LOKPAL AND DEFENCE OF INDIA: A VIEWPOINT

SP's nAi

AN SP GUIDE PUBLICATION

ISSN 2229-6948

₹55.00 (INDIA-BASED BUYER ONLY)

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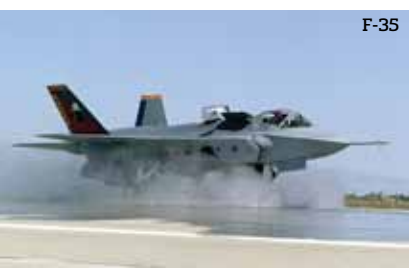
AEROSPACE
INTERNAL SECURITY

September 1-15 • 2011



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As soldiers on foot are increasingly getting killed due to IEDs, research is on to develop 'microbots' or 'insect cyborgs' which can sniff out explosives, besides increasing their surveillance capabilities.

Lethal Microbots

INS Karuva commissioned

INS Karuva, the tenth indigenously-built fast attack craft (FAC) of the Indian Navy was commissioned by Air Marshal K.J. Mathews, Commander-in-Chief, Strategic Forces Command at the Naval Base at Visakhapatnam on August 25. Vice Admiral Anup Singh, Flag Officer Commanding-in-Chief, Eastern Naval Command and Rear Admiral (Retd) K.C. Sekhar, Chairman and Managing Director, the Garden Reach and Shipbuiding Engineers Limited (GRSE) were present on the occasion. The ceremony was also attended by several senior officers and men of the Navy along with their families.

On arrival at the Naval jetty, the chief guest was received by Vice Admiral Anup Singh. The Air Marshal was presented a Guard of Honour and introduced to the Ships Officers thereafter. Following the inaugural and keynote addresses delivered by Rear Admiral (Retd) K.C. Sekhar and Vice Admiral Anup SIngh respectively, Lieutenant Commander Manish Kumar Rai, Commanding Officer INS Karuva, read out the commissioning warrant. Hoisting of the Naval En-

sign onboard for the first time and breaking of the commissioning pennant with the national anthem being played marked the formal commissioning ceremony. Air Marshal Mathews addressed the gathering on completion of the ceremony and unveiled the ship's plaque.

Named after an island situated on a tributary of river Kabani in Kerala, INS Karuva, measuring 52 metres in length and displacing 325 tonnes, can achieve speeds in excess of 30 knots. The ship has a complement of four officers and 39 sailors. Built for extended coastal and offshore surveillance and patrol, with advanced MTU engines and latest communication sets, INS Karuva, following in the footsteps of INS Koswari commissioned earlier on July 12 this year, will also be based at Karwar, under the Naval Officer-in-Charge (Karnataka) and will be deployed for coastal patrol and anti-piracy missions along the Konkan Coast and the Lakshadweep group of islands. SP

PHOTOGRAPH: Indian Navy

Cover:
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Cover image: QinetiQ

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ANNUAL SUBSCRIPTION
Inland: ₹1,150 • Foreign: US$ 325

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Owned, published and printed by Jayant Baranwal, printed at Kala Jyothi Process Pvt Ltd and published at A-133, Arjun Nagar (Opposite Defence Colony), New Delhi 110 003, India.

'Ahimsa' a powerful weapon

The fortnight which has gone by has been a historic one. Anna Hazare's campaign against corruption galvanised the nation in an unprecedented way. People thronged the streets, made their voices heard, blogged, twittered and so on, endorsing the movement, all in their bid to check corruption and get good governance. The highpoint, and I think one of the reasons for the movement to take almost the entire nation along with it, has been its non-violent approach.

Diametrically opposite to this movement has been that of the Naxalites, which is getting bloodier by the day. The approach of the Naxalites to resolve the issues of the tribals, the downtrodden, etc through violent means is fault-ridden. Anna Hazare's movement has shown how the people spontaneously support if the cause is just and also the means.

Lt General (Retd) P.C. Katoch in his fortnightly viewpoint hopes that the movement against corruption will have a positive impact on the defence sector which is not insulated from influences.

This fortnight, the Pentagon released a report on how China was modernising its military and the consequent security implications it would have not just in the Asia-Pacific region but also the world. China's army is on track to realise its goal of building a modern, regionally focused military by 2020.

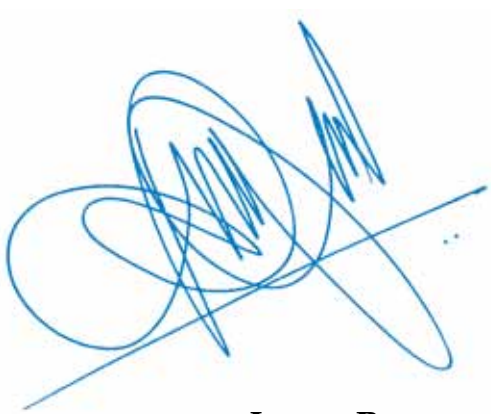
The Chinese military modernisation plans have a direct bearing on India. The reports of how China is using Pakistan in destabilising the Indian subcontinent are not secret anymore, requiring India to be prepared for a two-front war. Accordingly, India is also on a military modernisation plan, but the government needs to accelerate its pace.

Even while the government's decision on the 126 medium multi-role combat aircraft (MMRCA) is due soon, the US aerospace and defence major, Lockheed Martin has told *SP's M.A.I.* that the fifth-generation joint strike fighter F-35 base price is just $65 million, much less than the two contenders (Dassault's Rafale and Eurofighter Typhoon) for the MMRCA contract.

Along with induction of new aircraft, the importance on training is getting re-emphasised. Recently when two fighter aircraft crashed, Defence Minister A.K. Antony went on record stating that 23 per cent of the accidents of fighter aircraft are due to human error during the last three years, calling for enhanced and intensive training.

In this issue, we have introduced a Technology section as there is growing interest in new technologies in this global village. We have featured robots that are getting smaller, almost 'insect-like' and have considerable applications in military. The Pentagon is trying to develop "insect cyborgs" able to sniff out explosives, or "bug" conversations by lurking unseen in enemy hideouts with micro-transmitters strapped to their bodies. Also, the army is finding rugged robots extremely helpful in hostile environments. For instance, the Dragon Runner is a small, rugged robot, which a soldier can easily carry in his backpack and is robust enough to operate in rough terrain.

As technological innovations outpace each other, the endeavour, however, has to be to look for peaceful solutions as made known to the world by Anna Hazare. SP



Jayant Baranwal
Publisher and Editor-in-Chief

Firing on Indian posts by Pakistan Army

The Defence Minister, A.K. Antony has said in Parliament that Pakistani troops had resorted to firing and violated the ceasefire on the Line of Control (LoC) two times in June 2011 and three times in July 2011 using small arms, machine guns and rocket launchers. There were no casualties on the Indian side in the firing.

All incidents of ceasefire violations are investigated and protests are lodged with Pakistan military authorities at the appropriate level through the established mechanism of hotlines, flag meetings and talks between the DGsMO. SP

Infiltration in the valley

The Defence Minister A.K. Antony has said that infiltration in the valley had increased and as per assessment of the Multi Agency Centre (MAC) till June 2011, 52 terrorists attempted to infiltrate till June this year. In 2010, 489 persons tried to infiltrate. The Army killed two terrorists trying to infiltrate along the Line of Control in Jammu & Kashmir till date in 2011.

In 2010 the Army killed 38 terrorists trying to infiltrate. The outposts along the border are not lying unattended and no attempt has been made by the terrorists to capture any outpost. SP

Dr Prahlada is Vice Chancellor of DIAT

Dr Prahlada, distinguished scientist and chief controller of aero programmes, Defence Research and Development Organisation (DRDO), Delhi has taken over as the Vice Chancellor of the Defence Institute of Advanced Technology (DIAT) in Pune, a deemed university and an autonomous organisation fully funded by the DRDO.

The DIAT, as it is known today, came into being as the Institute of Armament Studies in 1952 in the CME campus. In 1967, the institute was renamed as "Institute of Armament Technology (IAT) which moved to its present location at Girinagar, Pune. From the relatively narrow scope of armament studies alone in the 1950s, the role of the Institute was considerably enlarged by the Defence R&D Council in 1964 and further in 1981. SP

PHOTOGRAPHS: US Army, DRDO

General Dynamics ammunition on Apache

General Dynamics Ordnance and Tactical Systems, a business unit of General Dynamics, has been awarded a $35.6 million contract for the production and delivery of 30mm M789 high explosive dual purpose (HEDP) ammunition cartridges by the US Army Contracting Command. The 30mm M789 HEDP is the primary tactical round of the Apache AH-64 helicopter. The Apache's ability to provide accurate air support with minimal collateral damage led to increased use and volume demands for M789 ammunition.

"This new M789 line provides our customer with a vital resource at a critical time of growing operational demands. Standing up this production line in concert with our supplier base was a significant challenge that we are extremely proud to have successfully accomplished ahead of schedule," said Tim McAuliffe, Vice President and General Manager of medium calibre ammunition for General Dynamics Ordnance and Tactical Systems. SP

Lockheed Martin introduces virtual language interpreters for troops

Deployed US and international forces battling language barriers will now be able to instantly connect to a pool of highly qualified interpretation services through a real-time, virtual capability developed by Lockheed Martin. Tailored to meet the exponential demand for qualified interpreters in theatre, Lockheed Martin's Linguist on-line service, LinGo Link, brings high-end interpreter services to troops at the forward edge.

