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Siachen Pioneers celebrate Golden jubilee

The 114 Helicopter Unit (HU), also known as the "Siachen Pioneers", celebrated its Golden Jubilee at Leh recently. Senior Indian Air Force officers from Air Headquarters, Western Air Command and retired Siachen Pioneers and Army officers from local formations attended the celebrations, which included visit to the Unit operations area and interaction with the unit personnel.

The occasion was marked by the maiden visit of 114 HU Commodore Commandant, Air Commodore P.K. Sharma VM. Also present on the occasion was the previous Commodore Commandant AVM M. Bahadur VM (Retd). He has a distinction of being part of the crew of the first ever helicopter landing in the Siachen Glacier, in a Chetak helicopter, on September 20, 1978. This was a feat that paved way for the Indian Army making its stronghold on Siachen Glacier. The Commanding Officer



Wing Commander B.S. Sherawat, VM handed over the Commodore Commandant's Flag to Air Commodore P.K. Sharma VM.

The unit has been engaged in service of "Operation Meghdoot" for over three decades. It routinely involves landing at the highest helipads in the world, in Siachen Glacier and flying the helicopters to the edge of its flight envelope over a very treacherous terrain marked by uncertain weather. For its courageous deeds, the Unit has earned 62 Gallantry/Presidential.

The unit has been awarded the President's Standard in 1996, Unit Citation by the Chief of Air Staff in 2004 and a place in the *Limca Book of Records* for the highest helicopter landing at a density altitude of 25,140 feet. Besides this, the Unit is famous worldwide for its daring rescues of mountaineers and trekkers. 



Cover:

The IAF's tender calls for a 'Buy & Make' acquisition which it envisages as a certain number of aircraft purchased in flyaway condition from Pilatus (like the 75 aircraft from the original order), and the remaining built in country by an Indian partner as part of a corporate joint venture with Pilatus aircraft.

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Need to raise the bar of safety

The recent accident of the C-130J Super Hercules of the Indian Air Force killing four officers and a junior commissioned officer has brought up the topic of safety standards in the armed forces. Though the cause of the accident is yet to be established, the issue of following the standard operating procedures (SOPs) is becoming key in the armed forces, particularly in the light of the series of accidents in the Indian Navy.

Not just the armed forces, recently the US Federal Aviation Administration downgraded India to Category 2 under its International Aviation Safety Assessment (IASA) programme. A Category 2 rating signifies an assessment that India's safety oversight regime does not meet international safety standards.

This calls for all the stakeholders, both in the aerospace and defence sectors, to relook at the SOPs and ensure that they are adhered to. That some of the equipment could be outdated is another issue.

In this issue of *SP's M.A.I.*, we have reported these incidents and underscored the importance of safety, even as the government has embarked upon military acquisitions. While equipment is the core of any armed force, the other important element is the personnel whose needs and aspirations have to be addressed.

The way forward is through joint ventures, partnerships with foreign companies to get the best of technologies, while developing the defence industrial base. In the interviews in this issue with heads of different companies, it is becoming clearer that these original equipment manufacturers (OEMs) want to enter into strategic partnerships to take their business forward, while acknowledging India's indigenisation aspirations. The Managing Director of Indra India, Victor Munoz Torres has aptly said that India is hungry for the best systems and that Indra had the requisite wherewithal in terms of skilled human and manufacturing resources and saw huge potential for partnership. Similarly, in another interview the Safran India CEO Stephane Lauret underscores the point of transfer of technology, indicating that OEMs are very clear about the future based on partnerships.

One key point, as indicated by Amit B. Kalyani, Executive Director of Kalyani Group, is that India certainly needs to bring focus back

to manufacturing. Defence and aerospace and correct use of offsets can help give the required impetus to manufacturing.

In *SP's Exclusives*, we have indicated how the armed forces are stepping on the gas to get the best of equipment from overseas as there have been delays in programmes within the country. A case in point is the Intermediate Jet Trainer (IJT) programme of the Hindustan Aeronautics Limited (HAL) which has run into rough weather.

