FOCUS ON AGNI-VI : A VIEWPOINT PAGE 8

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Indian interest in V-22 Osprey intensifies

PAGE 7

Airbus Military's C-295

Avro replacement programme to be a two-horse race?

PAGE 6

Women in armed forces

PAGE 11

DELENG/2010/34651

Embraer signs Jacksonville Airport lease for A-29 Super Tucano assembly facility

Embraer Aircraft Holding Inc. has signed a 10-year lease on a 40,000-square-foot hangar in which the A-29 Super Tucano aircraft for the US Air Force Light Air Support (LAS) programme will be assembled. Preparation of the facility is currently under way. The LAS aircraft are urgently needed to support the successful withdrawal of US troops from Afghanistan.

Jacksonville Mayor Alvin Brown welcomed Embraer to the city. "I'm excited for this economic milestone as Embraer's A-29 production facility becomes Jacksonville's first full-scale aircraft assembly operation," said Mayor Brown. "Not only does

this show confidence in our workforce, it expands Jacksonville's role as one of America's most military and veteran-friendly cities. I commend Embraer for embracing these values and I look forward to a long, productive relationship."

"We have been looking forward to the day that we can officially establish our presence in Jacksonville and we are ready to get to work," said Gary Spulak, President of Embraer Aircraft Holding Inc. "This important step is the first of many that will solidify the new partnership we have created between Embraer and the Jacksonville community."

With the support of the state of Florida, the City of Jacksonville and the Jacksonville Aviation Authority, the facility at the Jacksonville International Airport already is undergoing modifications. The facility will perform pre-equipping, mechanical assembly, structural assembly, systems installation and testing, and flight testing of A-29 aircraft. SP

PHOTOGRAPH: Embraer

Cover:
After acquiring the C-130J for the special operations role, the Indian Air Force is now extremely keen on considering the hugely flexible tilt-rotor role as it expands its special forces capability in tandem with the Army.

Cover image:
US Navy, Airbus Military, Anoop Kamath

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Women are breaking the glass ceiling.... and it is good

They are breaking the glass ceiling in many fields and rightly so. They have shown enormous capabilities and have led from the front in many instances. In the political realm, there have been women of substance such as Golda Meir, Indira Gandhi, etc and in the corporate world, we have quite a number of women who are at the helm of affairs of big corporations, steering them to greater heights. In the battlefield too, there are legends such as Laxmi Bai of Jhansi, Razia Sultan, among others.

However, when it comes to military combat, the doors are closed to them in almost all the countries, exceptions are Israel and Pakistan. On the International Women's Day on March 8, television channels ran a debate on allowing women in combat divisions and the obvious outcome from these debates has been that the 'acceptability mindset' should change. An Israeli Military report indicates that female combatants display higher levels of alertness, are more knowledgeable about the use of weapons and have better shooting abilities than men.

In this issue, we have Air Marshal (Retd) Anil Chopra opining that though there are pros and cons of such a decision and all things considered, it is indeed time that women get equal opportunity, irrespective of the profession.

The military acquisition programmes in India are growing, along with it are many challenges. OEMs are keen on garnering a larger pie of the Indian market and Russia which was a favoured country till recently, has lost out in international competition. In the helicopter segment, the Russians are now reworking their strategy to recapture their stronghold. It is good for India, as it will have many options to toy with.

We have news that the Indian armed forces are considering the Bell-Boeing V-22 Osprey as a possible future platform. In SP's Exclusives we have reports on how the armed forces are looking at the world's only operational tilt-rotor aircraft as a platform for specific set of missions.

With regard to space programmes, India is in a niche club, thanks to the visionary efforts of leaders such as Indira Gandhi. Air Marshal (Retd) Anil Chopra recalls the journey of India's space programmes and rightly states that the space programmes make us Indian proud.

In his frank and forthright column, Lt General (Retd) P.C. Katoch argues that India needs to build its deterrent capabilities, considering the volatile region we are in and both China and Pakistan getting 'politically' aggressive. He calls for review of the nuclear policy in light of the developments in the region.

Internally, there are issues, some of which are spawned from across the border, and the recent blasts in Hyderabad is one of them. Naxalites using modern weapons and exploiting tribals in various ways are not only disturbing the security situation, but also social structures. As mentioned in our earlier editorials, it is indeed time for us to come up with firm and comprehensive national-level policies/actions to deal with such threats, both internal and external.

Happy reading!

Jayant Baranwal
Publisher & Editor-in-Chief

Russia to revamp rotorcraft strategy in India

Mi-17V5 helicopter

PHOTOGRAPH: Anoop Kamath

Once a dominant force in the Indian military helicopter space, Russia is a dwindling force now. With a series of crucial loss in prestigious rotorcraft competitions in India, *SP's M.A.I.* has learnt that Russian Helicopters JSC, the umbrella company that markets Russian-built helicopters, has decided to revamp its strategy and will shortly be brainstorming to roll out new plans as far as the Indian market is concerned. Over the last decade, Russia has managed to shore up orders for Mi-17V5s: a $1.3-billion order for 80 helicopters in 2008—36 of which have been delivered so far—a recent order for 12 more Mi-17V5s (three in VVIP configuration and 9 for the Indian Coast Guard) and is expecting a follow-on order for 59 more such helicopters shortly from the IAF. The IAF operates roughly 150-160 Mi-17s and Mi-8s. Next year, the IAF will retire its entire fleet of Mi-8 helicopters, which have reached the end of their technical life.

On the other hand, Russia has lost a slew of deals. In October last year, the Russian Mi-28NE Night Hunter and Mi-26T2 lost crucial IAF attack helicopter and heavy-lift helicopter competitions to Boeing's AH-64D Apache Block III and CH-47F Chinook respectively. The country's Ka-226T Sergei, currently in a pitched battle against the Eurocopter AS 550 C3 Fennec for the 197 reconnaissance and surveillance helicopter (RSH) competition, could be disappointed given that the procurement is reportedly in a state of indefinite drift, with a decision unlikely anytime soon.

RusHeliCo's new strategy will include expanding into the civil sector in a big way. Part of this includes pitching its platforms to offshore operators in the energy sector, a market currently dominated by Russia's competitors including AgustaWestland, Eurocopter and Sikorsky. "We are involved in negotiations with them. Our helicopters operate very well in harsh climates serving energy operators in our home country," Russian Helicopters HCS Chief Dmitry Petrov said at the Aero India show in February.

The focus of this initiative will be the upgraded civil medium Mi-171A2, the latest version of the Mi-8/17 series. "The Mi-171A2 combines the best performance of its legendary predecessors with leading-edge technologies. Almost 200 Mi-8/17s operate in India, and demand for these helicopters remains strong. Russian Helicopters recently signed another contract for Mi-17V5 helicopters with the Indian Air Force; the contract is expected to be fulfilled in 2013," says the company. Signs of commitment towards the new strategy are already showing.

When Russian President Vladimir Putin visited India in December 2012, Russian Helicopters, and Elcom Systems Private Limited, part of the Indian investment conglomerate SUN Group, entered into an agreement to set up a modern manufacturing facility in India to produce Kamov and Mi-brand helicopters. "The joint venture will have the capacity to produce key helicopter units and carry out final assembly of the machines as well as engage in ground and flight testing. It is expected that the enterprise will start with production of components for the multi-role Ka-226T helicopter. The enterprise will serve as an industrial base for high-tech Russian rotorcraft products in India," the company has stated. "India is a traditional partner of Russian Helicopters in terms of helicopter deliveries. The creation of a joint Russian-Indian enterprise marks a new stage and also a logical continuation of our joint efforts in light of the growing demand for Russian helicopter models," said Dmitry Petrov, CEO of Russian Helicopters.

Apart from the civil strategy, Russian Helicopters plans to remain on the sidelines of the current Indian competitions, in case New Delhi decides otherwise. SP

DRDO to outsource SATCOM data link for Rustom-II

In an effort to speed up the Rustom-II MALE UAV programme, the Dehradun-based Defence Electronics Application Establishment (DEAL) has called for quotations on the development of a SATCOM data link for the UAV, in effect outsourcing a major task required within the programme. "The data link system is one of the major systems of UAV that is based on digital communications techniques and provides full duplex communication between the UAV and the ground control station," the DEAL RfQ states.

The tender provides an opportunity for several Indian private firms which have demonstrated a capability in defence electronics and expressed an interest in working with DRDO to develop robust military data links for UAVs, aircraft and other combat assets. The DEAL tender is therefore the first effort towards such partnerships. Interested competitors are expected to turn in their proposals and quotations by April 30 this year. The Rustom-II is expected to make its first flight by February 2014. SP

HAL to present UAV vision to Home Secretary

Hindustan Aeronautics Limited (HAL) will shortly be making a presentation to Home Secretary R.K. Singh on a proposed national plan on UAVs for internal security threats and cross-border terrorism. HAL recently carved out a separate UAV wing as part of its Bengaluru complex. While several different agencies in the country are involved in developing UAVs (ADE, NAL, ADA etc), HAL has decided to go the partnership route to build unmanned systems for the armed forces.