"Lockheed Martin's unique solution provides language support to forces that in the past have not had access to qualified interpreters," said Macy W. Summers, Vice President with Lockheed Martin IS&GS-Defense "LinGo Link serves as a force multiplier by allowing interpreters, skilled in multiple languages and dialects, to be used in different areas without the need to be physically present at each location." SP

Negev carbine launched

Along with broadening the product offerings of the Łucznik-Radom weapon factory and Bumar there was the first official presentation of the Negev 5.56mm light machine gun. The first to test the hardware were representatives of the Polish media. Currently, in the armament of the Polish Army there is no weapon of the light machine gun 5.56x45mm category. Its place is taken by the PK and the UKM-2000 machine guns, powered by "strong" ammo – respectively – 7.62mm Mosin or 7.62×51mm NATO. These rifles are of large weight and usually require double handling and therefore are not suitable for manoeuvre combat on the modern battlefield. SP

Karzai pardons 20 would-be children suicide bombers

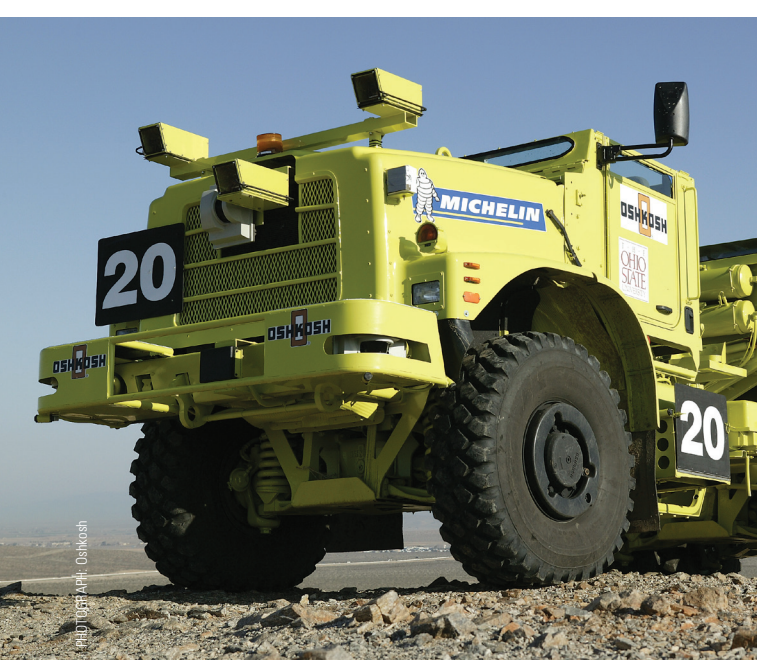
Afghanistan President Hamid Karzai has ordered the release of 20 would-be suicide bombers detained by security forces. Learning opportunities for the pardoned suicide bombers will be available inside or outside the county, especially in Turkey.

President Karzai termed suicide bombings, which result in the death of innocent people, as oppression to Islam and an effort to defame Islam. Tolo TV showed an 11-year-old pardoned suicide bomber who said he was trained in a madrasa in Pakistan and was told if he conducts suicide attacks he would not be hurt, and another teenager said he was injected with some drugs, though he was healthy, and then sent to carry out a suicide attack. Meanwhile, the head of Afghanistan's Ulema Council, Qiamuddin Kashaf addressing the pardoned suicide bombers told that they are kids and are not obliged to do so, their duty is to study. SP

Oshkosh presents TerraMax

Oshkosh Defense presented its TerraMax unmanned ground vehicle (UGV) technology at the Association for Unmanned Vehicle Systems International (AUVSI) Unmanned Systems 2011, in Washington, D.C. The TerraMax technology recently completed its first limited technical assessment for the US Marine Corps Cargo UGV initiative, and Oshkosh will soon begin training marines to independently conduct autonomous convoy missions for evaluation.

The Cargo UGV programme utilises an Oshkosh medium tactical vehicle replacement equipped with Oshkosh's TerraMax UGV technology, resulting in an unmanned vehicle that has the potential to increase the operator's situational awareness, or reduce warfighters' exposure to lethal attacks. SP



PHOTOGRAPH: Oshkosh

QinetiQ's Dragon Runner robots in Afghanistan

Responding to an urgent operational requirement QinetiQ, a leading international supplier of military robots, has been awarded contracts by the UK Ministry of Defence (MoD) to supply approaching 100 Dragon Runner robots, associated spares and technical services to support current military operations in Afghanistan.

The Dragon Runner is a small, rugged robot that weighs between 10-20kg depending on the chosen configuration. It can be easily carried by a soldier in a backpack and is robust enough to operate in rough terrain to help protect troops. The variant selected by the UK MoD is equipped with a manipulator arm to assist with the disarming of improvised explosive devices but the versatility of the Dragon Runner platform means that it can also be configured for a variety of other reconnaissance and surveillance operations. The Dragon Runner robot is also able to operate in sewers, drainpipes, caves and courtyards to detect danger.

Already being deployed, the all-seeing, all-listening Dragon Runner has the ability to send video footage back to the operator at a safe distance, enabling troops to assess a situation prior to moving forward or entering a structure, potentially safeguarding lives.

The backpack-able Dragon Runner is particularly suited to operational environments similar to those experienced in Afghanistan where the road system has been ravaged by almost continuous fighting since the late 1970s and where many troop movements are conducted either on foot or by helicopter. The use of robots also has significant benefits in Afghanistan where the United Nations estimates that 200,000 people have been disabled by landmines and the explosive remnants of war.

QinetiQ's initial contract with the UK MoD is valued at over £12 million. This includes the supply of replacement parts and the provision of support throughout the operational life of the systems. This is an essential part of a UK-based maintenance and support plan that has been carefully designed to enable the UK MoD to return battle-damaged robots to active duty as quickly as possible.

The Dragon Runner was originally developed by Automatika, a US company acquired by QinetiQ North America. The robot has since been further developed as a result of UK and US military user input and it can travel at speeds of around 8 kmph, travel over rough terrain, as well as climb stairs and open doors.

The basic chassis is 20 cm wide, 7.5 cm tall and 23 cm in length and can be easily adapted in the field with various accessories and a manipulator arm to be mission specific. In addition to IED identification and defeat, other functions include perimeter security, checkpoint security and the inspection of suspect vehicles.

"With this very important contract and our work with the UK and US military, Dragon Runner is set to become a vital tool in military campaigns throughout the world," said Mary Carver, MD of QinetiQ's Technology Solutions business. "The majority of the 3,000+ military robots that we have delivered to our customers so far are being used to disable roadside bombs. However, we're now seeing increased demand for military surveillance and reconnaissance as well as for homeland security and specialist intelligence operations." SP

PHOTOGRAPH: QinetiQ

China's military might increasing: Report

China's military is modernising, but the Chinese Government needs to be more forthcoming on why it needs these new capabilities, according to a Defence Department report

[By **Jim Garamone, American Forces Press Service**]

Michael Schiffer, Deputy Assistant Secretary of Defense for East Asia, said the United States "welcomes a strong, prosperous and successful China that contributes to international rules and norms and enhances security and peace both in the Asia-Pacific region and around the globe."

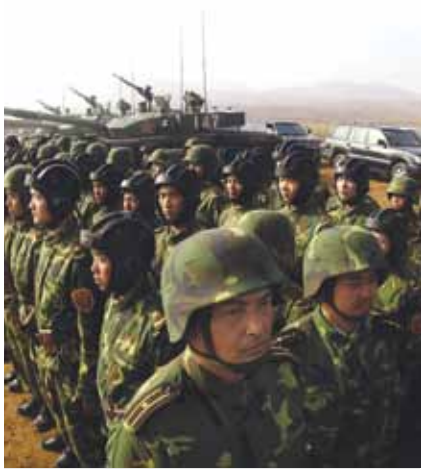
The United States is working to engage China in economic, peacekeeping and humanitarian areas, among others. A good military-to-military relationship is one part of that engagement and China is working with the international community, for example, to counter piracy off the coast of Somalia and in the Gulf of Aden. The Chinese military also has contributed to earthquake relief in Pakistan and played a role in delivering humanitarian aid to Haiti.

"However," says the report, "the pace and scope of China's sustained military investment have allowed China to pursue capabilities that we believe are potentially destabilising to regional military balances, increase the risk of misunderstanding and miscalculation, and may contribute to regional tensions and anxieties."

The capabilities could pose a temptation for the Chinese Government to use military force "to gain diplomatic advantage, advance its interests, or resolve disputes in its favour". This danger re-emphasises the need for a sustained and reliable military-to-military dialogue between the United States and China.

China's army is on track to realise its goal of building a modern, regionally focused military by 2020, the report says. But China's ability to sustain military power at a distance today remains limited.

This month, China has conducted sea trials of a Kuznetsov class aircraft carrier it purchased from Ukraine and refurbished. "The aircraft carrier could become operationally available to China's navy by the end of 2012, we assess, but without aircraft. It will take a number of additional years for an air group to achieve the sort of minimal level of combat capability aboard the carrier that will be necessary for them to start to operate from the carrier itself."



PHOTOGRAPH: Wikipedia

The Chinese continue to invest in submarines, and China's navy is investing in new surface combatants designed for anti-surface and anti-air warfare and construction of a major naval base on Hainan Island is complete. "And this base, we assess, is large enough to accommodate a mix of ballistic missiles, submarines and large surface combatants, including aircraft carriers."

China is also investing in aircraft and missiles. In January, the Chinese air force flight-tested its next-generation fighter prototype. The aircraft includes stealth attributes, advanced avionics and supercruise-capable engines.

Space also is a focus of China's military modernisation, with a record 15 launches in 2010.

While relations with Taiwan and China have improved markedly, the Chinese military still focuses on a cross-strait contingency. China also seems to be stressing maritime territorial claims in the South China Sea – an area where roughly 50 per cent of the world's trade travels. The Chinese military also has demonstrated in recent years the capability to conduct limited peacetime deployments of modern forces outside Asia.

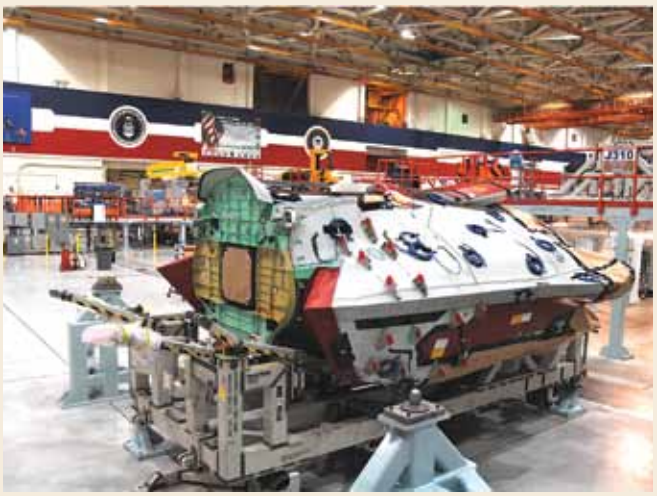
"This includes multiple counter-piracy deployments to the Gulf of Aden and increasing participation in international humanitarian and disaster … relief efforts. Investments in large amphibious ships, a new hospital ship, long-range transport aircraft and improved logistics have made these sorts of missions a practical reality."

The modernisation shows no sign of slowing as the Chinese military received a 12.7 per cent budget increase this year. The report acknowledges the difficulty in figuring how much China spends on its military, but estimates it at around $165 billion (₹7,42,500 crore). "That continues more than two decades of sustained budgetary growth."

The Chinese have made some incremental improvements in transparency in recent years, but a number of uncertainties remain.

"We will continue, and we do continue, to encourage China to improve transparency and openness, to act in ways that support and strengthen common political, economic and diplomatic interests of the region and of the international community," Schiffer said. SP

Northrop Grumman's 50th fuselage for F-35 JSF



Northrop Grumman Corporation marked the completion of the 50th centre fuselage for the F-35 joint strike fighter during a ceremony at the company's Palmdale Manufacturing Center.