In his frank and forthright viewpoint, Lt General (Retd) P.C. Katoch has opined how important internal security is. The nation's involvement in forthcoming elections has apparently diverted the attention from the accelerating internal security threats. He goes on to add that terrorists would have no compunctions in conducting the chemical, biological, radiological and nuclear (CBRN) attacks in India, which can be even more lethal if coupled with suicide bombing. This is no time to be complacent.

Happy reading!

Jayant Baranwal
 Publisher & Editor-in-Chief

IAF floats RFI for intermediate trainer



The inevitable has happened. With the Hindustan Aeronautics Ltd (HAL) HJT-36 intermediate jet trainer (IJT) delayed beyond the Indian Air Force's (IAF) planned induction schedule, a global request for information (RFI) has been floated requesting global original equipment manufacturers (OEMs) to pitch their products for a possible future acquisition. The IAF currently has Pilatus PC-7 Mk-II trainers for basic training and Hawk Mk.132 trainers for advanced lead-in training. With its ageing Kirans on their way out, the IAF desperately needs new intermediate Stage-II trainers to fill the yawning gap. HAL's HJT-36 was to have joined the training fleet in June 2012, but has been delayed for a plethora of reasons, including a series of accidents and so-far insurmountable odds in proving crucial safety and recovery features in field trials.

The IAF has stipulated: The aircraft should be easy to fly and have good control response/agility. The flying qualities should preferably conform to Mil-F-8785C and Mil Std 1797-A. The aircraft should demonstrate the following qualities: (a) Stalling. An unmistakable natural stall warning should be available, irrespective of the configuration. (b) Spinning. The aircraft must be resistant to spin but it should be possible to perform intentional spin upto six turns to either side and recover safely thereafter. The aircraft behaviour in the spin should be predictable and consistent. (c) Aerobatics. The IJT should be capable of performing loops, barrel rolls, rolls, combination manoeuvres and negative 'g' flight without adverse effects on the engine and aircraft structure. The aircraft should be capable of sustained inverted flight for at least 30 seconds at sea level at maximum take-off power.

The aircraft has also been specifically described as a counter-insurgency platform in the RFI. To that end, the IAF has also stipu-

lated that the aircraft should be capable of carrying at least 1,000 kg of external load. The aircraft should be equipped with a minimum of five hard points and each hard point on the wing should be stressed to carry at least 300 kg stores. The aircraft should be free from buffet, dutch roll, snaking and wing rock during air to ground weapon training. The aircraft should be capable of employing the following armament: (a) Gun. A light weight gun/ gun-pod with adequate ammunition for at least 5 sec of firing time. (b) Rocket Pods. Reusable rocket pods. (c) Bombs. Should be able to carry at least 4 x 250 kg retarded or ballistic bombs. The stations should be capable of employing Carrier Bomb Light Stores (CBLS) type of dispensers for carriage of practice bombs (25 lbs and 3 kg).

Given concerns over the performance of the HJT-36, the IAF has gone into great detail over the flight envelope requirements of the desired aircraft. According to the RFI, the aircraft should be safely operable accelerations of up to +7.0 g and -2.5 'g' in Normal Training Configuration (NTC). With external stores (other than empty drop tank) the aircraft should be cleared for operations at accelerations upto +5 g and -1.5 g. Service ceiling should be at least 9,000 metres. In the NTC, the maximum speed in flight must not be less than 750 kmph CAS and the ac should not display any marked compressibility effects up to 0.75 metres. The maximum sustained speed at sea level must be at least 700 kmph in NTC and 550 kmph at maximum AUW. In clean configuration, the 1'g' stalling speed must not exceed 175 kmph with all services retracted. In the NTC, the IJT should have a glide ratio of 1:12 or better.

Vendors likely to respond to the RFI by April 4 include Yakovlev, Alenia Aermachhi, Korea Aerospace Industries (KAI), Boeing, Saab, Northrop-Grumman and Beechcraft. **SP**

C310 AND BLACK SNAKE



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together from the past toward the future.



