and services to worldwide customers. These capabilities will continue to be provided under the TTI name and will also be folded into Finmeccanica-Selex ES's already-broad electronic warfare portfolio, further enhancing the company's ability to offer electronic warfare capabilities to international customers.

TTI is most well-known for its Tactical Engagement Simulation Software (TESS) family of products which range from off-the-shelf editions to completely bespoke applications. TESS products create physics-based simulations that assist with the analysis of electronic warfare products, particularly in the field of electronic defence. Electronic defence technologies are a growth market for Finmeccanica-Selex ES who now offer the BriteCloud expendable radar decoy product and are under contract to develop a Common Jamming Pod for the UK's Royal Air Force.

Key to Selex ES's electronic warfare operational support (EWOS) alongside the technologies it sells. With EWOS, international customers can develop self-sufficiency in electronic warfare, removing the need to rely on technology providers or foreign governments to keep electronic warfare systems up to date with changing threats.

The acquisition of TTI will allow Selex ES to maintain this EWOS offer as it further develops its range of electronic defence products. Other advantages of the acquisition include Selex ES being able to accelerate its electronic warfare product development and to improve the effectiveness of new products against less familiar threats. SP

Thales inaugurates innovation hub in Singapore

Thales, a global technology leader in the Aerospace, Transportation and Defence & Security, officially inaugurated the Thales Innovation Hub Singapore, which represents the group's first multidisciplinary innovation centre outside of Europe.

The Thales team will engage customers in user centred innovation, co-designing, prototyping and testing new ideas and concepts across domains ranging from defence, maritime security to aerospace, air traffic management and smart cities.

The innovation team has been trained by the Design Thinking and Innovation Academy from the Design Singapore Council in order to apply the concept of Design Thinking innovation, a new, goal-oriented, problem solving approach developed to look at all potential alternatives of a particular design problem.

Thales has world-class credentials in research and technology, and invests 20 per cent of its annual turnover in research and development. The Singapore team will therefore draw from considerable global support, including access to the internal network of design practitioners, a global group of experts from across all Thales' domains, which fosters cross-collaboration in order to fine-tune design and innovation. The team will be further strengthened by the partnership forged with the Singapore University of Technology and Design through collaboration and internship agreements. SP

Security breach at Prince William's party

Recently, an intruder was arrested inside Windsor Castle at Prince William's 21st birthday party, another in a long line of Royal security breaches. Experts are baffled by how the man managed to evade a tight police cordon and allegedly climb on to the stage at the event as the Prince was making a speech.

Security at official Royal residences and at external events has been beefed up over the years but intruders have still been able to get surprisingly close to senior members of the Royal family.

The most serious breach came in March 1982 when Michael Fagan broke into the Queen's bedroom at Buckingham Palace. She woke to find him sitting on her bed. The pair allegedly chatted for half an hour. Fagan, who was 30 at the time, was later jailed.

But the incident was by no means the only security breach to shake the Royals. In 1974, a deranged gunman tried to abduct Princess Anne as she and her first husband Captain Mark Phillips were being driven along the Mall to Buckingham Palace after a charity film show.

The would-be kidnapper, Ian Ball, forced the royal car to a halt and brandished a pistol at the driver and bodyguard. The kidnap bid was thwarted.

Anne's personal protection officer James Beaton, shot and wounded during the incident, was later awarded the George Cross for his bravery. Two months later, Ball was sent to a mental hospital by a judge at the Old Bailey.

In 1979, Earl Mountbatten of Burma, great-uncle of the Prince of Wales, was killed when an INLA bomb blew apart his fishing boat off Mullaghmore, Co Sligo, where he had a holiday home.

In 1981, Marcus Sarjeant, 17, fired six blank shots at the Queen at the Trooping the Colour ceremony, reports *Daily Mail*. SP

Armed contractor with arrest record was on elevator with Obama

A security contractor with a gun and an arrest record was allowed on an elevator with President Obama during a September 16 trip to Atlanta, violating Secret Service protocols, according to three people familiar with the incident.

Obama was not told about the lapse in his security, these people said. The Secret Service Director, Julia Pierson asked a top agency manager to look into the matter but did not refer it to an investigative unit that was created to review violations of protocol and standards, according to two people familiar with the handling of the case who spoke on the condition of anonymity.

The incident, which took place when Obama visited the Centers for Disease Control and Prevention (CDC) to discuss the US response to the Ebola crisis, rattled Secret Service agents assigned to the President's protective detail.

The private contractor first aroused the agents' concerns when he acted oddly and did not comply with their orders to stop using a cellphone camera to record the President in the elevator, according to the people familiar with the incident.

When the elevator doors opened, Obama left with most of his Secret Service detail. Some agents stayed behind to question the man and then used a national database check that found some prior arrests in his history turned.

When a supervisor from the firm providing security at the CDC approached and discovered the agents' concerns, the contractor was fired on the spot. Then the contractor agreed to turn over his gun — surprising agents, who had not realised that he was armed during his encounter with Obama.

Under Secret Service protocols, people with weapons, arrests or convictions for assault and related offenses or any history of mental illness are typically barred from having any access to the President. But it appears that this man, possessing a gun, came within inches of the President after undergoing no such screening. SP

Chinese actors gain access to OPM network

The *New York Times* reported recently that Chinese hackers were able to gain access to the personal information of federal employees by breaking into US Government computer networks.

According to the *Times,* federal officials confirmed that the management system for the Office of Personnel Management (OPM) was accessed by hackers in March. How the cyber criminals were able to access the system was not specified, but officials believe they were targeting the files of tens of thousands of employees who had previously applied for top-secret security clearance.

The fact that malicious Chinese actors targeted the OPM is especially worrying because the agency oversees a system called e-QIP which contains sensitive personal information of federal employees applying for security clearances, including financial data. Federal employees who have already been granted clearances also have information stored within the system and are frequently asked to update their personal data on the site. SP

PHOTOGRAPH: gofugyourself.com

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