HAL already has a tie-up with IAI, and is likely to explore expanding this relationship to bigger, high performance systems to cater to the large UAV requirement in the Indian armed forces and paramilitary forces. HAL sources indicate the company is working towards organising a full-fledged menu of UAVs that it can offer—from micro and mini UAVs for manportable infantry deployment and special forces utility, to larger high endurance systems of the kind being developed by the Aeronautical Development Establishment. SP

PHOTOGRAPHS: Anoop Kamath, DRDO, SPSC

Mixed success: Nirbhay maiden test started well, terminated midway

The much anticipated maiden test of India's long-range cruise missile, Nirbhay, ended mostly in disappointment on March 12, with the programme scientists forced to destroy the missile about 20 minutes after launch. While the launch itself from the road mobile launcher, the separation of the booster and deployment of wings, were successful operations, about 20 minutes into the flight, the cruise missile drifted alarmingly from its flight path forcing the test team to take the drastic action. Protocol during such tests necessitates emergency fall-backs in the event of loss of control of the missile.

The Bay of Bengal Test range is a safe one, but the Nirbhay was being tested

to its maximum range of 1,000 km and therefore coastal security presented itself as an immediate concern. The test team was therefore unanimous that the missile test must be aborted. Sources indicated that there could have been mechanical issues with control surfaces, or possible certain minor electrical glitches that may have pushed the weapon off course.

A post-test inquiry team will look into all telemetry data to zero in on what went wrong. In an official statement, DRDO said, "Long-range cruise missile Nirbhay was successfully launched from launch complex, Chandipur, Odisha, meeting the basic mission objectives successfully. After travelling approximately midway, deviations were observed from its intended course. Further, flight was terminated to ensure coastal safety." SP

M777 deal to be signed soon

A long-delayed deal for 145 M777 ultra-light howitzers is to be signed shortly between New Delhi and Washington. India first expressed interest in the BAE Systems gun over seven years ago in January 2006. The deal is expected to be worth over $600 million, and will be India's first purchase of artillery since the Bofors episode (notably, BAE Systems now owns the Bofors artillery company in Sweden).

Other than 145 M777 guns, the deal will also include laser inertial artillery pointing systems (LINAPS), warranty, spare and repair parts, support and test equipment, publications and technical documentation, maintenance, personnel training and training equipment, US Government and contractor representatives' technical assistance, engineering and logistics support services, and other related elements of logistics support, according to the Pentagon's Defence Security Cooperation Agency (DSCA) that has processed the request over the years. Notably, the MoD is currently in contract negotiations with Boeing to buy 15 CH-47F Chinook heavylift helicopters for the IAF—a platform that has demonstrated a capability to transport the M777 as an underslung payload—a mandatory requirement for the ultra-light requirement in the Indian Army. SP

PHOTOGRAPHS: US Army, Alenia Aermacchi

The ₹12,000-crore Avro replacement programme will be a two-horse race?

Waiting in the wings for an urgent replacement are the IAF's vintage HS-748 Avro transports, built under licence by HAL's transport division. The replacement of 56 aircraft is an ambitious procurement programme that hopes to see the creation of manufacturing capacity in the Indian private sector. At a cost of ₹12,000 crore, it so far appears to be a European two-horse race. In terms of specifications, payload capacity and configuration, the only two aircraft available in the market now that fit the bill and meet the IAF's requirements in terms of a new-build new generation aircraft with modular architecture, are the Airbus C-295 and the Alenia Aermacchi C-27J Spartan, both high performance aircraft with proven track records and export sales.

The Antonov and Ilyushin companies, that function under Rosoboronexport, are understood to be interested in pitching their products as well, though it is understood that the IAF is keen to keep this programme non-Russian, since HAL already has a partnership for the 20-tonne payload mult-irole transport aircraft (MTA) with the United Aircraft Corporation of Russia. Sweden's Saab could also field the Saab 2000, though it remains to be seen if the requirement for 16 flyaway aircraft—as required by the air force—can be addressed with structurally refurbished, rewired aircraft.

In a recent statement, Airbus said, "Airbus Military has been selected as preferred bidder with the A330 MRTT aircraft and is promoting its very successful C295 transport aircraft in India for future competitions. Airbus Military also is the manufacturer of the A400M military transport aircraft, a heavy airlifter which on the long term could provide ideal capabilities for a country like India."

Alenia Aermacchi, in a statement, said, "The C-27J Spartan is the best seller in the new-generation medium battlefield airlifter's category. The C-27J is a twin-engine turboprop tactical transport aircraft with state-of-the-art technology in avionics, propulsion and systems. It provides high performances, high cost effectiveness, extreme operating flexibility and it is the only aircraft of its class offering interoperability with heavier airlifters. The C-27J has been designed, developed and tested as a true military aircraft using military standards to produce a robust, safe and performing aircraft, and has obtained Military Qualification Certificate."

Unlike the C-130J and C-17 acquisitions, the Avro-replacement programme envisages the local licence build of 40 aircraft by the private sector in an effort to build capacity, since HAL has a massive order book and further programmes could critically burden its on-schedule delivery capabilities. The programme, in that sense, could be a tipping point for the Indian private sector. SP

IAF for more Embraer Legacy jets

The Indian Air Force is in the process of drawing up a requirement for additional Embraer ECJ-135 Legacy jets for VVIP transport. In addition to the four already in service with the Delhi-based Communication Squadron dedicated to VVIP transport, the IAF is of the view that increased duties have compelled the formulation of a fresh requirement. The numbers are not certain yet, though it is likely that the IAF will be looking for four more aircraft. The BSF also operates one Embraer ECJ-135 Legacy.

The Embraers have served well in IAF service and have proven to be a pleasant surprise for maintenance crew. The Embraers are complemented in the squadron by 3 Boeing 737-based BBJs. Embraer has also got a substantial amount of business from the Indian airborne early warning and control (AEW&C) programme, in which it has been contracted to supply three (one already delivered and in flight test) modified ERJ-145 airframes, with business prospect of supplying 20 more in the medium term as the IAF's requirements fructify. SP

Mahindra-Telephonics pitches OceanEye radar for MRH

The new Mahindra-Telephonics joint venture company is pitching the APS-143C(V)3 OceanEye maritime surveillance radar for the Indian Navy's multi-role helicopter (MRH) in the event that the Sikorsky S-70B Sea Hawk is chosen.

The Telephonics OceanEye has been chosen by the Indian Navy as an aft radar on its fleet of Boeing P-8I long-range maritime reconnaissance aircraft on recommendation by the US Navy—it is one of two pieces of equipment that the Indian Navy has specifically asked for, that do not come as standard fit on the US P-8A (the other is a magnetic anomaly detector). Technologies on the APS-143 feed into the more advanced APS-153, the radar that features on the Sikorsky-Lockheed Martin MH60R multi-mission helicopter in use with the US Navy, and a prospective front-runner for the Indian Navy's big follow-on for 75 helicopters under the N-MRH programme, expected to be floated this year. SP

PHOTOGRAPHS: SPSC, marines.mil, US Navy

Indian interest in V-22 Osprey intensifies

The Indian armed forces appear ready to consider the Bell-Boeing V-22 Osprey as a possible future platform. What began as a preliminary interest in the world's only operational tilt-rotor aircraft has blossomed into a specific set of missions that the Indian services have flagged as possible future Osprey roles in India. While it has been known for a while that the Indian Navy has shown preliminary interest in the Osprey as a potential carrier-borne AEW&C platform (and therefore for carrier on-board delivery), it is now known that the Indian Air Force has asked for briefings on the aircraft for the combat search & rescue (CSAR) and special forces roles.

The Indian forces have also flagged specific queries about the V-22's ability to fly to the country's island territories in the Bay of Bengal and Arabian Sea. The

platform's unfuelled range has elicited sharp interest. After acquiring the C-130J for the special operations role, the IAF is now extremely keen on considering the hugely flexible tilt-rotor role as it expands its special forces capability in tandem with the Army.

IAF sources informed *SP's M.A.I.*, "After a shaky start, the V-22 is now a proven platform with the US Marine Corps and it has demonstrated its capabilities well in Iraq and Afghanistan. We have requested preliminary information based on certain scenarios which we have arrived at, which could possible be addressed by a tilt-rotor aircraft like the V-22." A team from Bell and Boeing held unofficial briefings with the Indian armed forces officials during the Aero India 2013 show in Bengaluru. SP

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Focus on Agni-VI

Beyond the nuclear capable Agni-V, development of Agni-VI by the Defence Research and Development Organisation (DRDO) is welcome news. This three-stage ICBM is expected to be developed by 2014 and likely to be introduced in service and operationalised by 2018-19. It will have a maximum range of 10,000 kilometres, implying effective range of about 8,000 kilometres.

With mobile launchers for the land variant mountable on both 8 x 8 Tatra vehicles and rail, plus the SLBM version fitted onto Arihant class submarines, the three-stage Agni-VI incorporating 'seeker technology' will provide a big boost to the Indian armed forces as a force multiplier with strategic dimensions. The multiple independently targetable re-entry vehicles (MIRV) warheads that Agni-VI will carry are reportedly four to six though some sources talk of even 10 MIRV warheads depending on the weight of the warheads.