IAF floats tender to 'Buy & Make' PC-7 aircraft



The battle for basic trainers just went to the next level. While the Hindustan Aeronautics Limited (HAL) has fought hard to keep its HTT-40 propeller trainer on the table for the Indian Air Force's (IAF) basic training requirement, the IAF has dismissed HAL's reservations and formally called for 106 more Pilatus PC-7 MkII trainers to complete its urgent requirement. The IAF's tender calls for a 'Buy & Make' acquisition which it envisages as a certain number of aircraft purchased in flyaway condition from Pilatus (like the 75 aircraft from the original order), and the remaining built in country by an Indian partner as part of a corporate joint venture with Pilatus aircraft. The move is only the latest in what has been a deteriorating face-off between the IAF and HAL over the last two years for the basic trainer requirement.

According to the request for information (RFI), "It is desired that suitable Indian vendors (including an Indian company forming joint venture/establishing production arrangement with the aircraft original equipment manufacturer) propose 'Buy & Make (Indian)' scheme to supply certain number of PC-7 Mk II aircraft in flyaway condition along with requisite associated equipment as the 'Buy' portion followed by licensed production/indigenous manufacture in India under the 'Make' portion." The RFI comes shortly after the IAF proposed that one of its base repair depots was capable of undertaking the licence build of PC-7s in country, as reported earlier by SP's M.A.I.

The IAF has made it a point to emphasise the urgency of the requirement too: PC-7 MK II and associated equipment are required to be inducted urgently into the IAF. Hence, the proposal must be made keeping this factor in mind and ensuring that the induction of aircraft and equipment can commence by 2015-16 and be completed by 2020-21. The Ministry of Defence (MoD) has already con-

tracted 75 PC-7 Mk II. It is intended to procure the balance 106 PC-7 Mk II under the category of 'Buy & Make (Indian)' as stipulated at Para 4(c) of DPP-2013. PC-7 Mk II aircraft are required to be supplied along with requisite GSE/GHE, tools, testers, publications, ground-based training systems (including fixed base full motion simulator, cockpit procedure trainer and avionics part task trainer) and spares. The tools, testers and spares must be adequate for undertaking up to 'Intermediate' level servicing in IAF.

The IAF has also stipulated stringent indigenous content requirements in the proposed licence build: 'Buy & Make (Indian)' must have minimum 50 per cent indigenous content on cost basis. This implies that indigenous content in the total of (i) Basic Cost of Equipment; (ii) Cost of Manufacturers' Recommended List of Spares; and (iii) Cost of Special Maintenance Tools and Special Test Equipment (reference parts 1(a), 1(c) and 1(d) of "Commercial Offer", Appendix G to Schedule I) must be at least 50 per cent of the total contract value. (c) In addition, such cases require minimum 30 per cent indigenous Indian content in the first basic equipment made/assembled in India and in subsequent deliveries thereof. (d) However, no minimum indigenous content shall be required for the 'Buy' portion of the contract, in case a 'Buy' portion is approved at the stage of accord of acceptance of necessity.

Meanwhile, HAL is powering on with the HTT-40 development effort, being funded from internal accruals to the tune of at least ₹150 crore. HAL is hoping to conduct a first flight by next year. The latest from the development is HAL scouting for fire control handles, fire and overheat detection systems and various raw materials for the first prototype. **SP**



DRDO announces aircraft competition for AWACS programme

With its three-aircraft AEW&C programme progressing satisfactorily, the DRDO has formally announced the re-launch of its AWACS programme and has called for vendor interest for the supply of six suitably modified aircraft. The request calls for designing, structurally modifying, certifying and supplying six aircraft platforms for the AWACS role. The request also stipulates design and manufacture of the AWACS Antenna Dome (about 10-metre in diameter) attachment pylon structure and dome installation, provisions for installation of all external and internal elements of the mission sys-