"Completing the 50th F-35 centre fuselage is something to be proud of; it's a sign of a team that is committed to getting a very difficult job done, and done right," said Mark Tucker, Vice President and F-35 Program Manager for Northrop Grumman's Aerospace Systems sector. "I'm proud that we've reached such an important milestone, but I'm even more proud of how we've done it. This team is always identifying ways to do an even better job of building the world's most sophisticated multirole fighter. And, 50 ship sets in, it's working." SP

Bangladesh Navy purchases two RUAG aircraft

Following customers in Japan, Norway and Germany, the Bangladesh Navy has purchased two modern Do 228NG (new generation) turboprop aircraft. The aircraft will be used for maritime air patrol and rescue missions along the countries' coastline.

The two Do 228NGs are the first fixed-wing aircraft to be purchased by the Bangladesh Navy for patrolling its coastline. For this purpose, both aircraft are being equipped with special equipment for maritime air patrol operations. This includes radio and navigation aid and other selected systems as well as rescue equipment.

With the Do 228NG, RUAG Aviation has asserted itself against the competition. "The cost-effectiveness and, despite its sophisticated technology, ease of use sealed the decision in favour of the Do 228NG," said Alexander Müller, Vice President Military Aviation Germany. In addition to the two aircraft, the contract includes comprehensive pilot and aircraft maintenance training for the Navy ground crew on location. Delivery of both aircraft is scheduled for early summer 2013. SP

Raytheon close-air support programme for all forces

An ongoing series of Raytheon Company trade studies for the Defense Advanced Research Projects Agency (DARPA) persistent close air support (PCAS) programme revealed there is broad, cross-service applicability to Raytheon's proposed solution.

Raytheon's proposed PCAS solution will develop technologies that significantly reduce the timeline for close air support through improved coordination among joint terminal attack controllers (JTACs), airborne sensors and weapons.

"Because we are a mission systems integrator and are designing to the effect, not the platform, our flexible solution is as relevant to marines, soldiers and sailors as it is to airmen," said Bob Francois, Vice President of Advanced Missiles and Unmanned Systems for Raytheon Missile Systems. "We're the world leaders in designing, building and integrating precision-guided munitions, so figuring out smarter ways to employ weapons falls within our area of expertise."

Raytheon is integrating the work of several team members, including Rockwell Collins and GE Aviation. SP

Boeing picks Meggitt smoke detection for KC-46 tanker

Boeing has selected a Meggitt cargo and cabin smoke detection system for the KC-46 refuelling tanker. The system features advanced optical measurement features and digital signal processing to eliminate the false alarms that disrupt airline schedules, incurring significant cost to airline operators and impairing the readiness of military aircraft.

Meggitt's fire protection and control facility based in Simi Valley, California, will supply the system with the state-the-art micro-particle discrimination feature. Model 604 discriminates between smoke and non-smoke sources of airborne particles—humidity, dust and airborne particulate contamination—based on their optical signature. SP

PHOTOGRAPHS: Northrop Grumman, RUAG

BAE Systems seeks feedback on MiG-29N replacement programme in Malaysia

BAE Systems, which is eyeing Malaysia's MiG-29N replacement programme, is currently seeking responses and gathering information from local companies as well as government agencies on the requirements of the programme and the industry.

Its director, Typhoon Malaysia, Military Air & Information, Ian Malin, said for the past months, the UK-based defence and aerospace company has been engaging with government agencies like Malaysian Investment Development Authority and Malaysia Industry-Government Group for High Technology as well as 20 local companies in various sectors.

"We have been talking with the industry players as well as government agencies to get their feedback and to know specifically what Malaysia wants. We will continue to do so for the next couple of months," he told a media briefing here today.

Among industry options the company could offer included research and development, training, manufacturing, systems integration as well as in maintenance, repair and overhaul, Malin said.

In March, BAE Systems submitted a rough order of magnitude prices of the multi-role combat aircraft Eurofighter Typhoon to replace the 18 MiG-2N aircraft.

BAE Systems will likely be up against three other competitors, including Boeing, French's Rafale and Sweden's Gripen, for the replacement programme. Eurofighter Typhoon is manufactured by BAE Systems and three European partner nations — Germany, Italy and Spain. SP

Two macrocontracts for Mi-171

At MAKS 2011 International Aviation and Space Salon, Russian Helicopters holding company signed two macrocontracts for delivery of Mi-171 helicopters produced by JSC Ulan-Ude Aviation Plant (JSC U-UAP).

According to the agreements achieved, 40 helicopters of Mi-171 type are planned to be delivered to JSC UTair Aviation, and 39 helicopters of Mi-8AMT type to Gaspromavia Aviation Company. The contracts were concluded on August 17 in the presence of Chairman of the Government of Russia, Vladimir Putin, who visited the exhibition and exposition of Russian Helicopters.

The previous joint macrocontract with UTair for 40 Mi-171 helicopters was completed in September 2010. All helicopters were produced and supplied before the scheduled dates.

According to the contract, another 40 Mi-171 helicopters will be delivered to UTair in 2012-13. For further successful development of new helicopter services markets the UTair needs the helicopters, which meet the high requirements of customers.

In this regard, the new certified Mi-171 helicopters are planned to be produced and delivered in more complex configuration than the previous batch. It is planned that they will be heavily involved in works to the benefit of enterprises of gas and oil complex and UN missions in various regions of the world.

39 Mi-8AMT helicopters (export designation Mi-171E) are planned to be delivered to Gaspromavia Aviation Company Ltd in 2012-2016. SP

23 per cent of figher plane crashes due to human error: Antony

The Defence Minister A.K.Antony has stated in parliament that 23 per cent of the accidents of fighter aircraft have been due to human error during the last three years (financial year 2008-09 to 2010-11).

Various steps have been taken by the government to provide adequate training to pilots to prevent accidents due to human error. Some of these steps include increased used of simulators to practice procedures and emergency action, focused and realistic training with additional emphasis on the critical aspects of mission, introduction of crew resource management and operational risk management to enable safe mission launches, aviation psychology courses and introduction of aerospace safety capsules in the *ab initio* training of aircrew.

Year	No. of fighter aircraft crashes
2008-09	08
2009-10	10
2010-11	06
2011-12 (up to 11.08.2001)	02

During the last three years (from 2008 up to August 11, 2011), 26 fighter aircraft of the IAF have crashed.

In these accidents, six service personnel and six civilians were killed. Twenty five civilians were also injured in these accidents. Apart from loss of aircraft, compensation is paid by the government to the next of kin of the deceased service personnel and civilians, to injured civilians and towards civil property damage. SP

PHOTOGRAPH: Eurofighter

DARPA hypersonic vehicle splashes down

On Thursday, August 11, the HTV-2 experienced a flight anomaly post perigee and into the vehicle's climb. The anomaly prompted the vehicle's autonomous flight safety system to use the craft's aerodynamic systems to make a controlled descent and splash down into the ocean. Controlled descent is a term typically associated with a human-in-the-loop directing or guiding the unscheduled landing of an aircraft.

For DARPA's Hypersonic Technology Vehicle 2 (HTV-2) controlled descent takes on new meaning thanks to the vehicle's safety system.

"We've confirmed that the HTV-2 made impact with the Pacific Ocean along its flight trajectory as planned in the event of an anomaly,"

explained Air Force Major Chris Schulz, DARPA HTV-2 Program Manager. "This flight safety system is a significant engineering advance in that the system prompts a vehicle to monitor the parameters under which it is operating and exercise safety protocols completely autonomously should those parameters be breached."

"According to a preliminary review of the data collected prior to the anomaly encountered by the HTV-2 during its second test flight," said DARPA Director Regina Dugan, "HTV-2 demonstrated stable aerodynamically controlled Mach 20 hypersonic flight for approximately three minutes. It appears that the engineering changes put into place following the vehicle's first flight test in April 2010 were effective. We do not yet know the cause of the anomaly for Flight 2." SP

PHOTOGRAPHS: DARPA, US Air Force

Boeing delivers 3 more F-15K Slam Eagles to Korea

Boeing on August 20 delivered three F-15K Slam Eagle aircraft to the Republic of Korea Air Force (ROKAF) at Daegu Air Base.

"We are pleased to receive the latest three F-15K Slam Eagles, F-15K 51, 52 and 53, from Boeing," said Lt Colonel Tae Uk Kim, Commander of the 110th Squadron, 11th Fighter Wing, ROKAF. "The F-15K is one of our most important assets in defence of the peninsula. We are satisfied with the continued on-schedule, quality deliveries of our F-15K Slam Eagles from Boeing."

Boeing delivered the first six of 21 F-15Ks it is producing under the Next Fighter II contract in 2010, followed by two in April and two more in May. The remaining eight aircraft will be delivered through April 2012. SP

Aerojet rocket boosters launch Juno

Aerojet, a GenCorp company, announced its key role in the successful launch of United Launch Alliance's (ULA) Atlas V rocket from Cape Canaveral, Florida, carrying NASA's Juno spacecraft on a mission towards Jupiter.

Launching in a 551 configuration, Aerojet provided 1.9 million lbs. of liftoff thrust from five solid rocket boosters (SRBs), eight retro-rockets for the Centaur separation from the Atlas common core booster, 12 reaction control thrusters for the Centaur upper stage as well as 12 monopropellant hydrazine rocket engine assemblies (REAs) fixed to the Juno spacecraft.

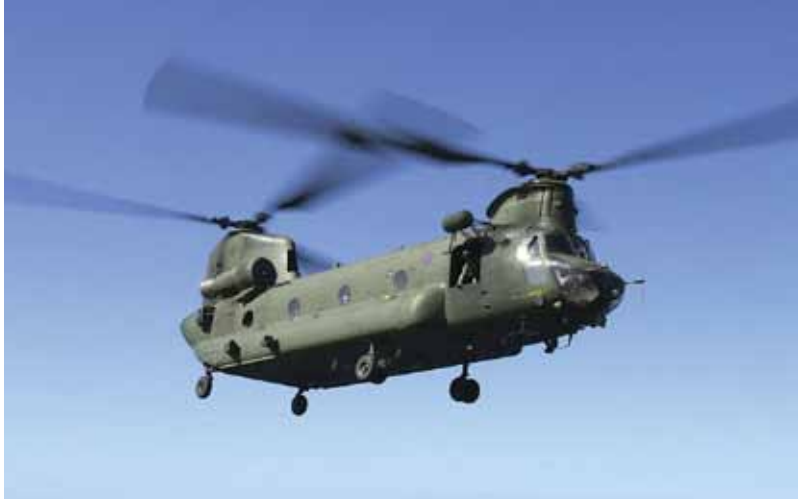
Aerojet's SRBs on the Atlas V vehicle are 67-feet long and provide a liftoff thrust of 380,000 lbs. each. Aerojet SRBs have flown in previous vehicle configurations using one, two, three and five boosters. This was the 13th successful Atlas V launch with Aerojet SRBs. SP

ITT 's breakthrough launch system for P-8A Poseidon aircraft

ITT Corporation recently completed initial qualification testing on a new, environmentally friendly Sonobuoy Launching System (SLS), a high-tech ejection system carried on the US Navy's P-8A Poseidon aircraft. The SLS enables aircraft conducting anti-submarine/anti-surface warfare or intelligence, surveillance and reconnaissance missions to release more sonobuoys.