Development of Agni-VI will propel India into the elite club of MIRV warhead ICBMs alongside countries like the US, Russia and China. Though India's missile development is not aimed at any particular country, it is axiomatic that we cannot ignore the Chinese missile development especially the overall capability of nuclear and ballistic missiles under China's Second Artillery Corps, which was the first military unit visited by Xi Jingpin.

Though the 2012 Military Balance by the Institute of Strategic Studies is being published only by mid-March 2013, at last count, the overall 500 missiles included some 70 ICBMs (including 20 of 13,000+ kilometres range, 24 of 11,200 kilometres range and 36 SLBMs including 24 of 7,200+ kilometres range. The latest entry has been the Dong Fang 41 ICBM capable of carrying a nuclear warhead of 1 MT or up to 10 MIRVs with selectable weight warheads. With a speed of Mach 10-25, launchpad from silo or road mobile TEL, it will have a maximum range of 14,000 kilometres. Dong Fang 41, translated as 'East Wind' in Chinese, has been inducted into the Second Artillery Corps and gives China the first strike capability in the US mainland.

China test-fired the DF 41 on July 24, 2012, while the China-Japan controversy raged over the disputed Diaoyutai (Diaoyu or Senkaku) islands. With reachable targets in the US, the DF 41 provides strategic muscle to China in the balance of power in the Asia-Pacific region. As and when China deploys a Carrier Group at Hainan and deploys SLBMs, the balance of power in Asia-Pacific will start undergoing a change.

China's Dong Fang 41 ICBM

Aside from the deployment of multiple MIRV warhead missiles, what needs to be kept in mind is the Chinese concept of mass missile strikes, both aimed at penetrating the BMD shield of the adversary by ensuring at least some warheads strike intended targets. Then is the question whether all the warheads will merely be nuclear or conventional or can one also expect others like chemical and electromagnetic (EM) warheads, given the Chinese penchant to surprise the enemy asymmetrically?

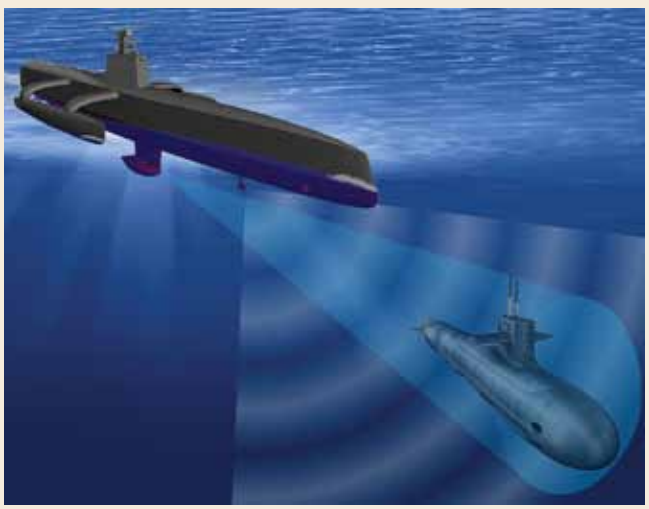
India needs to examine these issues. Are we catering for an EM warhead mixed with conventional, nuclear, chemical MIRV warheads? While BMD shield can stop a multiple warhead/missile attack, focus obviously is required to keep upgrading the missile defence to minimise the effects by building more and more safeguards. As for deterrence, who is this deterrence against if not China and Pakistan. We need to review our nuclear policy in the context of both. Deterrence must be credible and through the full spectrum rather than only at ICBM level notwithstanding the fact that longer ranges are intimidating to the adversary. Preference also needs to be given to thermonuclear warheads (for greater effect and cost effectiveness) and to the sea-based deterrent (SLBMs) as latter are easier to secure and deploy. Finally, would be the requirement to have a robust command and control system and the alacrity with which the second strike option is to be exercised, should we continue with this policy. SP

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

While BMD shield can stop a multiple warhead/missile attack, focus obviously is required to keep upgrading the missile defence to minimise the effects by building more and more safeguards

PHOTOGRAPH: DRDO

Raytheon to supply MS3 for ACTUV programme



Raytheon Company (RTN) was awarded a subcontract from Science Applications International Corporation (SAIC) to deliver its first fifth-generation medium frequency hull-mounted sonar system as part of the Defense Advanced Research Projects Agency (DARPA) anti-submarine warfare continuous trail unmanned vessel (ACTUV) programme.

According to the US Navy, 43 nations operate more than 600 submarines; the steady increase in undersea vessels makes tracking a challenge. Raytheon's modular scalable sonar system (MS3) will integrate into SAIC's prototype trimaran vessel as the primary search and detection sonar. The system is designed to provide search, detection, passive-threat filtering, localisation and tracking capabilities without requiring human operation.

MS3 enables anti-submarine warfare (ASW) and undersea warfare with capabilities such as active and passive search, torpedo detection and alertment, and small object avoidance. Data from multiple sonars may be fed to a central command and control node, providing a common operating picture as part of the ASW mission. By integrating a host of capabilities in a single sonar system, Raytheon delivers an affordable solution that addresses critical naval challenges.

"Historically, manned sonars were central to anti-submarine warfare missions. However, the growing number of submarines traversing the world's oceans makes this model unsustainable," said Joe Biondi, Vice President of Advanced Technology for Raytheon's Integrated Defense Systems business. "By leveraging Raytheon's heritage in developing undersea sensors, MS3 can be configured to provide the capabilities required for ASW in an autonomous environment." SP

Diehl bags air defence contract from Sweden

The Swedish Defence Material Administration signed a contract with Diehl Defence to deliver IRIS-T SLS surface-to-air missile (SAM) systems for the country's armed forces. The new units comprising the IRIS-T missile, missile launching station and fire control system are to improve the national air defence by protection against air attacks from a large variety of threats including missiles, helicopters and aircraft.

Following deployment, the mobile system allows fully automatic operation 24 hours a day. The Swedish Army will operate the SAM fire units, together with a new command and control system as well as modernised sensors from Saab.

IRIS-T SLS employs the standard IRIS-T air-to-air missile and is the short-range complement to the medium-range IRIS-T SLM ground-based air defence system of Diehl Defence.

With the IRIS-T SLS/SLM ground-based air defence systems, Diehl is setting new standards in open system design architectures providing maximum flexibility for new weapon systems as well as for the modernisation/upgrade of legacy equipment. IRIS-T SLM is based on the SAM system development in Germany for national air defence.

Delivery of the first IRIS-T SLS systems is scheduled to commence in 2016. As partner of the European missile programme, Sweden has already introduced the IRIS-T air-to-air missile for its Gripen fighter aircraft. SP

Future Soldier from Rheinmetall on the move

Rheinmetall formally transferred its new IdZ-ES future soldier system to the German Bundeswehr recently. Short for "Infanterist der Zukunft – Erweitertes System" or "Future Soldier – Expanded System", IdZ-ES is also known as the "Gladius".

The handover ceremony coincided with the 10th Armoured Division's traditional "International Division Skiing Championship" at Ruhpolding in Upper Bavaria. Bodo Garbe, member of the Executive Board of Rheinmetall Defence, symbolically handed over the Gladius to Lt General Bruno Kasdorf, Chief of Staff of the German Army, and Harald Stein, President of the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw).

"The new IdZ-ES is an original, comprehensive, innovative solution. For the first time ever, it proved possible to implement an entirely new design for a soldier system and get it to the troops. Thanks to Gladius, as we call it at Rheinmetall, German infantrymen can now play an active role in network-enabled warfare", declared Bodo Garbe.

Garbe went on to note that "the availability and flow of information on the battlefield are at least as important as firepower, protection and mobility. SP

PHOTOGRAPHS: DARPA, Rheinmetall, Diehl

Cassidian protects soldiers from roadside bombs

Cassidian, the defence and security division of EADS, has developed a new-generation jamming system that significantly enhances the protection of vehicles against radio-controlled improvised explosive devices (RCIEDs).

The multifunctional jammer analyses the signal spectrum around a vehicle and is thus in a position to jam the radio signals intended to ignite a roadside bomb in a much more targeted manner and at an earlier stage than was the case in the past. With the so-called SMARTscout extension, the device can now be used at the same time for signal intelligence, thus contributing to the generation of a comprehensive picture of the signal situation – a task that previously could only be accomplished by relatively complex systems which are difficult to deploy and consume a lot of energy.

"Lessons learnt in recent conflicts prove that the enemy often changes the type of radio transmission used for triggering signals in asymmetric scenarios," explains Elmar Compans, head of the Sensors & Electronic Warfare unit at Cassidian. "Continuous analysis of threats and the resulting adaptation of countermeasures are therefore indispensable. Using our SMARTscout system, both of these tasks can be done faster and with reduced effort."