Indian Navy pleased with P-8I performance on first op deployment

It was to scout the site of a tragedy that the Indian Navy had been enlisted for, but it also happened to be the first live operational deployment of its P-8I long range maritime reconnaissance aircraft. The hunt for ill-fated Malaysia Airlines Flight MH370 saw three P-8I aircraft deployed from Arakonam for duties from INS Utkrosh, with one aircraft subsequently deployed to Kuala Lumpur for Malaysia-led search operations in the southern Indian Ocean. Naval sources say the P-8I performed excellently,

and the crew had a chance to stretch the aircraft's legs in a live operational scenario in a networked environment, communicating with military aircraft from other countries and ground stations. While the P-8I type was fielded at the Tropex 14 exercise as well, the hunt for MH370 was its first real-world object-oriented mission. A US Navy P-8A was also in the air over the Indian Ocean as part of search operations. The two major components that the Indian Navy P-8I has which aren't fitted on the P-8A are Telephonics APS-143 OceanEye aft radar and a magnetic anomaly detector (MAD). Sources say crew got a chance to see what each of the subsystems and sensors were capable of on a long-range mission. **SP**



tems, supply and integration of suitable power source and distribution circuit for AWACS Mission Systems, suitable cooling system for Mission Systems, modification of the 'green aircraft' as defined in mission system Interface Control Documents (MSICDs). The supply also includes avionics systems and ferrying of the 'blue aircraft' to India once all modifications and tests are complete. The indigenous AWACS programme was cleared by the government in January 2013. The programme has been rebooted since the tragic crash of an HS-748 test platform in January 1999, in which eight DRDO scientists were killed. Vendors likely to be interested in bidding for the new requirement include Boeing, Airbus Military, Saab, Sukhoi/UAC/Ilyushin/Antonov, Bombardier and others.. **SP**

IAF stunned by C-130J Super Hercules crash, LM & USC offer help

The Indian Air Force (IAF) has been stunned by the March 28 crash of a C-130J, the third aircraft to be delivered in a fleet of six that began arriving in 2011. As investigations begin into what caused the shocking accident that resulted in the deaths of all five men on board, manufacturer Lockheed Martin and the US Embassy have both offered to assist in the crash probe. Sources tell *SP's M.A.I.* the US Embassy has offered to bring in crash experts trained on the C-130J to contribute to the effort. As things stand, the IAF has obtained the flight data recorder and cockpit voice recorder and is currently attempting to make sense of what happened to the aircraft in those final moments. The C-130J was on a low-level training sortie from Agra to Gwalior when it crashed across near the Rajasthan-Madhya Pradesh border late morn-

ing. The crash took place in an open, rocky area on a river bank that was fortunately unpopulated. Prima facie inquiries show the aircraft may have brushed a low hill before catching fire and diving into the ground. The crew on board the plane were all fully trained, and Wing Commander Prashant Joshi, the senior most officer on board, was said to be supervising a training flight by Squadron Leader K. Mishra, the only trainee pilot on board the ill-fated aircraft. India had requested US help for the investigation. **SP**



Indian Army for night sights for AK-47 and 7.62mm LMG

The Indian Army is looking to arm its frontline infantry weapons with new-generation night sights to boost operations after dark. It is specifically in the market now for Uncooled Thermal Imaging Sights for its 7.62mm light machine gun (LMG) currently in the process of being procured. The Army has stipulated that the sight required by the Infantry should be a light weight and ruggedised device to enable accurate engagement of human target by use of 7.62mm light machine gun at night/hours of darkness/poor visibility at the effective range of 800 metres and above. The Army is looking for passive night sights for its widely deployed AK-47 assault rifles. The Passive Night Sight, the Army says, should be an Image Intensifier Technology based device to enable accurate engagement of pinpoint target by use of Rifle AK-47 at night/hours



of darkness/indoor dark areas. Both requirements are part of the overall F-INSAS programme. With summer setting in and infiltration of terrorists likely to be on an upswing, the Army is hoping to procure equipment as quickly as possible to make its frontline fighting units fully night combat capable. **SP**

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DRDO revs up for UAV testing season, requires test hardware