"As the aircraft deploy sonobuoys in flight, the precision and reliability of the SLS are vital to our customer's mission," said Jim Barber, Vice President and General Manager of ITT's Integrated Structures business. "Completing initial qualification testing has reinforced ITT's commitment to developing an enhanced system that aircraft operators can depend on now and in the future."

The improved design of the SLS eliminates the use of electro-explosive cartridges that had to be discarded and replaced after every single release. SP



14 new Chinooks for RAF

British Defence Secretary, Dr Liam Fox, on August 22 announced a contract award for 14 new Chinook helicopters, the RAF's workhorse on the front line in Afghanistan.

The contract with Boeing to supply the Chinook heavy lift helicopters will bring a significant enhancement to the mobility of front line forces. Already the largest fleet in Europe, this new contract will bring the UK's overall number of Chinooks to 60.

Dr Fox made the announcement during a visit to RAF Odiham, where he was given a tour of existing Chinook helicopters and spoke to crews who have recently returned from Afghanistan. The annnouncement follows the government's recent commitment to a one per cent a year real terms increase in the defence equipment and support budget from 2015.

This new Chinook contract is valued at £1 billion, including development, manufacture, and the first five years of support for the new Chinooks. SP

TAI tests first attack copter

Turkish Aerospace Industries, Inc. (TAI) announced the successful first flight of the first T129 prototype, produced at TAI's facilities in Ankara, Turkey.

The first flight, conducted by TAI's test pilots, of T129 "P6" prototype helicopter was successfully completed at TAI's facilities in Akıncı (Ankara). The ATAK programme was initiated with the aim to meet the attack/tactical reconnaissance helicopter requirements of the Turkish Land Forces Command (TLF) by the integration of high-tech avionic equipment, hardware and software, which will be developed in Turkey. The first flight of the P6 prototype marks an important milestone in the ATAK Program such that being the first of a total of three T129 prototypes to be assembled in Turkey, it shows the level of technology achieved by TAI.

TAI is the centre of technology in design, development, manufacturing, integration of aerospace systems, modernisation and after sales support in Turkey. Located in Ankara – Turkey, TAI's modern aircraft facilities are furnished with high technology machinery and equipment that provide extensive manufacturing capabilities. SP

PHOTOGRAPHS: US Navy, Eurocopter & TAI

Saab agreement with Eurocopter

The defence and security company Saab has recently signed a framework agreement with Eurocopter for support of their NH90 helicopters.

Eurocopter is the largest owner in the consortium NHIndustries, which designs and produces the NH90 helicopter. NHI has contracts for more than 500 NH90 helicopters, with European defence forces comprising the majority of customers. Saab already supplies the Tactical Mission System (TMS) to NHI for the helicopters that are to be delivered to the Swedish Armed Forces.

The contract with Eurocopter is worth approximately SEK 5 million and means that Saab has a framework agreement regarding the support and maintenance of the NH90. The first work to be carried out, and now included in this new agreement,

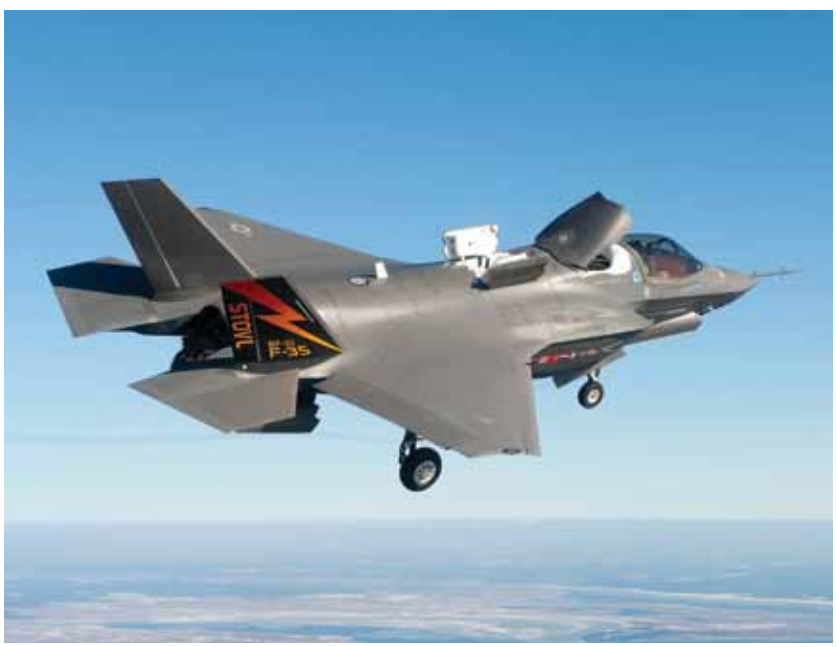
started in May 2011 with the maintenance of one Swedish Helicopter 14 at Malmen in Linköping dedicated to training.

Saab will assist Eurocopter Training Services with on-the-job-training (OJT) for the Swedish Armed Forces' helicopter technicians. Besides this, Saab is also responsible for airworthiness and maintenance planning. This assignment is for one year initially, with the option of a further one year extension.

"This is a major success, demonstrating that Saab is a highly credible and attractive business partner for the maintenance of military helicopters. We view this as the start of a long and deeper cooperation with Eurocopter in the future," says Torsten Öhman, Divisional Manager and responsible for the helicopter operations within support and Services at Saab. SP

$65 million only

__Dave Scott__ is the Director, F-35 International Business Development, Lockheed Martin who works closely with the US Government to ensure the required coordination between international and domestic governments. In a brief interview with __SP's M.A.I.__, Scott clarified why and how the fifth generation fighter F-35 is highly affordable.



SP's M.A.I. **(SP's): The price of F-35 has been an issue of debate. What is the list price of the F-35? The usual perception has been that the price is close to about $125 million.**

Dave Scott (Scott): The F-35 is built in three versions. The conventional take-off and landing (CTOL) version is the version that will likely have the broadest international appeal. The CTOL F-35 is projected to have an average unit recurring flyaway price of $65 million in 2010 dollars. It is important to note that this price includes all the sensors, the electronic warfare system and weapons launching equipment that must be purchased separately for current generation fighters.

SP's: Can we have a little background as to how the price is considerably cheaper than $100 million?

Scott: The F-35 is designed to provide fifth generation capabilities in a highly affordable aircraft allowing the US Air Force (USAF), US Navy (USN), US Marine Corps (USMC) and eight partner nations to cost-effectively recapitalise their aging fighter fleets. All three F-35 variants have a high degree of commonality enabling the aircraft to be built on a single production line, with common parts and at a high production rate providing affordable fifth generation capabilities.

SP's: How is the international partnership progressing for this fifth generation fighter programme?

Scott: The F-35 international partnership remains strong and is a model for international co-development and cooperative production. Nearly ten years ago, eight nations joined together with the USAF, USN, and USMC to co-develop the F-35. Today those eight nations—UK Netherlands, Italy, Norway, Australia, Canada, US and Denmark—all remain committed partners in the development programme and all intend to acquire and operate the F-35. Till date, initial F-35 production aircraft orders have been received from the UK, Netherlands, Italy and Australia. In addition to the eight partner nations, Israel has placed the first foreign military sale (FMS) aircraft order, and Singapore and Spain are receiving F-35 information from the US Government. SP

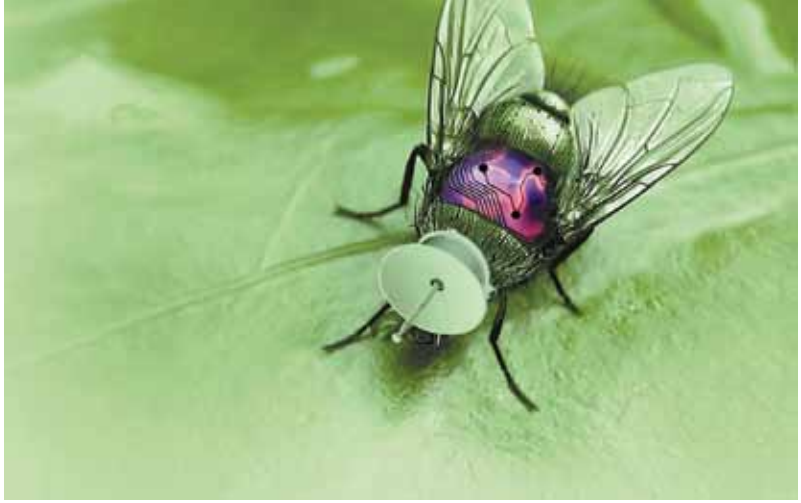
Dave Scott assists international countries in developing their fighter aircraft requirements and provides information concerning the capabilities and value of the F-35. His responsibilities include both F-35 partner nations and Foreign Military Sales (FMS) nations.

Previously, Scott was the F-22 Business Development lead responsible for developing F-22 new production, modernisation and sustainment business opportunities. Prior to this assignment he was the Director of Market Development for Asia Pacific, responsible for developing markets for all Lockheed Martin aircraft products. He worked extensively in Australia, South Korea, Singapore, Japan and Thailand developing sales for the F-16, C-130J, F-35 and other Lockheed Martin aircraft programmes.

He joined the legacy Lockheed Martin Company, General Dynamics/Fort Worth as an avionics engineer and has since held positions of increasing responsibility in Engineering, Advanced Programmes and Business Development.

Scott graduated from Ohio State University in 1981 with a B.S. in electrical engineering and from Southern Methodist University in 1986 with a M.S. in electrical engineering. •

PHOTOGRAPH: jsf.mil



PHOTOGRAPHS: DARPA, www.barbelith.com

Insect cyborgs to sniff out explosives

The Pentagon is trying to develop "insect cyborgs" able to sniff out explosives, or "bug" conversations by lurking unseen in enemy hideouts with micro-transmitters strapped to their bodies. The US Department of Defense is considering fielding an army of remote-controlled insect spybots as scouts. Defense Advanced Research Projects Agency (DARPA) says it is seeking "innovative proposals to develop technology to create insect cyborgs," by implanting tiny devices into insect bodies while the animals are in their larva or pupal stage.