SMARTscout allows the user to deploy numerous sensors in a crisis area at low cost and to obtain information on the radio communication situation in less time. This is important to ensure both optimum protection and efficient planning of further operations. SP

PHOTOGRAPHS: US Navy, Cassidian

US Navy funds Austal to build two more ships

Austal USA's order backlog has grown by approximately $681.7 million as a result of two additional Littoral Combat Ship (LCS) contract options being exercised by the United States Navy.

The contract options fund construction of the LCS 14 and LCS 16, the fifth and sixth ships in the 10-ship block buy award made to an Austal-led team in December 2010. That 10-ship programme is potentially worth over $3.5 billion.

Austal Chief Executive Officer Andrew Bellamy said the company's US Navy programmes provide revenue and workload for years to come.

"Austal's production of these revolutionary ships continues to expand and improve, simultaneously delivering better programme outcomes for the Navy and improved financial results for the company's shareholders," he said.

Austal USA President, Craig Perciavalle, said "This confirms the Navy's commitment to the LCS programme and their confidence in Austal."

Austal USA is a full-service shipyard offering design, construction and high-speed vessel service and repair. As Austal USA continues to expand its service and repair capabilities, the company is well-positioned for new business with engineering, test and trials capabilities, and a new waterfront facility on the Mobile Bay waterfront.

Austal has been contracted by the US Navy to build ten 103-metre JHSVs under a 10-ship, $1.6-billion contract, one of which has already been delivered, and eight 127-metre Independence-variant LCS class ships (including USS Independence, delivered to the Navy in 2009), six of which are a part of a 10-ship, $3.5-billion contract. SP

Eurosam SAMP/T scores again

Recently, the SAMP/T system scored a new success. A joint team of French and Italian crew operating two French Air Force SAMP/T units conducted a test fire against a ballistic threat.

This was the third time that SAMP/T proceeded to a test firing against such type of threat, the second time by an operational crew. The test took place in CELM (South West of France), the DGA firing polygon. Like the previous ATBM firings, in October 2010 and November 2011, the target, air launched, was representative of a 300 km range TBM threat.

The differences with the previous ATBM intercept were significant, though. This firing was a premiere in several ways. On the one hand it was the first SAMP/T firing using L16 for data links with the higher echelons. On the other hand, while the previous two ATBM tests were conducted in a French specific environment, wholly controlled by DGA and French Air Force, this latest one can be called the first SAMP/T firing test in a NATO environment, close to what would be an operational use for an ATBM mission under the aegis of the alliance ALTBMD programme.

NATO BMDOC, located in Ramstein, was in the loop via L16 network. Last but not least, though the ground equipment was provided by French Air Force, the crew was a mix of Italian Army and French Air Force personnel, a token of the long lasting cooperation between the two nations in developing, building, testing and fielding SAMP/T.

SAMP/T is the only non-US built long-range air defense system contributing to the NATO Alliance capability against ballistic threats. French and Italian governments have committed to contribute to NATO ATBM defence with SAMP/T systems. NATO, Italian and French high-level representatives witnessed the test in CELM, as well as NATO personnel in Ramstein, thanks to the L16 data exchange. SP

Women in armed forces: Fresh look

[By **Air Marshal (Retd) Anil Chopra**]

On the International Women's Day on March 8, TV channels were back to the debate on combat role for women in the armed forces. As a father of two successful working girls and till very recently the head of Human Resource Department of the Indian Air Force (IAF), it is time for me to enter the debate.

Facts

Women were first inducted into Indian armed forces in 1992 mostly in Short Service Commission (SSC). Today there are 1,214 (3.3 per cent) in the Army, 410 (3.9 per cent) in the Navy and 1,138 (10.4 per cent) in the Indian Air Force (IAF). Compare this with Israel 33 per cent, France 19 per cent, USA 14.6 per cent, Australia 13 per cent, Canada 12 per cent, Britain 9 per cent, Russia 10 per cent, Germany (7 per cent), China (7.5 per cent), and Pakistan (1 per cent).

Permanent commission (PC) for women has been cleared in legal and education branch in all three services. Induction of women in the Army is permitted in EME, Signals, Engineers, Ordnance, Intelligence and Service Corps. In the Indian Navy, women are not allowed in the Submariners and Divers branches and in the IAF, except the fighter stream, all branches are open to women.

Israel has had women in uniform since the country's formation in 1948 due to the intense threat environment and small population. For first 25 years, women were employed in the HR and Administrative branches of the Israeli armed forces and now 3 per cent are in combat divisions.

The 4,000-odd women in Pakistan armed forces are mostly doctors and nurses and some in the Education Corps. Pakistan cleared women pilots in 2006 and the first four fighter pilots were commissioned in 2009. The US employed nearly 40,000 women in Iraq of which only two were taken prisoners in Operation Desert Storm and three in Operation Iraqi Freedom because they were mostly employed in combat support tasks. Significant number of women sustained injuries in Afghanistan doing non-combat tasks.

In China, women serve mostly in military support roles. In 2009, the first batch of women fighter pilots was commissioned into the People's Liberation Army Air Force.

An Israeli Military report indicates that female combatants display higher levels of alertness, are more knowledgeable about the use of weapons and have better shooting abilities than men.

PHOTOGRAPH: PIB

Enhanced Induction Logic

Jhansi ki Rani and Razia Sultan were great combat leaders. The women cadre of LTTE and Naxal groups engage in combat. On the flip side, men also take sick leave, furlough and study leave and are missing from duty for months and years, so what if a women goes through a few pregnancies.

In the Indian armed forces there is an acute shortage of officers and this shortage can be made up at least partially through induction of highly motivated and competent women officers. Since the police, BSF and CRPF have women battalions why not the Indian armed forces.

Counter Arguments

Studies have indicated that women have 45 to 50 per cent less upper body strength and are more prone to fractures and bone injuries. Presently physical standards stipulated for women are lower than for men. Also there are issues of acceptability of women within the Army in view of a mindset that is likely to take time to change.

Most women officers choose to marry within the service for easy collocation, a practice that has implications for cadre management. Then there are issues of night duty and maternity leave and child care leave (cumulatively about 3½ years) and the system needs to address the absence. The percentage of women in combat the world over is still insignificant, so why the rush?

The Way Forward

Best summed up by the father of the nation, "To call woman the weaker sex is a libel; it is man's injustice to woman. If by strength is meant brute strength, then, indeed, woman is less brute than man. If by strength is meant moral power, then woman is immeasurably man's superior. Has she not greater intuition, is she not more self-sacrificing, has she not greater powers of endurance, has she not greater courage?" With women constituting 46 per cent of India's population, they do deserve a better share and the Parliament must first set an example by legislating 33 per cent reservation for women.

Slow but steady change is what all have adopted and the Indian armed forces must do the same. Services should open PC to 5 per cent women to begin with. Select women toppers at SSC for 14 years' service and increase the overall cadre strength to cater for absence. To begin with train about 10 fighter pilots and then review the same in five years. A practical cap in percentage of women, comparable to modern countries at around 12 per cent should be put and reviewed every 10 years. The issue of command of combat units may be visited 10 years hence, after more roles are assigned to women. SP

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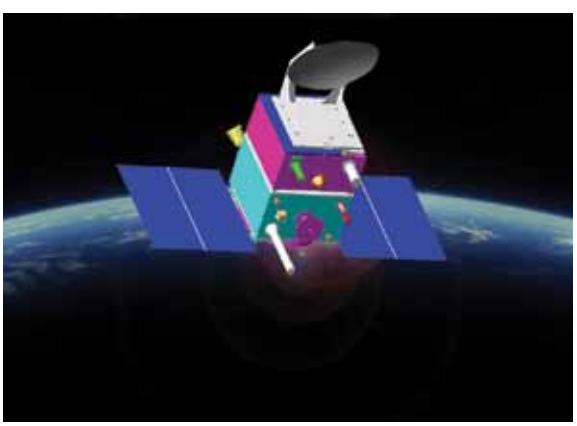
SP GUIDE PUBLICATIONS

India's space programme: Makes us proud

[By **Air Marshal (Retd) Anil Chopra**]

India's space programme took off in right earnest with the setting up of the Indian Space Research Organisation (ISRO) in 1969. It is one institution that all Indians are really proud of. In 1975, ISRO launched India's first satellite Aryabhata, aboard a Soviet rocket and India's space programme came of age when 'Rohini' satellite was put into orbit using the first Indian Satellite Launch Vehicle (SLV-3) in 1980. The later variants of launch vehicles, Augmented Satellite Launch Vehicle (ASLV), Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch Vehicle (GSLV) have put into orbit a large number of communication and earth observation satellites. With ₹5,600 crore budget for 2013-14, it is among the six biggest space programmes in the world; others being USA, Russia, China, European Space Agency (ESA) and Japan.

The initial satellites were for technology assimilation. Aryabhata gave India the experience to build and operate a satellite while the Bhaskara series were for remote sensing. The Rohini series helped develop satellite launcher SLV-3 and subsequently the ASLV. The first experimental communication satellite was launched on ESA Ariane-1 rocket.