The DRDO is in the market for specialised flightline hardware to support the testing of unmanned aerial vehicles (UAVs) later this year, including the Rustom-2 medium altitude long (MALE) endurance UAV. The DRDO has called for bids for the supply of advanced portable flightline test systems, in which the hardware should be on PCI/cPCI/PCIe/VME platform only, indigenously built for long term project support, modular with enough provision to upgrade or scale up the configuration, safety features like short circuit protection, isolation, etc, come fitted with MIL grade components relays, connectors to be used. The winning vendor shall perform testing of UAV flight line testing (FLT) hardware in association with DRDO's Aeronautical Development Establishment (ADE) for Preparation of Acceptance Test Procedure (ATP) for the entire UAV FLT Hardware in consultation with ADE, testing of the UAV FLT Hardware as per the ATP



and submission of test reports and other documents to ADE as per requirement. The new equipment will be used by ADE at the Taneja airfield outside Bengaluru as well as at the HAL airport for test flights of UAV platforms next year. **SP**

Indian Army wants combat flame-throwers

The Indian Army's Directorate of Infantry has announced its intention to procure an unspecified number of combat disposable-type flame-throwers for fighting units deployed in counter-insurgency areas. The Army has revealed the flame-throwers will be used during conventional and subconventional operations against hostile elements as well as for training purposes. The shape and size of the flame-thrower should be such that it can comfortably be carried and used by a single soldier. It should be stable for storage for the complete shelf life and should not be prone to accidents while in storage or being transported under operational

conditions. The maximum and the minimum range at which flame-thrower (disposable) can effectively engage targets will need to be produced as information by interested suppliers. The requirement is a surprising one, given that military flame-throwers aren't much in use anymore. For instance, the US military discontinued the use of flame-throwers for combat operations in 1978, and they do not figure in any current arsenals. Flame-throwers were used in the World Wars and the Vietnam War extensively, but were subsequently found to be ineffective in most operational scenarios, given their close-combat requirement. The Indian Army will be looking to use them against bunkers, fortifications, built-up areas to flush out terrorists, etc. **SP**



Kalyani Group Forges Ahead in defence sector

As India makes strides in indigenisation of defence equipment manufacture, a number of Indian companies are making significant investments in the sector. Kalyani Group is among the top companies which has taken a slew of initiatives in the defence sector. Giving details of the forays in the sector is Amit B. Kalyani, Executive Director of Kalyani Group, in an interview with SP's M.A.I.



SP's M.A.I. (SP's): Do you think indigenisation should be the mantra to take the defence production in the country forward? What initiatives has Kalyani Group taken in this regard?

Amit Kalyani (Kalyani): Indigenisation and innovation is the only way that our country can be self-reliant in supporting the armed forces. Kalyani Group has taken a number of steps in the defence sector towards this end. We have been always supporting the defence forces by meeting emergent requirements of ammunition shells for all artillery equipment, road wheels and tracks for armoured fighting vehicles and also developing rockets, rocket motor tubes wherever asked for.

However, we have in the past three years invested considerably in defence R&D through which we have been able to produce a totally indigenously designed and developed 155/52-calibre How-

itzer gun. We have also developed a light weight field gun both of which were on display at Defexpo 2014. Further we have developed indigenous unmanned ground vehicle and forayed in to electronics products that can be used by the defence forces. In addition, through collaborations, teaming and joint ventures we are in the field for manufacturing mine protected vehicles soft kill systems and the like. We believe in the adage of 'partnering technology and driving innovation'.

SP's: Could you give an update on your defence R&D activity?

Kalyani: Investment in R&D and scale is not directly linked. We are passionate about defence and that is what is driving our development effort. We are definitely investing in R&D in certain focus areas. Our R&D is product based.

SP's: Kalyani Group is making its presence felt in the defence sector. Is it due to slowdown in other sectors that you are in?