The devices DARPA wants to implant are micro-electro-mechanical systems, or MEMS. MEMS technology uses tiny silicon wafers like those used as the basis for computer microchips. But instead of merely laying circuits on them, MEMS technology can actually cut and shape the silicon, turning the chip into a microscopic mechanical device. This transforms the insects into "predictable devices that can be used for various micro-UAV missions requiring unobtrusive entry into areas inaccessible or hostile to humans."

Cornell University has implanted a silicon chips inside flying insects to control their movement. The results were published on June 22 by AZoNano. These "insect cyborg sentinels" ranging from cicadas to dragonflies are a new pass in cyborg technology. The project intends to control the insects' movement by motion trajectories obtained from GPS coordinates or from using an ultrasonic based remote control. Gaining control of an insect's movement is necessary because it enables scientists to position the insect in an area where a toxic substance is suspected to be present

Insect Cyborg Sentinels combine living system technology with nanosystem technology, taking the best that a living system has with the best that engineers can do in building nanosystem technologies. Insects can fly up to two weeks without stopping, possessing an aerodynamic ability well developed over millions of years of evolution. The future shows DARPA arming these cyborgs with SWARM technology to be used as an offensive asset as well. The project is funded by the DARPA which has a full hybrid insect micro-electro-mechanical systems (HI-MEMS) programme. SP

DRS Defense Solutions to provide UAS simulation services

DRS Defense Solutions has been awarded a contract by Fleet & Industrial Supply (FISC) in Norfolk, Virginia, in support of the Joint Unmanned Aircraft System Center of Excellence (JUAS COE) at Creech Air Force Base, Nevada.

The DRS Sentry UAS will be used in two service missions as a "Threat UAS" flying against US Joint Forces undergoing counter-adversary UAS training. DRS Training & Control Systems in Fort Walton Beach, Florida, will provide contractor owned, contractor operated (COCO) services to fly a series of live-fly exercises using its Sentry UAS. SP

Insect-like UAVs to revolutionise surveillance

Insect-size, camera-bearing unmanned aerial vehicles (UAVs) are being developed that could help in emergency situations considered too dangerous for people or in covert military surveillance missions.

Richard Bomphrey, from the University of Oxford's zoology department, is leading this research, which is generating new insight into how insect wings have evolved over the past 350 million years. The work is supported by the Engineering and Physical Sciences Research Council, the main UK government agency for funding research and training in engineering and the physical sciences.

"Nature has solved the problem of how to design miniature flying machines," Bomphrey said. "By learning those lessons, our findings will make it possible to aerodynamically engineer a new breed of surveillance vehicles that, because they're as small as insects and also fly like them, completely blend into their surroundings."

Currently, the smallest of state-of-the-art fixed-wing unmanned surveillance vehicles are around a foot wide. The incorporation of flapping wings is the secret to making the new designs so small. To achieve flight, any object requires a combination of thrust and lift. In man-made aircraft, two separate devices (engines and either fixed or rotating wings) are needed to generate these — this limits the scope for miniaturising flying machines.

But an insect's flapping wings combine both thrust and lift. If man-made vehicles could emulate this more efficient approach, it would be possible to scale down flying machines to much smaller dimensions than is currently possible.

The team's groundbreaking work has attracted the attention of NATO, the US Air Force and the European Office of Aerospace Research and Development. The research is expected to produce findings that can be used by the defence industry within three to five years, leading to the development and widespread deployment of insect-size flying machines within 20 years. SP

LT GENERAL (RETD)
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Lokpal and defence of India

While the battle of people versus corruption has come out in the open, the corrupt will try their utmost not to let a strong Lokpal Bill get through. It must be scary to remember when Singapore introduced such a bill two decades ago, some 142 corrupt politicians and officials were arrested in a single day. Singapore did get rid of corruption. However, the manner in which our politicians are taking this issue around in circles, exhibiting political skullduggery of the worst kind, it is amply clear that a strong Lokpal is a distant dream.

How is a strong Lokpal connected to the defence of India? Look at it this way – a strong Lokpal will bring every public servant under the Lokpal. Every government office will have a Charter that will clearly state which officer will do what work and in how much time. Those officials who sit on files in office or ask bribes will be punished. Do you see the connection – what can be asked of the Ministry of Defence and by extension, Government of India?

A strong Lokpal will bring every public servant under the Lokpal. Every Government office will have a Charter that will clearly state which officer will do what work and in how much time.

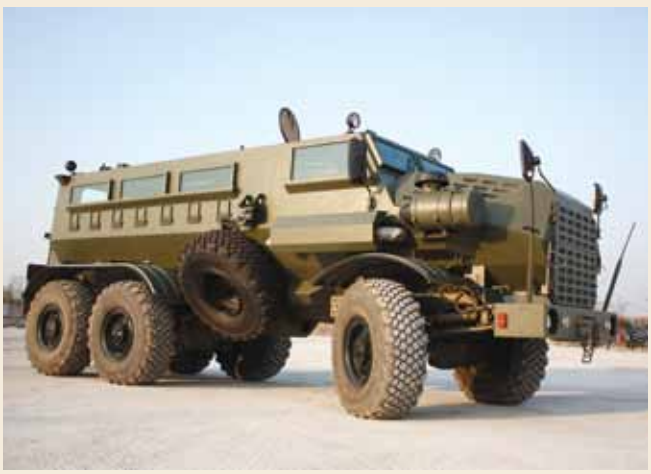
The immediate questions could well be like why the Eleventh Defence Plan (2007-12), which gets over next year, has not been officially approved yet and ad hoc defence procurement resorted to all these years? Why has the long-term integrated procurement plan (LTIPP) 2007-22 of the military not been approved though sent for approval in 2006? Why has a National Security Strategy not been defined 65 years down the line since Independence?

Why have National Security objectives not been spelt out? Why has a comprehensive defence review not been institutionalised on a five/six yearly basis? Why are portions of the meagre defence budget being surrendered year after year? Why does the MoD not have an institutionalised cell for strategic thinking? How many military personnel are posted in the MoD on deputation and permanent absorption and why, considering most defence ministries globally have such arrangements? Why has HQ IDS not been truly integrated with the MoD? Why is the Defence Intelligence Agency being stopped from its official mandate of operating intelligence sources?

What is the objection to appointing a Chief of Defence Staff? Why does the Andaman and Nicobar Command continue without adequate forces commensurate with its operational charter? Why has the Strategic Forces Command been taken away from the Chairman Chiefs of Staff Committee and put under the National Security Advisor? Why have the Directorate General of Quality Assurance and Directorate General Armed Forces Medical Services not been placed under HQ Integrated Defence Staff as was approved? Why does the LCA have 40 per cent imported parts, including engine after decades of development? Why is the gap between our military and Chinese PLA widening exponentially? Why can't the state of defence forces be presented annually to Parliament or a GoM for deciding budgetary allocations? Why can't an Act of Parliament be introduced to usher a revolution in military affairs (RMA)?

Why only a Deputy Secretary level officer represented the Government of India at the funeral of Field Marshal Sam Manekshaw? Why is the Order of Precedence of the military falling year after year? What has happened to all the letters written in blood by ex-servicemen and the medals they returned? Why does the Ex-Servicemen Department of the Government not have a single ex-serviceman? Apparently, the government says a charter is fine but government servants must not be penalised if they do not do their work. How, then, are we going to put defence and security on track? SP

The views expressed herein are the personal views of the author.



PHOTOGRAPH: Mahindra

DLSI's mine protected vehicles to Jharkhand

Defence Land Systems India (DLSI) has delivered its first mine protected vehicle India (MPV-I) to the Jharkhand Police recently. Brig. (Retd) Khutub Hai, MD & CEO, handed over the keys to B.B. Pradhan, Additional Director General of Police, Jharkhand Police, commencing fulfillment of the State's order of six MPVIs. DLSI is a joint venture enterprise between Mahindra & Mahindra Ltd (74 per cent) and global defence and security company BAE Systems PLC (26 per cent).

Hai said, "This is a proud moment for DLSI as this is the first such vehicle of its kind indigenously manufactured by the private sector industry being delivered to the police forces in the country. I assure the ADGP, Jharkhand Police that the MPV-I will meet all the stated parameters and we hope it will greatly enhance the operational effectiveness of the police forces in Naxal-affected areas of the country."

In order to ensure smooth induction of these vehicles, into the force, DLSI is also training a fleet of drivers and mechanics of the Jharkhand Police force to ensure optimum use of the vehicle. Moreover, DLSI will also provide complete life cycle support to the police for these vehicles.

It is built with technology and product capability transfer from BAE Systems in South Africa, the MPV-I. The vehicle combines excellent ballistic and blast protection capabilities. Built on Ural Chassis it incorporates a 'V' shaped mono hull chassis which directs the force of the blast away from the occupants, has been tested to withstand the highest level of protection available in the country. In addition to the enhanced protection, the 6x6 vehicle has a powerful engine that ensures high mobility and can carry an entire operational team, making it ideally suited for anti-terrorist and anti-Naxal operations. DLSI has commenced serial production at Prithla, near Faridabad which has a present installed capacity of 100 MPV-I per annum. SP

Additional patrol boats for maritime security

The Minister of State for Home Affairs, M. Ramachandran, has informed the Parliament that the Ministry had purchased 204 boats, of which 120 boats are of 12-tonne size and 84 boats of five-tonne size. He said 28 boats had been delivered to Maharashtra, of which six boats are of 12-tonne size and 22 boats of five-tonne size.

The boats delivered to Maharashtra are operational and are being used for patrolling in the coastal area of Maharashtra including Mumbai. An annual maintenance contract has been signed with Goa Shipyard Ltd. (GSL). SP

G4S wins contract to provide airport screening services in Pacific region

The Canadian Air Transport Security Authority has selected G4S as the security screening contractor for the delivery of airport screening services in the Pacific Region. G4S Secure Solutions (Canada) will provide services at 20 airports, including Vancouver International Airport. The five-year contract is valued at over CAD$400 million.

This award builds on our recent successes in Europe and the Middle East, where G4S has been selected to provide aviation security services at a number of key airports. G4S provides services at 61 other airports worldwide, with services including perimeter security, airside security, passenger, baggage and cargo security screening (including behaviour observation) and various related services. SP

CAG Report seeks tightening of coastal security

The first Comptroller and Auditor General's (CAG) report on the functioning of the Coast Guard since the Mumbai attacks has pointed out several issues that need to be dealt with to make the coastal area secure.