The INSAT (Indian National Satellite) series, the biggest satellite programme in the Asia-Pacific region, was essentially a joint venture between the Department of Telecommunication, Department of Space, India Meteorological Department (IMD), Doordarshan, and All India Radio. INSAT-1A was launched on April 1982 for multi-purpose communications and meteorology. INSAT-1B, C&D followed. The first operational remote sensing satellite was IRS-1A put into orbit in March 1988.

The Satish Dhawan Space Centre at Sriharikota, off the coast line in Andhra Pradesh, is a multi-pad main launch site. The Vikram Sarabhai Space Centre in Trivandrum is the main development centre for rockets and it develops satellites and receives, processes, archives and distributes payload data in real time. The Master Control Facility at Hassan controls the satellites and tracks and monitors long distances, even beyond the moon.

Serious Business

INSAT-2 series were the second generation long life satellites launched from 1992 onwards and most of them are still operational. The first PSLV-D1 in September 1993 could not put the IRS-1E satellite into orbit. In October 1994, the PSLV-D2 was successfully launched. The IRS-P4 carried an ocean colour monitor (OCM) and a multi-frequency scanning microwave radiometer (MSMR). INSAT-3B was a multi-purpose satellite for mobile communications. GSAT-1 was the experimental satellite to test first GSLV-D1 in April 2001. Technology Experiment Satellite (TES) launched on a PSLV in October 2001 was to test orbital control systems. India's first exclusive educational satellite, EDUSAT was the first operational payload of GSLV in October 2004. INSAT-4A in December 2005 was the advanced satellite for direct-to-home television broadcasting services that changed the way of life in middle-class homes. CARTOSAT series from May 2005 provided higher resolution sub 2.5-metre imagery. Space capsule Recovery Experiment (SRE-1) was launched aboard a PSLV in January 2007.

In October 2008, ISRO launched its ambitious unmanned lunar probe Chandrayaan-1 with scientific instruments from many countries. RISAT-2, a Radar imaging satellite, acquired from Israel for $110 million, for monitoring India's borders against infiltration was launched in April 2009. The RISAT-1 launched in April 2012 was the first indigenous all-weather Radar Imaging Satellite to support agriculture and disaster management. GSAT-10 advanced communication satellite was launched aboard Ariane-5VA-209 rocket. SARAL, the latest satellite launched on February 25, 2013 is a joint Indo-French mission for oceanographic studies. GSLV Mark-III is now under development and is expected to become operational in 2013, thus reducing dependence on foreign rockets.

India's economic progress has accelerated the space programme; conversely the satellites have greatly supported the economy due to better communications and imaging.

For some years now, India has been offering space launches to other countries. Recently India became the first country to launch 10 satellites from a single rocket. ISRO has now proposed ₹12,400 crore, 14-year programme for a manned space flight. Also a large number of futuristic satellites are at different stages from drawing board to manufacture. The nation is eagerly looking forward to the operationalisation of GPS Aided Geo Augmented Navigation (GAGAN) and the Indian Regional Navigational Satellite System (IRNSS)-1.

The founding father of India's space programme Vikram Sarabhai had said, "We are convinced that if we are to play a meaningful role nationally, and in the comity of nations, we must be second to none in the application of advanced technologies to the real problems of man and society." How true he was. "The successful flight test of long-range Agni-V missile in April 2012 has also opened a new era of opportunity of building anti-satellite weapons," said Dr V.K. Saraswat, head of India's Defence Research and Development Organisation (DRDO). SP

ILLUSTRATION: Anoop Kamath

Deployment of AWACS

Three airborne warning and control system (AWACS) aircraft are presently operationalised in the Indian Air Force (IAF). AWACS are meant as force multipliers for specific area cover and not for surveillance of the entire space of the country, the Defence Minister A.K. Antony has said.

All three AWACS are part of network-centric operations and are able to provide adequate coverage of specified areas in net-centric operations. Enhancement of airborne surveillance and command and control capabilities of IAF is sought to be achieved through procurement of additional AWACS.

To leverage the experience and expertise gained in the design and development of airborne early warning and control systems, a project proposal for indigenous development of AWACS (India) by DRDO has been approved by the Cabinet Committee on Security on February 12, 2013. The development of AWACS is envisaged to be completed in 84 months from the date of formal sanction of the programme. SP

Saudi Medevac to get AW139 helicopters

AgustaWestland has signed a contract for a fleet of AW139 twin-engine helicopters to equip the Saudi Aeromedical Evacuation Department of the Ministry of Defence of the Kingdom of Saudi Arabia.

The helicopters will be configured with a dedicated aeromedical interior to perform air ambulance operations, with deliveries starting in 2013 and being completed in early 2014.

It is the first order for the AW139 to be placed by the Ministry of Defence of the Kingdom of Saudi Arabia and continues the success of the AW139 in the Kingdom, where it is already performing demanding missions with other prestigious operators.

The AW139 has been recognised by many of the world's leading aeromedical organisations as the most capable helicopter in its class, thanks to its outstanding performance and the easily accessible large cabin for patients and the medical team. The AW139 will further enhance the aeromedical evacuation service in the Kingdom of Saudi Arabia, helping it to save lives and deliver medical treatment to those in need in the shortest possible time.

With more than a 130 AW139s sold in the Middle East region, the AW139 is the market leader, offering new standards in terms of state-of-the-art technology, performance in the most demanding weather and environmental conditions and low operating costs. The AW139 is the only helicopter in its class to meet the latest civil safety standards and features Cat. A (Class 1) performance, a 30 minute run dry capable main gearbox and an advanced health and usage monitoring system (HUMS). SP

Northrop delivers 500th DAS sensor for F-35

Northrop Grumman Corporation (NOC) has delivered its 500th AN/AAQ-37 Distributed Aperture System (DAS) sensor to Lockheed Martin for integration into the F-35 Lightning II aircraft.

The DAS is a multi-function infrared system that provides passive, spherical battlespace awareness for F-35 pilots by simultaneously detecting and tracking aircraft and missiles in every direction, as well as providing visual imagery for day/night navigation and targeting purposes. DAS imagery projected onto the pilot's helmet mounted display provides the capability to look at targets and terrain through the floor and wings of the aircraft. The DAS works in conjunction with the Northrop Grumman AN/APG-81 active electronically scanned array (AESA) radar and other onboard systems to give pilots an unprecedented degree of situational awareness.

"This production milestone is a testament to the maturity of the sensor design and our manufacturing processes," said Mark Rossi, Northrop Grumman's DAS Business Area Director. "This revolutionary system is integral to the F-35's fifth-generation leap in technology and Northrop Grumman is ensuring that the sensor systems are ready to meet the warfighter's needs."

As a principal member of the Lockheed Martin-led F-35 industry team, Northrop Grumman performs a significant share of the work required to develop and produce the aircraft. In addition to producing the DAS and software modes, Northrop Grumman designed and produces the aircraft's AN/APG-81AESA radar and communications subsystems; produces the centre fuselage; develops mission systems and mission-planning software; leads the team's development of pilot and maintenance training system courseware; and manages the team's use, support and maintenance of low-observable technologies. SP

PHOTOGRAPHS: SP Guide Pubns, www.defense.gov, AgustaWestland

Beechcraft reaches 800th delivery in T-6 military trainer programme

Beechcraft Defense Company has delivered the 800th Beechcraft T-6 – the most proven and cost-effective military training aircraft. The milestone aircraft was among two Beechcraft T-6Bs delivered this week to the United States Navy's Training Air Wing 4 based at Naval Air Station Corpus Christi, Texas. Training Air Wing 4 has now received 16 of a total of 98 T-6Bs scheduled to replace an aged fleet of T-34 aircraft for primary flight training.

"As many military programmes have already discovered, the Beechcraft T-6B will enable the US Navy to train naval aviators at Corpus Christi more efficiently, more effectively and safer than ever before," said Russ Bartlett, President, Beechcraft Defense Company. "Reaching the 800-aircraft milestone proves the versatility and durability of the Beechcraft T-6 trainer programme worldwide. Military programmes around the globe have accumulated more than 2 million flight hours using the T-6 to train pilots, navigators and weapons systems operators."

The Beechcraft T-6B features an integrated glass cockpit and an advanced Esterline CMC Cockpit 4000 avionics suite that greatly expands advanced training opportunities. The systems are integrated with a hands-on throttle and stick (HOTAS), providing the student pilot and instructor with a simpler interface to the digital cockpit. The CMC Cockpit 4000 avionics suite is the first in its class to incorporate a fully integrated and FAA-certified dual FMS/GPS navigation suite that meets the required navigation performance standards for current worldwide airspace equipment. The open architecture design of the Cockpit 4000 provides the flexibility to expand capabilities and continuously meet current and future training needs. SP

Airbus A400M makes maiden flight

The first production A400M airlifter made its maiden flight on March 6 and it carries the markings of the French Air Force, to which it will be delivered in mid-May. The first production Airbus Military A400M new generation airlifter has made its maiden flight, marking a key milestone towards its delivery to the French Air Force.