Kalyani: For a moment let us forget about any sector and take a look at our demography. India is a country of young people and by 2022 the average age of the nation would be 29 years. We need to engage this young population in useful nation-building activity. Manufacturing offers a perfect avenue for channelising their energies. We need to give impetus to manufacturing. Defence and aerospace are two sectors offering great opportunity. The question is whether we as a nation will take advantage of this opportunity. Our drive is initiated by this need and we strongly believe that manufacturing in this country needs encouragement and defence and aerospace can help fill this gap.

SP's: The group's business model is heavily dependent on exports. Does this help the company in the present situation where domestic market is going through a sluggish phase or does it expose it to the problems being faced in markets in Europe?

Kalyani: Our business model is focused on both exports and domestic market. We have a de-risked model that has withstood many ups and downs in the last few years.

SP's: The group has joint venture with an Israeli company for gun production. Could you give us a low-down on the same, particularly on the interest in the product by the Indian Army?

Kalyani: The joint venture is a strategic partnership with Elbit Systems in the high technology area of the artillery systems. We are partnering together in a number of programmes. We will be manufacturing these systems in India with our JV partner. The JV is aligned with the government regulations and is first such JV in this segment. We believe that we will be able to get state-of-the-art technology to India with this JV. Indian users trials are most challenging and among the toughest in the world. We are confident of fully meeting the user's operational requirements in all respects. It would be premature to comment on the outcome of the tender but we are hopeful the best will come through.

SP's: Any other joint venture or partnership in the pipeline?

Kalyani: We have also acquired a domestic electronics company and are in the process of acquiring some others both in India and abroad. We believe in both organic and inorganic growth. Our

group is successfully running many JVs for last three decades and we are always open to tying up with good and reputed companies in India and overseas. Some agreements are in advanced state of discussions but it would be improper to mention them at this stage.

SP's: What is your view on the current cap on foreign direct investment (FDI) in defence?

Kalyani: The current cap on FDI in defence is being debated at all levels. I do not want to add to the confusion. We are aligned with the current policy and believe that policy must keep the national interest in mind. Like I said earlier we are definitely looking forward for joint productions of products and systems required for the Indian armed forces by manufacturing them in India. We have a joint venture with Meritor and we are currently supplying axles to all the leading manufacturers in the country for all their heavy duty vehicles which are supplied to Indian defence forces.

SP's: Do you see a positive turn in defence procurement procedure, which is very cumbersome at the moment?

Kalyani: Defence procurement procedure is constantly evolving. We now believe that good procedure is in place based on a good policy. Need of the hour is to operationalise the intent into actionable process. There are small operational issues which need resolving in respect to licensing, foreign exchange rate variation and on taxes and duties. I am sure all those involved are seized of the necessity to reduce the impediments wherever necessary to make it a faster and more transparent.

SP's: What is the right way to stimulate the manufacturing sector in India?

Kalyani: Manufacturing in our country has always been the least glamorous. We need to bring focus back to manufacturing. We need to celebrate our successes in manufacturing and bring about a change in the way we look at this sector. This sector is important for the growth of the country. Country has laid out a target for to increase the share of the manufacturing to 25 per cent of the GDP but we are nowhere near this target value. Defence and aerospace and correct use of offsets can help give the required impetus to manufacturing. We must put into place a structure which can ensure we are able to reach this target in a time bound fashion. **SP**



Light tactical vehicle



Light strike vehicle

Indra offers India cutting-edge technologies

*Some of the most cutting-edge technology is made by Spanish companies such as Indra. Right now, India is hungry for the best systems, and Indra, according to **Victor Munoz Torres**, Managing Director, Indra India, has the requisite wherewithal in terms of skilled human and manufacturing resources, and there is a vast potential for solid partnership.*



SP's M.A.I. (SP's): Could you briefly introduce your activities?