The CAG said that about 72 per cent of fast patrol aircraft are too old and need to be replaced. Similarly, nearly 50 per cent of offshore patrol vessels had to be replaced with modern communication systems and weaponry. "In the Tenth plan not a single vessel or aircraft was added to the Coast Guard fleet even though procurement was finalised during this period," said Rekha Gupta, CAG official.

The CAG pointed out that only five of the 14 new coastal stations sanctioned after the Mumbai terror attacks are operational. Some of these stations are operating on temporarily leased land without adequate equipment or facilities. It remarked that the Coast Guard's 15-year perspective plans extending to 2017 and 2022 remain unapproved by the government. It also describes the plans as unrealistic and unachievable. The terrorists of the Mumbai attacks came by sea. SP

Changi Airport enhances perimeter security

Changi Airport Group and ST Electronics' wholly owned subsidiary, ST Electronics (Satcom & Sensor Systems) is collaborating to implement a perimeter intrusion detection system (PIDS) based on fibre bragg grating (FBG) sensor for Changi Airport's perimeter fence to further strengthen security of the airfield. This is the first time that such technology is being used for perimeter security enhancement anywhere in the world.

Changi Airport's perimeter is currently covered by a double-layered fence, and round-the-clock patrolling is carried out by security teams. The implementation of AgilFence PIDS will result in better detection of perimeter intrusions, more accurate determination of the incident location and a faster response time by the security team. SP

TSA finalises air cargo screening mandate

The US Transportation Security Administration (TSA) has implemented the final part of the 9/11 Commission's requirement for air cargo screening. As per the rules, air cargo companies may apply to become a certified cargo screening facility (CCSF) – to carry out a TSA-approved security programme offsite and transport it to the airport securely without the need for rescreening.

The Transportation Security Administration announced the implementation of the final rule for implementing recommendations of the 9/11 Commission Act of 2007 (9/11 Act) air cargo screening mandate. SP

Smiths Detection's hand-held radiation detector

Smiths Detection has announced that the US Department of Homeland Security's (DHS) Domestic Nuclear Detection Office (DNDO) has approved the RadSeeker for production and deployment. The RadSeeker is hand-held radiation detector and identifier developed in collaboration with DNDO.

The RadSeeker is a next-generation radionuclide identifier with enhanced capability to distinguish radiological and nuclear threats and eliminate the background "false positives" produced by naturally occurring radiation or other legitimate everyday radiological materials.

Its advanced performance, small size, durability and communications capabilities (including direct reach back over satellite phone) are ideal for an array of applications. These include supporting civil defence and first responder search operations and helping port and border personnel evaluate cargo, containers and vehicles for special nuclear material or "dirty bomb" threats. SP

Unmarked graves in J&K, investigation sought

Indian authorities should immediately open an independent, transparent and credible investigation into the unmarked graves discovered in Jammu and Kashmir state, Human Rights Watch has said.

An inquiry by the police investigation team of the Jammu and Kashmir State Human Rights Commission (SHRC) has found 2,730 bodies dumped into unmarked graves in four of the state's 14 districts. Thousands of Kashmiris have disappeared during the last two decades of violence, their whereabouts unknown.

The enquiry report of 'Unmarked Graves' in north Kashmir, submitted by the investigating police team to the commission on July 2, 2011, said that the unidentified bodies had been buried in 38 sites in north Kashmir's Baramulla, Bandipora, Handwara, and Kupwara districts. At least 574 have been identified as the bodies of local Kashmiris. The government had previously said that the graves held unidentified militants, most of them Pakistanis killed over the two decades of violence in Jammu and Kashmir whose bodies had been handed over to village authorities for burial. In response to commission inquiries, in March 2010, however, district police claimed that a total of 464 unidentified bodies had been buried in north Kashmir.

"For years, Kashmiris have been lamenting their lost loved ones, their pleas ignored or dismissed as the government and army claimed that they had gone to Pakistan to become militants," said Meenakshi Ganguly , South Asia Director at Human Rights Watch. "But these graves suggest the possibility of mass murder. The authorities should immediately investigate each and every death."

According to the Srinagar-based Association of Parents of Displaced Persons (APDP), at least 8,000 people have disappeared since the insurgency began. In February 2003, the government of Jammu and Kashmir, then led by the current opposition leader, Mufti Mohammad Sayeed, told the state legislative assembly that 3,744 people were missing and that many of those reported missing since 1990 were actually in Pakistan, where they signed up to be trained as militants. SP

PHOTOGRAPH: Wikipedia

Multi-agency centre strengthened

The Minister of State for Home Affairs, Jitendra Singh has said that the government was developing a centralised intelligence sharing mechanism. The multi-agency centre (MAC) in the Intelligence Bureau has been strengthened and re-organised to enable it to function on 24x7 basis.

Action has also been completed for establishment of online, dedicated and secure connectivity between all the designated members of the MAC and the subsidiary MACs in 30 important identified locations. SP

QinetiQ and Nexor in strategic partnership

QinetiQ and Nexor have announced a strategic collaboration that creates an exceptional sovereign cyber security capability and partnership. The first step in the collaboration will enable both partners to offer each other's products and thereby immediately enhance the range of threats that each company's portfolio addresses.

Subsequently, Nexor and QinetiQ will deploy their individual strengths to expand the portfolio as a complementary and unified range of products and services designed to offer the market a unique and highly effective response to the continually evolving cyber threat. SP

TSA Blackberries vulnerable

A report by the US Department of Homeland Security has found that the Blackberry mobiles of the Transportation Security Administration's (TSA) are vulnerable to cybersecurity threats due to a backlog of security patches and configurations.

It said hackers could exploit unsecured wireless networks to monitor data transmissions, execute denial of service attacks, alter messages, or even impersonate legitimate users to steal sensitive data provided by airline passengers. Investigators found that TSA had secured itself against most vulnerabilities using physical and logical security access controls, but according to the report, agents "identified high-risk vulnerabilities involving patch and configuration controls." SP

US immigration agency hacked

The US Department of Homeland Security (DHS) has said that there were multiple instances of insider hacking at US Citizenship and Immigration Services (USCIS). A year-long investigation by the DHS Inspector General has found that employees had accessed management-level e-mail and other confidential files.

According to the report, employees and supervisors abused logon privileges, gained unauthorised access, and even allegedly altered audit logs to delete any record of their activities. The inspector general's investigation focused on 17 individuals in particular, all of whom were information technology specialists. Investigators also found "hackware" on several computer drives – software that allows users to intercept sensitive information passing through the agency's network. SP

NASSCOM and CBI join hands to fight cyber crime

The Data Security Council of India (DSCI) of NASSCOM has signed a memorandum of understanding (MoU) with the Central Bureau of Investigation (CBI) to deal with issues of cyber security. The MoU seeks to establish collaboration between law enforcement agencies through Cyber and Hi-Tech Crime Investigation and Training (CHCIT) Centre of the CBI and the IT industry through NASSCOM.

As per the MoU, the two will share knowledge on emerging technologies, security standards, best practices of global security agencies, and challenges in managing cyber crime and then come up with solutions. SP

DoD shares information with contractors

The US Department of Defense (DoD) has launched a programme that shares cyber-threat information with defence contractors and their network provider. In its pilot programme, the DoD found "hundreds of intrusions" and has had them stopped.

The DoD soon plans to expand its Defense Industrial Base (DIB) experimental programme—which currently has 20 participants—to the remainder of the industry base, as well as "key areas of critical infrastructure," Deputy Secretary of Defense William J. Lynn has said. SP

Increase in cyber attacks on China

A Chinese computer security report has stated that China suffered nearly five lakh cyber attacks in 2010 and close to half of it originated from overseas, particularly the US and India. The report said that most of the attacks came in the form of malicious "Trojan" software used by hackers to gain access to target computers.

The National Computer Network Emergency Response Coordination Cenre of China, the country's primary computer security monitoring network, said 14.7 per cent of the malicious programmes came from Internet Protocol addresses (IPs) located in the United States, with another eight per cent located in India.

The report said substantial hacking of web pages was either politically or religiously motivated, though most of the times it was purely to show off. Some government agencies' websites are often targeted by IPs that originate from Turkey, part of political and religious campaigns. SP

Research on to visualise travel path of shots fired

The US Army Research Laboratory has teamed with other Department of Defense agencies in a high priority project to improve tracer round technology so that only US soldiers, and not their enemies, can exclusively visualise the travel path of shots fired

Tracer rounds today are used primarily with fully automatic firearms; they give off a "large flame behind them during flight allowing observers, including the target, to see where the tracer was fired from. With non-combustible tracers, only the rear of the bullet is emitting light directly at the shooter, which greatly reduces the ability of others to determine the shooter's location. This increases survivability of our forces," explained Daniel De Bonis, a materials engineer in ARL's Weapons and Materials Research Directorate.

He said creating a non-combustible, low observable tracer (LOT) round solution would eliminate the pyrotechnic material that gives traditional combustible rounds their 'fireworks-like effect.'

"The manufacturing process is simplified as no separate manufacturing wing is needed in the ammunition plant. Traditionally, a separate wing is needed to handle the pyrotechnic material in the combustible tracer. This improves manufacturability.

"Conventional combustible tracers lose mass during flight, which changes the weight of the bullet during flight. This creates a trajectory mismatch with the bullets it is supposed to represent. Since (these rounds) normally are linked one to every four conventional rounds. That means the majority of bullets are possibly not hitting the target the tracers are. It is planned to incorporate every round with non-combustible tracer technology, thus assuring (soldiers) are hitting what (they) see. This increases lethality," De Bonis said.

ARL designed testing methods unique to this application that simulated the short light bursts similar to gunfire in which the materials were simultaneously heated. "This had to be done in complete darkness to prevent the materials from being charged up by ambient light. We have been able to evaluate a very large number of materials specifically for this application," he said.

"ARL has been instrumental in developing a field test to determine the propellant wavelengths during propellant burn inside of the barrel," said Matt Horch, small calibre production engineer at the US Army Armament Research, Development and Engineering Center (ARDEC). ARDEC is the lead systems integrator in this effort and responsible for the final design and manufacturability of the low observable tracer effort. "Dan and his team have provided great support and key testing modifications to help ensure we get the data we need. This test is a joint Integrated Product Team effort but the data recording setup is ARL's design."

The low observable tracer round uses materials which produce light energy from the firing process. These materials are similar in concept to the commercial phosphorescent, or glow in the dark materials found on watches and emergency signs, said De Bonis.

But commercial phosphorescent materials do not work well under the high temperature. He said: "Heat can affect the physical structure and energy pathways in certain phosphorescent materials. When these materials are heated, their ability to store and release light energy can change. Some materials lose the ability to store light when heated. Others just emit light out of the material faster. ARL and its partners are looking into producing materials which work best for this application."