The aircraft, known as MSN7, took off from Seville, Spain, and landed back in Seville later. Experimental Test Pilot Hugues Van Der Stichel, who captained the flight, said after landing: "The performance of the aircraft was as expected and we had a very smooth flight, confirming the great handling capabilities of the aircraft. The result of this first flight gives us full confidence for the on-time delivery to the French Air Force". SP

Bell Helicopter's increased mission capability with Bell 407GT

Bell Helicopter has introduced the new Bell 407GT, the armed version of the Bell 407GX, its state-of-the-art light commercial helicopter.

The commercially qualified Bell 407GT incorporates the performance and reliability of the Bell 407 platform with the Garmin G1000HTM flight deck, providing critical flight information at a glance for greater situational awareness. The 407GX can be equipped with infrared cameras, light munitions and precision weapons systems, including laser-guided rockets and missiles.

"The 407GT is a 'force multiplier', with mission capabilities ranging from tactical air assault and troop escort to reconnaissance and search and rescue," said Danny Maldonado, Bell Helicopter Executive Vice President, Sales and Marketing. "The proven performance of the Bell 407GX platform provides our customers an aircraft that is ready to fly when duty calls, while powerful munitions capabilities coupled with an advanced flight deck ensures mission success."

The Bell 407GT features a highly flexible and configurable weapons system for tactical operations, including infrared camera system with laser designation capability, weapons management system, universal weapons pylon (UWP), tactical radio suite and aircraft survivability equipment.

The UWP, derived from the battle-tested Bell OH-58D Kiowa Warrior, provides a stable platform for precise delivery of ordnance and can be quickly reconfigured for machine guns or rockets. The pylon can also be easily removed to meet multiple mission requirements such as search and rescue or medical evacuation. Light munitions capabilities of the 407GT include Dillon M13D mini-guns, .50 calibre machine guns or 2.75 in. rockets, as well as laser-guided weapons featuring a standoff range of more than 5,000 metres. SP

PHOTOGRAPHS: Beechcraft, Bell Helicopter, Airbus Military

Northrop Grumman to produce more Fire Scouts for US Navy

The US Navy has awarded Northrop Grumman Corporation (NOC) a contract valued at more than $71 million to produce six additional next-generation Fire Scout unmanned helicopters. The Fire Scout endurance upgrade, designated the MQ-8C and based on Bell Helicopter's 407, will provide ship commanders with increased range, endurance and payload capacity over the current MQ-8B variant.

The Navy plans to purchase a total of 30 aircraft under a rapid development effort. Northrop Grumman is currently under contract to produce 14 Fire Scouts that are scheduled to begin deploying in 2014.

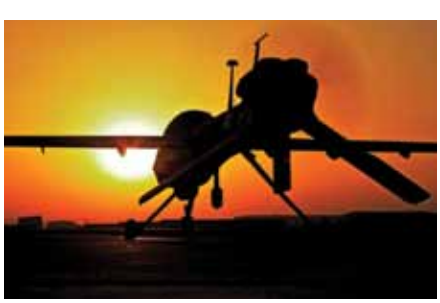
"This contract provides significant momentum for the work Northrop Grumman and its supply chain partners are doing to meet the Navy's requirements," said George Vardoulakis, Vice President for tactical unmanned systems with Northrop Grumman's Aerospace Systems sector. "Our entire team is focused on delivering this game-changing capability on time, on cost and with unquestionable quality. Along with our industry partners—Bell, Rolls-Royce, Cubic and others—we are making significant progress in reducing cost, enabling us to achieve our affordability targets and provide the Navy with the absolute best value." SP

Gray Eagle completes initial operational testing, evaluation

The US Army's Gray Eagle unmanned aircraft system recently completed a successful initial operational testing and evaluation at the Army's National Training Center at Fort Irwin, California.

During the initial operational testing and evaluation (IOT&E) the Gray Eagle platform was operated from the Edwards Air Force Base, California, and employed in an operational and realistic way in support of a brigade combat team rotation at NTC, explained John Moltenberry, military test plans analyst, US Army Operational Test Command, Army Test and Evaluation Command.

The basic thrust of the IOT&E is to assess the degree to which a given platform or technology meets its designated requirements, typically as a way to inform anticipated full-rate production decisions, he said.



PHOTOGRAPHS: US Navy, US Army

Operators can control the Gray Eagle through the use of satellite communications –which allow for "beyond-line-of-sight" missions — or through tactical common data link line-of-sight signals, Moltenberry explained.

Timothy Baxter, the project manager for unmanned aircraft system, UAS, said the IOT&E verified that the Gray Eagle platform was effective, operationally suitable and meeting survivability and force protection key performance parameters. He also added that the beyond low-rate-initial-production report included a handful of worthwhile recommendations. SP

Commercial UAV market valued at $2.3 billion

A new research note from G2 Solutions, "Commercial UAS Imagery and Information Markets: Analysis and Forecast," is now available. The 21-page analysis defines the market space and plots incremental access to the US National Airspace (NAS) for unmanned aerial systems (UAS).

"The US Federal Aviation Administration (FAA) continues to work under a 2015 mandate to open up the NAS to unmanned aerial Vehicles (UAVs), and the debate over timing, airspace access and commercial business is in full swing," said G2 Solutions Research director Ron Stearns. "Given that imagery and video collection has been a core capability of US Department of Defense (DoD) UAS it's a natural transition to leverage equivalent data sets in US commercial markets."

The research plots growth in commercial UAS imagery and information revenues with incremental and expanding access to the NAS from 2015-to 2025. Existing users in civilian federal, state and local governments have a decades-long history of using aerial and satellite imagery as a basis for organisational decision making. This constitutes everything from land use and development to environmental protection and remediation. Purely commercial industries such as forestry, oil and gas and mineral exploration also have a long history of use for exploration, extraction, remediation and stewardship.

Quasipublic industries such as utilities require imagery and information for corridor/infrastructure management. There is an established market for imagery and information within the US, with estimates of between $4 billion and $6 billion in purchases of commercially-obtained imagery and information from aerial and space-based sensors.

Companies such as General Atomics, Aeronautical Systems Incorporated, Northrop Grumman Corporation and others have flown systems on their UAVs intended to satisfy the FAA's sense-and-avoid (SAA) mandate in order for UAVs to gain more normalised access to the NAS.

"Over time the debate will turn from anxiety over sense-and-avoid to procedural issues regarding the interplay of UAVs and other aircraft in the NAS," Stearns added. SP

Tekever trials of AR4 Light Ray UAS in Colombia

Tekever conducted an intensive one-week set of trials of the AR4 Light Ray UAS to the Colombian armed forces, to validate the system's powerful capabilities for intelligence, surveillance, target acquisition and reconnaissance (ISTAR) missions, under the extreme altitude and weather conditions of Colombia.

With very intense military activity against guerrilla forces and narcotraffic groups, the Colombian armed forces are everyday faced with the need to carry out ISTAR missions under extreme weather and geographic conditions. The Colombian landscape is poised with high altitude mountains that contribute to a very instable weather, prune to swift changes and speedy winds. These conditions, coupled with very dense vegetation, pose a true ambitious challenge to the use of unmanned aerial systems by the Colombian armed forces.

The technical trials carried out by the AR4 Light Ray UAS were performed at high altitudes, around 3,000 metres and right in the heart of the mountainous region surrounding Bogotá, demonstrating the system's ability to perform in the most challenging scenarios and under the most demanding weather conditions.

"The trials were a complete success," said Ricardo Mendes, Tekever Group COO. "We met and exceeded the goals we had planned for, by demonstrating the usage of the system to perform multiple types of missions in one of the most challenging environments in the world." SP

Rolls-Royce launches latest M250 engine variant

Rolls-Royce, the global power systems company, has launched the latest variant of its M250 engine – the M250-C47E. Rolls-Royce has secured a commercial launch commitment for one new and two current aircraft applications, with a customer announcement expected at Heli Expo.

The US Navy has committed as the first military customer to incorporate the M250-C47E into the Northrop Grumman MQ-8C Fire Scout. Rolls-Royce has delivered a development engine to Northrop Grumman for a demonstrator aircraft for the rapid deployment capability programme.

The new M250-C47E improves efficiency and performance, using proven technology already demonstrated in the field. These include a five per cent improvement in 'hot and high' power and a nearly eight per cent increase in rated takeoff power to 700 shaft horsepower. Specific fuel consumption (SFC) is reduced by a typical two per cent and engine reliability is increased.

Greg Fedele, Rolls-Royce, Senior Vice President–Helicopters, said, "The newest evolution of the M250 engine will deliver improved power and reliability with reduced fuel consumption."

"Both commercial and military customers will benefit from these improvements as we continue to evolve the proven legacy of the M250 engine." Rolls-Royce has delivered more than 31,000 M250 engines, with the fleet totalling over 223 million flight hours. SP

DARPA's TERN programme aims for eye-in-the-from sea

Effective 21st-century warfare requires the ability to conduct airborne intelligence, surveillance and reconnaissance (ISR) and strike mobile targets anywhere, around the clock. Current technologies, however, have their limitations. Helicopters are relatively limited in the distance and flight time. Fixed-wing manned and unmanned aircraft can fly farther and longer but require either aircraft carriers or large, fixed land bases with runways often longer than a mile. Moreover, establishing these bases or deploying carriers requires substantial financial, diplomatic and security commitments that are incompatible with rapid response.

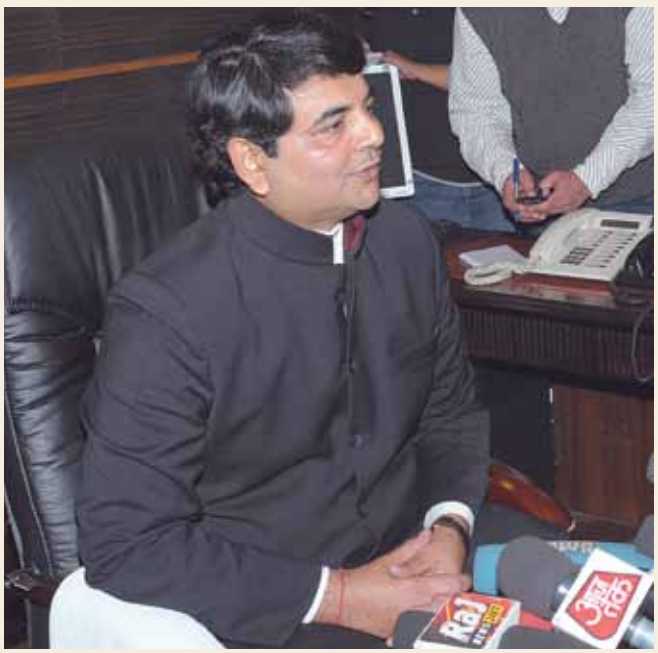
To help overcome these challenges and expand DoD options, DARPA has launched the Tactically Exploited Reconnaissance Node (TERN) programme. Seeking to combine the strengths of both land- and sea-based approaches to supporting airborne assets, TERN envisions using smaller ships as mobile launch and recovery sites for medium-altitude long-endurance (MALE) fixed-wing unmanned aircraft (UAVs). Named after the family of seabirds known for flight endurance — many species migrate thousands of miles each year – TERN aims to make it much easier, quicker and less expensive for DoD to deploy ISR and strike capabilities almost anywhere in the world.

"It's like having a falcon return to the arm of any person equipped to receive it, instead of to the same static perch every time," said Daniel Patt, DARPA Program Manager. "About 98 per cent of the world's land area lies within 900 nautical miles of ocean coastlines. Enabling small ships to launch and retrieve long-endurance UAVs on demand would greatly expand our situational awareness and our ability to quickly and flexibly engage in hotspots over land or water."

DARPA seeks proposals that would design, develop and demonstrate a MALE UAV and an associated automated launch and recovery system. The UAV would have to carry a 600-pound payload and have an operational radius of 600 to 900 nautical miles from its host vessel. The launch and recovery system would have to fit Littoral Combat Ship 2 (LCS-2)-class ships and other surface combat vessels as feasible.

DARPA plans to roll out TERN in three phases over approximately 40 months, culminating in a full-scale launch and recovery demonstration. SP

PHOTOGRAPHS: Tekever, DARPA



LWE using modern weapons: Minister

The weapon holding of left-wing extremists (LWE) is not superior to the weaponry used by the security forces in the LWE-affected area. The LWE outfits are using weapons/equipments like LMG, AK-47, SLR, .303 Rifles, GF Rifles, HE grenades and VHF and HF sets for attacks on security forces, according to the R.P.N. Singh, Minister of State for Home Affairs.

Further, there are reports that the CPI (Maoist) is focusing on further augmentation of its military capability to increase the lethality of its armoury. The use of rockets, mortars and molotov cocktails, the former through indigenously manufactured launchers have also been witnessed during some attacks on security forces in the Bastar region.

The Government is implementing a scheme namely, 'Construction/Strengthening of Fortified Police Stations' wherein 400 Police Stations are proposed to be constructed in 9 LWE-affected states at the rate of ₹2 crore for each police station. Under the Scheme, 80 per cent of funds are provided by the central government and 20 per cent by the respective state governments. So far, ₹370 crore have been released under the scheme. The state governments have been advised to complete the construction work of Police Stations as early as possible. SP

Naxalites exploiting tribal communities

Several instances of exploitation of tribal communities by the naxalites has come to the notice of the government. Such instances primarily include sexual exploitation in Maoist camps, which have been disclosed through statements of several surrendered women CPI (Maoist) cadres of Odisha, Maharashtra, Bihar, Jharkhand and other states, said R.P.N. Singh, Minister of State in the Ministry of Home Affairs, in Parliament.

He said such instances of sexual exploitation include rape, forced marriage and molestation by senior male CPI (Maoist) cadres. In Chhattisgarh, some surrendered CPI (Maoist) male cadres have disclosed that they were forced by the senior leadership to undergo vasectomy operation as a precondition for marriage with women cadres.

During an operation launched by the Border Security Force (BSF) in January 2012 at a naxal hideout in Niliguda forest, P.S. Podia, District Malakangiri, Odisha, a large number of pregnancy test kits, condoms, contraceptive pills, etc. were recovered. Such recoveries have also been made in other states. There are allegations that women cadres of CPI (Maoist), who become pregnant, are forced to undergo abortion against their will. The surrendered women cadres have also disclosed that even if they are married to male cadres, they are not allowed to give birth to children since the senior leadership of the CPI (Maoist) feel that it impairs their fighting capability and mobility. Further, forced recruitment of children from families of poor and marginalized segments of the society by the Maoists has also come to notice.

In order to instill a sense of fear in their areas of dominance, the naxals also kill civilians after branding them as police informers. Out of 5811 civilians killed by the Maoists since 2001, the overwhelming majority are tribals. The Maoists have in reality killed thousands of innocent Adivasis, whose cause they profess to espouse. This tragic reality is glossed over by the Maoist front organisations and their apologists in towns and cities who have launched a propaganda war against the Indian state, he stated.

The aforesaid problem has to be seen in the overall context of the LWE insurgency. The Central Government closely monitors the LWE situation and supplements the efforts of the state governments over a wide range of issues, both on the security and development fronts. These measures include deployment of Central Armed Police Forces (CAPFs), help to state governments towards capacity building of state forces and implementation of a wide range of development schemes in LWE-affected states. SP

Situation in North East improving: Home Minister

The Union Home Minister Sushilkumar Shinde in a meeting of the consultative committee attached to his Ministry held here recently discussed the security situation in North-eastern states in details.

The Minister said Mizoram has continued to remain peaceful and Tripura has shown remarkable improvement. He said Arunachal Pradesh has largely remained peaceful except in Tirap and Changlang districts due to presence of National Socialist Council of Nagaland (NSCN) factions. Referring to Manipur, the Home Minister said the security situation in the state has improved with noticeable decline in casualties of civilians and security forces.

Referring to the ethnic violence which took place in Assam during July-August and again in November last year, Shinde said, now the situation in the area is under control and close watch of the Government. He informed the members that he also met a delegation of United Liberation Front of Asom (ULFA) and the Home Secretary had reviewed the situation in detail. SP

PHOTOGRAPH: PIB

EADS appoints Guillaume Faury new CEO of Eurocopter

The EADS Board of Directors has accepted the resignation of Lutz Bertling as Chief Executive Officer of Eurocopter and Member of the EADS Group Executive Committee, effective April 30, 2013.

Bertling, 50, has been at the helm of the Group's helicopter Division since November 2006 and had recently expressed his desire to depart the Group in pursuit of another professional opportunity in Germany.

The EADS Board of Directors has appointed Guillaume Faury, 45, to succeed Lutz Bertling. Effective May 1, 2013, Faury joins Eurocopter from Peugeot S.A., where he has served as Executive Vice President for Research & Development since 2010 and as Member of the Managing Board since 2009.

"I regret that Lutz is leaving Eurocopter and the EADS Group to pursue a new challenge outside the aerospace world. We owe Lutz a lot. In his six and a half years at the helm of Eurocopter, he led the company successfully through a period of strong growth and also a deep economic crisis. During his tenure Eurocopter became more international, more innovative, and overall, more competitive. I thank him for all his work and wish him the best for his future", said Tom Enders, Chief Executive Officer of EADS.

"I am happy to welcome Guillaume Faury back at EADS. Early in his career, he excelled at Eurocopter in various management positions before accepting a very senior role at Peugeot. With his profound knowledge of the division, his leadership skills, and his broad industrial expertise, I am convinced Guillaume is the right person to drive Eurocopter's ambitious innovation roadmap and global positioning," Enders said.

Faury, a licensed flight test engineer, served in various senior management functions at Eurocopter from 1998 to 2008 before joining Peugeot S.A. He was Chief Engineer for the EC225/725 programme, Head of the Heavy Helicopter Flight Test department, Executive Vice President for Commercial Programmes and, ultimately, Executive Vice President for Research & Development. Faury also was a member of the Eurocopter Executive Committee.