ARL's military coating technologies expertise aided efforts to identify coating materials that could be applied to phosphorescent materials on the backs of bullets. "Coatings need to be chemically stable with the materials being used, tolerate extreme environments, not reduce the performance of the trace signature nor the ballistic performance of the round itself," De Bonis added.

The effort is being sponsored by the Army's Program Manager, Maneuver Ammunition Systems at Picatinny Arsenal, New Jersey, and a team formed of ARDEC at Picatinny Arsenal, New Jersey, the Army Research Lab, in Aberdeen, Maryland, the US Army Corp of Engineers based at Fort Belvoir, Virginia, who specialise in phosphor material chemistry, and the Naval Research Laboratory, Advanced Laser Concepts Group in Washington, D.C. are jointly advancing low observable tracer technology to provide increased capability to our warfighter. SP

EQ-36, weapon locating radars

Weapon locating radars are designed to track the trajectory of incoming projectiles like shells, rockets and mortars with the aim of locating their geographical origin and then bombard them with artillery fire to destroy the weapon systems. Before the advent of radars, systems based on sound and flash were used to locate the source of bombardment. The technique was known as sound ranging and flash spotting.

The first radar acquired by the Indian Army was a modified air defence fire control radar Superfledermaus followed by Cymbeline. The current technology has become much more advanced like the US TPQ-36 and 37 Fire finder radars made by Hughes (now Raytheon). The TPQ-36 radar is designed for a medium range of 24 kilometres and the TPQ-37 can locate longer-range systems including surface launched missiles, up to a range of 50 kilometres. India had acquired TPQ-37 in 2007 and have also developed it's own mobile weapon locating radar based on phased array.

EQ-36

During September 2006, Lockheed Martin announced a $120 million (₹540 crore) contract to provide the US Army with five Enhanced AN/TPQ-36 radars, otherwise known as the EQ-36 Counter fire Target Acquisition Radar. This actually is completely new radar system in a two vehicle configuration, one vehicle carries the Mission Essential Group, containing the radar antenna and the power generator. The second vehicle carries the Sustainment Group, with a climate controlled, operations controlled shelter and backup power generator.

The operations centre allows the radar to link back to Army command systems and is also Indirect Fire Protection Capability compatible in countering rocket, artillery, and mortar attacks. Crew of four can operate EQ-36 remotely using a pair of ruggedised Linux laptop computers, or from the fully equipped climate-controlled shelter. It can come into action in five minutes and out of action in two minutes. The EQ-36 includes a number of improvements, including 360 degree coverage capability instead of the TPQ-36's current 90 degrees, and dramatic reductions in false alarm rates. Army Contracting Command intends to procure EQ-36 radar systems to replace AN/TPQ-36 and 37 radars.

The planned production schedule for this five-year contract is currently set to 12 LRIP (Low Rate Initial Production) units in FY13, 23 LRIP units in FY15, and 32 FRP units in FY16, for a total of 67 systems. Over the longer term, the potential exists for $1.6+ billion (₹7,200 crore) in orders, covering more than 180 radars. The response to the US Army's tenders is expected by the middle of September 2011. US Army had first deployed them in Iraq and Afghanistan during October 2010.

Lockheed Martin's Samarai and Aerovel's Flexrotor

The idea that very small UAVs might have practical uses germinated during the 1990s. Later on, this was also discussed during a DARPA workshop under the subject 'mobile micro robots.' Gradually the idea caught on but the size was confined to hand held UAVs. As usual the US lead the research and the current development by Lockheed Martin really challenges the imagination by displaying innovative and unique designs. One of the important functions of seeds and fruits is dispersal to establish the embryo-bearing seeds in a suitable place and one of the mechanisms for seed and fruit dispersal is floating in the wind.

Lockheed Martin has been inspired by Sycamore seeds and their UAV mimics the aerial movement of the seed. Samarai is a one-winged drone which is one feet in length and flies using a cyclic lift motion like a helicopter. Simple in construction, it has just two moving parts and a camera and can be flown remotely or through a tablet. It can also be thrown like a boomerang for quick deployment, dropped from a plane, or it can take off vertically and hover in place. It has taken five years for development. Earlier it was to be made the size of a seed, with two gram payload, but it has been developed into a foot long configuration. It can stream back live 360 degree video without a gimbal. However, range and speed are inherent limitations of a UAV based on a helicopter design. SP

PHOTOGRAPH: Lockheed Martin

Inputs by Lt General (Retd) Naresh Chand

RFI/RFP/TENDERS

Indian Army

Tender: **Tank T90 spares**
MGO PPO Army Headquarters
Publication date: July 7
Last date: September 5

Indian Navy

Tender: **Explosive analysis equipment**
Controllerate of Naval Armament Inspection
Publication date: August 5
Last date: September 11

RFI: **Multi influence ground mine**
Navy Hqrs
Publication date: August 24
Last date: September 22

Indian Air Force

Tender: **AN 32 spares**
Air Hqrs
Publication date: July 27
Last date: September 13

Tender: **Spares for IL series aircraft**
Air Hqrs
Publication date: July 26
Last date: September 22

Tender: **Advanced interoperability communication system**
Air Hqrs
Publication date: August 18
Last date: September 30

Tender: **MI series spares**
Air Hqrs
Publication date: August 8
Last date: October 26

Ministry of Home Affairs

Tender: **Bomb blanket**
CISF
Publication date: August 10
Last date: September 8

Tender: **Deep search mine detector**
CISF
Publication date: August 10
Last date: September 16

Tender: **Explosive detector**
CISF
Publication date: August 5
Last date: October 4

FLIR D-series thermal dome camera

FLIR Systems has introduced D-Series thermal security cameras which allow users see intruders and other threats to a facility clearly, even in total darkness and in bad weather.

The D-Series outdoor dome enclosure provides precision pan/tilt control while providing fully programmable scan patterns and slew-to-alarm functionality. Fully enabled for control and operation over IP and serial networks, D-Series systems deploy a 320 by 240 thermal imager along with a day/night 36× zoom colour CCD camera. FLIR's D-Series thermal multi-sensor security dome cameras are the perfect replacement for day/night dome cameras, providing clear 24/7 imaging capability in an attractive, discrete dome-style enclosure. SP

Harris portable radio for mission-critical communications

Harris Corporation has introduced the P5500 portable radio for public safety and other mission-critical users. It is ideal for law enforcement, fire and public works agencies.

Durable and ruggedised, the Harris P5500 single band portable radio is capable of operating on VHF, UHF and 800 MHz frequencies and supporting multiple radio operating modes, including project 25 (P25) digital trunked and conventional modes, OpenSky, enhanced digital access communications system (EDACS), provoice trunked modes, as well as analog conventional mode. The P5500 can seamlessly scan between trunked talk groups and conventional channels and is the only P25 Phase 2-compliant radio in its class.

Offering a flexible, software-based design, the P5500 is easily configurable and expandable with options to meet the specific needs of its users, including AES and DES encryption, over the air rekeying (OTAR) and over the air programming (OTAP). SP

Aerojets rocket motor propels Lockheed Martin's GMLRS+

Aerojet, a GenCorp company, announced that its improved guided multiple launch rocket system (GMLRS) rocket motor propelled the successful Lockheed Martin Missiles and Fire Control GMLRS+ flight test at the White Sands Missile Range.

GMLRS+ is a Lockheed Martin internal research and development programme designed to upgrade the combat-proven GMLRS Unitary system. Utilising existing production tooling and the current GMLRS propellant formulation, Aerojet's rocket motor demonstrated a significant increase in range, plus process improvements that will increase the affordability of the GMLRS rocket. The MLRS programme is a five-nation international cooperative programme with the United States, United Kingdom, Germany, France and Italy. In addition, the system has been fielded to 11 additional nations. SP

General Dynamics MTB at DSEi

General Dynamics European Land System (GDELS) will present at DSEi the medium trackway bridge (MTB), the latest member of its bridge family, the Piranha 3 with an overhead weapon station and the Eagle light tactical vehicle with a remote control weapon.

The MTB is in response to the increased need for an autonomous gap-crossing capability for ground forces. The MTB is a lightweight, aluminium-made modular bridge for military and civil vehicles up to MLC 40. The MTB is designed to produce bridge lengths of two, four, six or eight metres. The individual bridge modules can be transported directly on the tactical vehicle and can easily be launched and retrieved from the same vehicle by its own crew with a simple launching adapter. With a team of four soldiers the launching/retrieving time for a four m MTB is approximately 10 minutes. SP

PHOTOGRAPH: FLIR

DRS Technologies appoints Engel as Vice President, Security

DRS Technologies, a Finmeccanica company, has announced that it has appointed Richard "Lee" Engel as its Vice President, Security. Engel has over 30 years of industrial security experience and has led programmes at several prominent defence companies. Engel has contributed to the development of the United States National Industrial Security Programme through his leadership roles on important industry committees and working groups, including the prestigious National Industrial Security Programme Policy Advisory Committee. Earlier, Engel spent seven years with the Central Intelligence Agency, where he received numerous awards for exemplary service. SP

ATK delivers strong operating margins

ATK has reported operating results for the first quarter of its fiscal year 2012, which ended on July 3, 2011. Fully diluted earnings per share were $2.13, compared to $2.24 in the prior-year period. The first quarter results included a one-time discrete tax benefit of $0.11 per share. Margins in the first quarter improved to 12.1 percent compared to 11.1 per cent in the prior-year quarter. The increase reflects a continued focus on efficiency improvements and cost management initiatives throughout the company, and a one-time gain related to the sale of a non-essential parcel of land.

First quarter sales of $1.1 billion were down from the $1.2 billion recorded in the prior-year, reflecting lower sales on NASA's programmes, as well as lower sales of non-standard ammunition and lower sales at the Radford Army Ammunition Plant. Net income for the quarter was $72 million compared to $75 million in the prior-year quarter. SP

FLIR Systems $250 million notes offering

FLIR Systems announced that it has priced a public offering of $250 million aggregate principal amount of 3.75 per cent notes due September 1, 2016. FLIR expects to receive net proceeds of approximately $248 million, after deducting underwriting discounts and estimated offering expenses. The proceeds from the sale of the notes are expected to be used for general corporate purposes, which may include funding for working capital, investments in or extensions of credit to our subsidiaries, capital expenditures, repurchases of stock, and acquisitions. SP

Eaton bags excellence award

For the second year in a row, diversified industrial manufacturer Eaton Corporation's aerospace facilities have earned top awards for exceptional delivery performance and product quality from the Defense Logistics Agency (DLA), which provides supplies and services to America's military forces worldwide. The commitment to quality underscores Eaton's growth in military aftermarket support for all branches of the US armed forces. Eaton's facilities in Costa Mesa and Irvine, both in California, received silver awards for achieving 12-month scores of 99 per cent on-time delivery in the DLA's automated best value supplier evaluation system. SP

Chemring acquires detection systems

Chemring Group PLC has acquired Detection Systems operations and certain related assets of General Dynamics Armament and Technical Products.