He started his professional career with the French Defence Procurement Agency DGA, where he was in charge of Tiger helicopter flight test activities. Faury holds an engineering degree from the Ecole Polytechnique in Paris and an aeronautics and engineering degree from the Ecole Nationale Supérieure de l'Aeronautique et de l'Espace in Toulouse. SP

Saab acquires ballistic company Soft Armour

Defence and security company Saab (Stockholm, Sweden) has purchased the rights to the protection technology Soft Armour, and associated assets, from protection technology company Protaurius AB (Molndal, Sweden).

The acquisition is the first step into the field of ballistic protection technology. Soft Armour is a patented technology that uses a spherical ceramic material to protect people and sensitive equipment from fine calibre and armour-piercing ammunition. Soft Armour is self-healing and can withstand multiple hits in the same area. It can also be used in construction solutions, such as walls, shields and soft coverings.

"The acquisition of the rights to Soft Armour is a complement to our wide product portfolio within advanced camouflage. We are now expanding our investment in this type of product in both military and civil segments," says Anders Wiman, Managing Director of Saab Barracuda. SP

Northrop Grumman announces centres of excellence in Florida, California and New York

Northrop Grumman Corporation (NOC) announced it is designating five centres of design and integration excellence in support of its Aerospace Systems sector's manned aircraft, unmanned systems and electronic attack businesses. In addition, the company announced plans to close an Information Systems sector facility in Dominguez Hills, California.

"Consolidating these centres of excellence will improve our strategic alignment with our customers' need for increasingly innovative and affordable products, services and solutions," said Wes Bush, Chairman, Chief Executive Officer and President of Northrop Grumman. "We continuously examine our operational capacity to determine how we can leverage it in the most efficient and cost-competitive manner. Given the current budget environment, it is imperative that we act to enhance future performance, innovation and affordability for our customers."

The Manned Aircraft Design Center of Excellence will be located in Melbourne, Florida, and will include aircraft design work currently being performed at the company's Bethpage, New York, facility. The B-2, F/A-18 and F-35 programmes will remain in Palmdale, El Segundo and Redondo Beach, California, respectively.

The company's Unmanned Systems Center of Excellence will be located at its Rancho Bernardo facility in San Diego, California. Two programmes will transition to that centre: the MQ-4C Triton programme from Bethpage, and the NATO Airborne Ground Surveillance programme from Melbourne, Florida.

An Electronic Attack Center of Excellence will be located in Bethpage, and will include the Aerospace Systems' Electronic Attack programme team.

The company has designated two Aircraft Integration Centers of Excellence, one in Palmdale, California, and the other in St. Augustine, Florida. Current integration activities in Moss Point, Mississippi, and New Town, N.D., are not included in this transition.

The company will close its Dominguez Hills, California, facility as part of its long-term effort to reduce facilities and costs. This facility supports the development and integration of C4I networked communications capabilities and solutions, and mission support work for the information systems sector. This work will be transitioned in phases to other company facilities beginning in 2013. Northrop Grumman also announced plans to complete the closure of its electronic systems sector's Norwalk, Connecticut, facility, including radar test range operations. SP

PHOTOGRAPH: EADS

Elite simulators for helicopter flight training in Brazil

Elite Simulation Solutions, with the support of its newly established representative office in Brazil, achieved an important sale in that country. The customer specifically sought out Elite because he knew of the company's reputation for designing and manufacturing world-class flight simulators powered by standard PCs.

The customer is the recently established Global Aviation Academy based in Curitiba, Brazil, which will specialise in both helicopter flight training and the training of helicopter instructors.

The device supplied by Elite is an Evolution S623 helicopter simulator configured to replicate the Eurocopter AS350 Ecureuil (Squirrel). It has been approved by the Brazilian ANAC as an advanced aviation training device (AATD).

The driving force behind the purchase is the rapidly expanding Brazilian oil industry, which needs helicopters to service its offshore oil rigs. The Global Aviation Academy intends to specialise in training helicopter pilots for offshore work.

The new S623 features an original Garmin GNS530 GPS, a four channel 55-inch LCD TV screen visual set up with separate chin bubble view, and Lockheed Martin P3D visual software featuring 3D depiction of over 22,000 airports worldwide.

João Fontana, Global Aviation Academy Director, said: "I have known Elite for many years and have been convinced about its high quality trainers, so I specifically sought them out.

"The high quality of the S623 has exceeded our expectations and training needs for new helicopter pilots, in IFR conditions, technology transition, CRM and pilot skills techniques and the improvement of crew performance in operational situations, combining simulated flight with real-world scenarios.

"All this has been possible thanks to the full and immediate support from the Elite team at all times, from initial contact to the follow up after the installation of the S623 at our school."

The new Elite representative office in Salvador da Bahia has been set up to serve the whole of Latin and South America, a combined region where IAOPA has forecast a growing demand for both fixed-wing and rotary pilots – over 12,000 new ones in the next decade. SP

PHOTOGRAPHS: Flyelite, RNS

Computer simulator preps military chaplains for the battlefield

The animated figure on the computer screen moves carefully among the wounded, darting from one fallen figure to another. Trailing the combat medics, the uniformed military chaplain kneels and performs "spiritual triage," assessing who is dead, who is soon to die, and who is likely to survive.

For the dead, there is silent prayer; for the gravely wounded and those in pain, there are words of comfort. Checking dog tags to determine the faith of the fallen, the pastor uses language consistent with each faith tradition. At each point in the action, a prompt asks users what they think is the appropriate response, and then offers them feedback on their choices.

Veterans say nothing short of the real thing prepares someone for serving under fire, but a computer simulation company here has been awarded a $1,00,000 development contract by the US Army Research Laboratory's simulation-technology centre, also in Orlando, to develop a programme designed to help prospective military chaplains.

A prototype, to include a variety of battlefield scenarios and vignettes, is expected to be delivered to the Army by the middle of this year, according to officials at the lab. If accepted by the Department of Defense, it is likely to become part of the curriculum at the chaplain training school at Fort Jackson in Columbia, South Carolina.

The computer-simulation programme is designed primarily for those who will serve in harm's way in Afghanistan through the promised US pullout in 2014, and in future conflicts. However, developers say the simulation will remain relevant for any terrorist attack or natural disaster involving mass casualties. SP

12 celebs are 'victims' of a hacker

Recently, 12 well known celebrities and political figures in the US have become victims of a hacker who has posted detailed information about what appears to be their finances. The celebrities include Mel Gibson, Jay-Z, Beyonce, Ashton Kutcher, Joe Biden, Robert Mueller, Hillary Clinton, Eric Holder and Charlie Beck, Chief of Los Angeles Police Department, Kim Kardashian and Paris Hilton (in the pic).

According to reports, a website has posted social security numbers, mortgage amounts, credit card info, car loans, banking and other info of major celebs. The site was not able to get a lot on Joe Biden or Hillary Clinton, but most of the others on the list have had their financial info compromised.

Reports are that law enforcement agencies are investigation the security breach of these celebrities. The police have arrested one Chris Chaney and they believe he may not have been a lone wolf and there could be others involved too. SP

'Steven Tyler Act' passed by Hawaii to keep paparazzi away

With awards season underway, the paparazzi are out in full force, trying to capture the trophy winning celebrities in their fanciest garb. However, celebrity–friendly states, most recently Hawaii, are fighting back against invasive paparazzi techniques in order to protect their famous residents. The Hawaii Senate Judiciary Committee recently passed the "Steven Tyler Act," an anti–paparazzi bill. According to the Reporters Committee, the bill has successfully passed its first hurdle to becoming law, and it would take effect on July 1, 2013.

Aerosmith's lead singer, Steven Tyler, purchased a $4.8-million home on Maui in January 2012. Tyler, fed up with the paparazzi's antics, initiated the bill and testified before the committee saying that although dealing with the paparazzi in public was "part of the deal [but], when I'm in my own home and I'm taking a shower or changing clothes or eating or spending Christmas with my children, and I see paparazzi a mile away, shooting at me with lenses this long . . . you know, it hurts."

The Hawaii legislature found that "sometimes the paparazzi go too far to disturb the peace and tranquillity afforded celebrities who escape for a quiet life." Therefore, the stated purpose of the Steven Tyler Act "is to encourage celebrities to visit and reside in our state by creating a civil cause of action for the constructive invasion of privacy." SP

Fake ID card used to enter ISRO

In a security breach recently, a 52-year-old man entered the sensitive area of ISRO's cryogenic engine testing centre at Mahendragiri near here using a fake identity card and was arrested along with two others who facilitated his ingress.

Police said Jaya Singh, who is the father-in-law of the space agency's contract employee Krishnakumar, had entered the area using a fake ID card given by him and an ISRO contractor Diraviyam before he was picked up on suspicion by the Central Industrial and Security Force (CISF) manning the centre.

Singh gave contradictory replies when questioned by the CISF who later handed him over to police. Singh, an employee of the Oman Government Transport Corporation, claimed that he had come only to have a look at the centre where the cryogenic engine was tested but he also entered the liquid propulsion testing area, both out of bounds for outsiders.

Krishnakumar and Diraviyam were arrested for giving him the fake ID card to gain entry into the centre, police said. All the three have been booked on charges including trespass, forgery and violation of the Official Secrets Act. SP

PHOTOGRAPHS: Wikipedia

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