The business, which will now operate as Chemring Detection Systems, Inc., is based in Charlotte, North Carolina. It is a US leader in chemical and biological threat detection and has an advanced capability in stand-off detection of improvised explosive devices (IEDs). It is the incumbent supplier for two major US military vehicle-mounted detection programmes: the joint biological point detection system (JBPDS) and the joint service lightweight stand-off chemical agent detector (JSLSCAD). In addition, its products include a stand-off IED and explosives detector and the Juno handheld chemical detector. SP

SECURITY EVENTS

Future Artillery Asia
6-7 September
Swissôtel Merchant Court Hotel
Singapore
www.futureartilleryasia.com/Event.aspx?id=494266

Submarine Operations & Requirements Asia
7-8 September
Venue to be confirmed, KL Malaysia
www.submarinesasia.com

DSEi - Defence and Security Equipment International
13-16 September
ExCeL, London, UK
www.dsei.co.uk

3rd Annual Aviation Security 2011
18-21 September
Grand Millennium Hotel Dubai, UAE
www.aviationsecurityme.com

SPIE Security + Defence 2011
19-22 September 2011
Clarion Congress Hotel Prague
Prague, Czech Republic
http://spie.org/x6201.xml

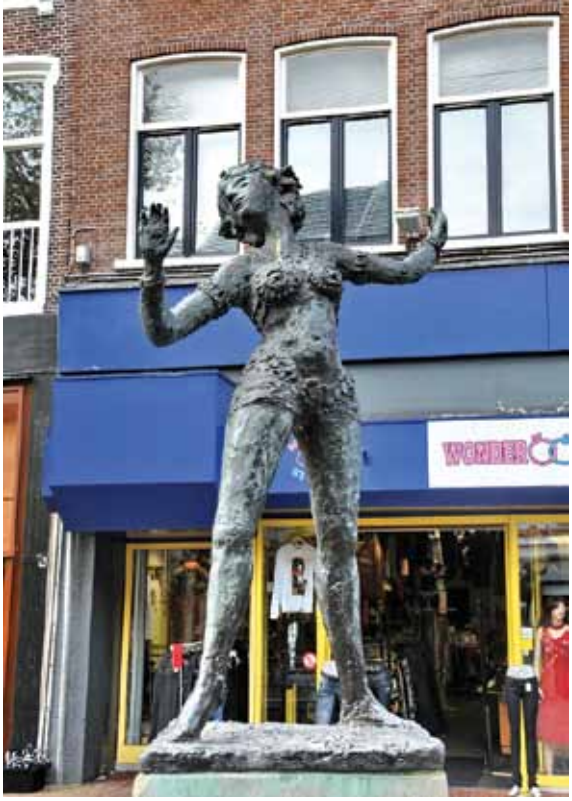
5th Annual Infantry Weapons 2011
26-28 September
Copthorne Tara Hotel, Kensington
London
http://www.infantryweaponsconf.com/Event.aspx?id=407888

MRO Military Europe
28 September
IFEMA
Madrid, Spain
http://www.aviationweek.com/events/current/meumil/index.htm

Geospatial Defence and Intelligence APAC
28-29 September
The Westin
Kuala Lumpur, Malaysia
http://www.iqpc.com/Event.aspx?id=456688&MAC=CAC

Armoured Vehicles Asia
19-21 October
Swissotel Merchant Court, Singapore
http://www.armouredvehiclesasia.com/Event.aspx?id=500808

Mata Hari, the legendary spy with code name H-21



Mata Hari (1876-1917) was the stage-name for Dutch-born Margaretha Geertruida (Grietje) Zelle. She began her career as an exotic dancer, taking the name Mata Hari (meaning "sun" or "Eye of the Dawn") in Paris. She posed herself as a princess from Java.

She mixed with the upper class and became a courtesan to many important high-ranking military men and politicians. This put her in a very good position to gather information. During World War 1, the Netherlands remained a neutral nation, enabling Mata Hari, a Dutch national, to cross national borders freely. At one point, she was interviewed by British Intelligence and she admitted to being a spy for the French. The French later denied this. It is still unknown whether this was true.

In January 1917, the German Military Attaché in Madrid sent an encoded radio signal to Berlin, stating that they were receiving excellent information from a German spy code-named H-21. French intelligence agencies intercepted the messages and were able to identify H-21 as Mata Hari. On February 13, 1917, Mata Hari was arrested in her Paris hotel room. She was subsequently tried for espionage and found guilty. She was executed by a firing squad on September 15, 1917 at the age of 41. SP

Protest on tailfin of airplane at Heathrow

In February 2008, a number of Greenpeace activists climbed on top of an aircraft at Heathrow Airport as part of a climate change protest. The activists unfurled banners atop the aircraft at Terminal 1 shortly after the British Airways flight had landed from Manchester.

Greenpeace activists covered the plane's tailfin with a huge banner that read: "Climate Emergency – No Third Runway."

One of the protesters, Anna Jones, 27, from Leeds, said: "I am standing on this plane because our planet and the people who live on it are in danger. SP

PHOTOGRAPHS: Wikipedia, www.greenpeace.org.uk

Norwich Union fined £1.26 million over security lapse

Norwich Union Life has been fined £1.26 million for failing to protect customers' personal details after fraudsters stole £3.3 million from policyholders. The Financial Services Authority (FSA) said the insurer had failed to take reasonable care to look after policyholders' details and protect itself and them from the risk of paying out policies to fraudsters.

The failures were highlighted by a number of frauds carried out against customers in mid-2006, when criminals used publicly available data such as names and addresses and dates of birth to impersonate Norwich Union customers.

In a series of telephone calls to Norwich Union Life, the fraudsters obtained confidential information and were able to change customers' details so that policies were paid out to the wrong accounts. Over 632 policies were targeted, and 74, worth a total of around £3.3 million, were surrendered to fraudsters. SP

Daring Dantewada jailbreak

In December 2007, about 300 inmates including ,110 Naxalites, escaped from the Dantewada jail in Chhattisgarh in a daring incident. The inmates overpowered the prison guards in a planned action, when they were being served food.

It began with a Naxalite by name Sujit Kumar overpowering a jail guard inside the prison and snatching his weapon. Kumar then fired and injured three other guards.

It seems as if the Dantewada jailbreak was just waiting to happen. The prison officials had identified 185 prisoners — mostly Naxals — as extremely dangerous and even sought court permission to shift them to the Jagdalpur Central Jail. Inquiry revealed that the capacity of the jail was 175 prisoners but it had 377 inmates. SP

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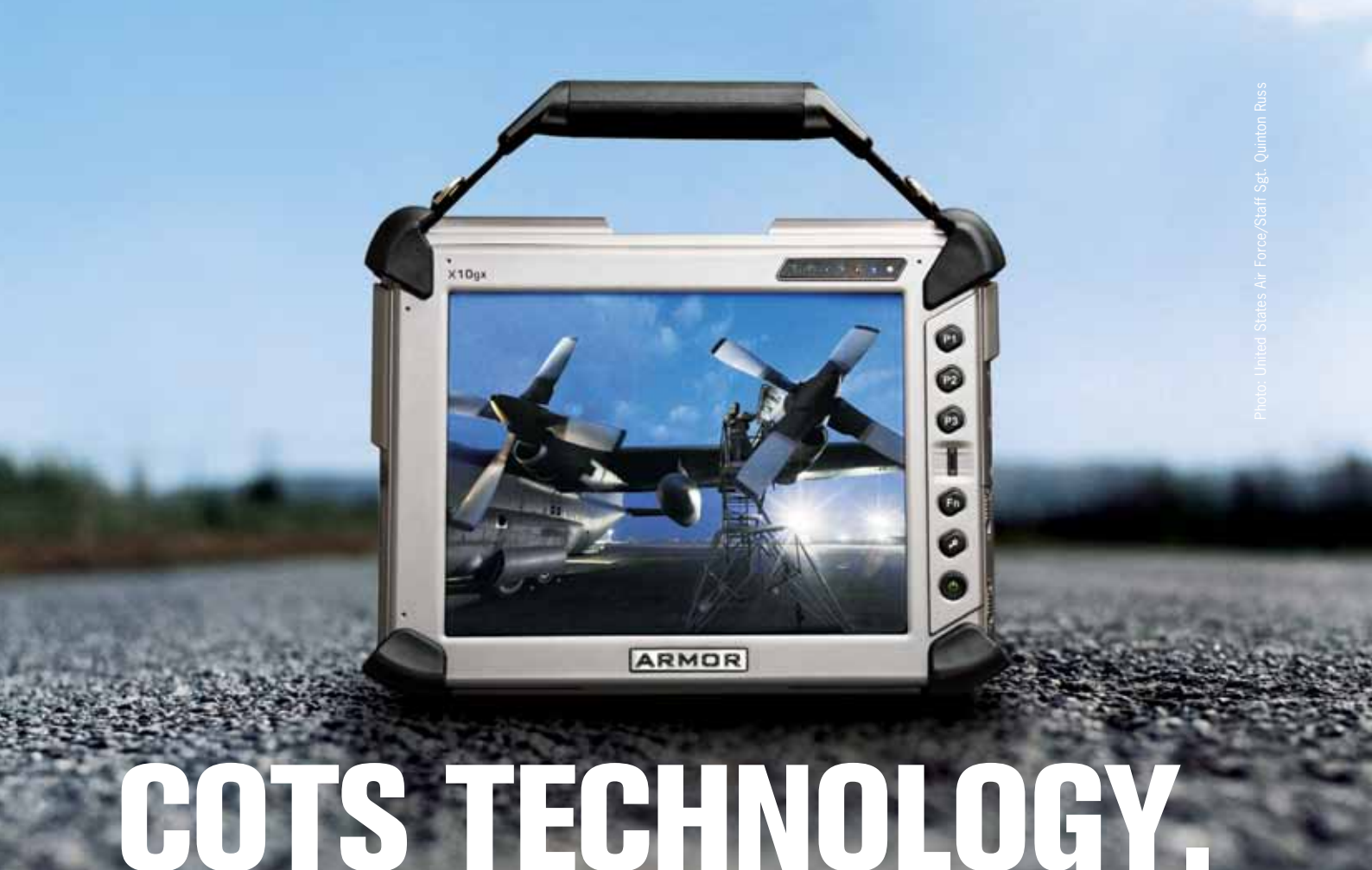

Photo: United States Air Force/Staff Sgt. Quinton Russ

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