Victor Munoz Torres (Torres): Indra with its headquarters in Madrid, Spain, is a global company whose strength lies in its technology, innovation and talent. It is a leading firm that provides world class, value added solutions and services to sectors such as defence, air traffic management, homeland security, transport and traffic, energy and industry, public administration and health care, financial services, and telecommunications and media. We currently have 42,000 skilled professionals, subsidiaries in 45 countries and executing sophisticated projects in 128 countries including India. While roughly 40 per cent of the company's business comes from Europe, the remaining is from countries in the other regions and continents worldwide. Our offering includes 67 per cent 'Solutions' where we 'Think and Build' and 33 per cent is 'Services', where we 'Operate'. The company's turnover in 2013 was 3,000 million euro.

SP's: Since when has the company been in India and what has been the growth?

Torres: Indra started its presence in India in 2007, with a contract for designing and co-production of Electronic Warfare Systems with a defence public sector undertaking (DPSU) for the Indian Navy. This was followed by more similar projects. Indra Sistemas India Pvt Ltd, which is a wholly-owned subsidiary of Indra, was incorporated in March 2009. Since then, we have won contracts in many areas in the air traffic management sector. Indra has been awarded the automation of air traffic control (ATC) systems at 38 airports managed by the Airports Authority of India (AAI) followed by a contract for nine secondary surveillance radars and ATC training simulators at four metro airports—Delhi, Mumbai, Chennai and Kolkata. The latest in line is the award of prestigious project for supply, installation and commission of automation system at the Kolkata Airport.

SP's: There is mention that Indra is the second biggest company in Europe when it comes to investment in R&D. Are you looking at India as a place where R&D could happen, considering the talent pool available here?

Torres: At Indra, we are passionate about what we do. We have in-depth knowledge about our client's needs, and we make the seemingly most difficult things look easy. The company's long-standing commitment to innovation has allowed us to improve our com-

petitiveness year after year and continue to maintain our profile as a company with sustainable growth. In fact, the company invests between 6 per cent and 8 per cent of revenue in innovation per year (more than €550 million in the last three years) and has carried out 270 R&D&I projects.

As the Ambassador of Spain has mentioned in his interview recently, some of the most cutting-edge technology is made by Spanish companies such as Indra. India is a very fast developing country. She is hungry for the best systems, has the requisite wherewithal in terms of skilled human and manufacturing resources, and there is a vast potential for solid partnership. We, from Indra, are keen to partner with the Indian industry, the Defence Research and Development Organisation (DRDO), etc and since the technology that we can offer has been developed by us, we have no hesitation whatsoever to offer the latest to India.

SP's: Could you indicate what is your breakthrough in defence in India, what products and solutions would you offer to India?

Torres: Indra has vast expertise in development and manufacture of defence and security systems. Over 3,400 km of the Spanish land and sea borders are guarded and most of the land, air and sea platforms of the Ministry of Defence in Spain and other NATO forces are protected with Indra technology. We have a complete range of solutions for defence needs that include electronic warfare, radar systems, air defence, C4I, sensors and electro-optics, simulators for all types of land, air and sea platforms, space, ILS, CBRN, UAVs, etc.

In India, we already have a workshare agreement with a DPSU for design and supply of EW systems for the Indian Army and Navy. We also have the contract for a prestigious SATCOM project for the Indian Ministry of Defence (MoD). Besides, we have collaboration arrangements with some leading Indian private industries as well. Other fields where we are aggressively participating include radars, CBRN and simulation systems.

SP's: Would you be looking at India as a technology partner and invest accordingly in a joint venture?

Torres: Yes, we see India as a very big market where we can provide niche technology to meet the requirements of the clients. So far, we have been operating on collaboration and transfer of technology basis. But given an appropriate opportunity and business case, we are open to start a joint venture in India in the future. **SP**

WASS in India

Past, present and future

WASS has been operating in India since 1976 and successfully supporting Indian Navy in underwater field. During this period it has formed a number of associations with Indian industry, especially BDL, and has established its subsidiary (WIN Blue Water Services Pvt Ltd) in India, to provide better services. WASS is committed in supporting Indian Navy, Indian industry and research & development organisation in their endeavours for indigenisation.

Light Weight Torpedo

The relationship between WASS and the Indian Navy started in 1976. First contract that WASS received was for supply a number of A244s LWTs. These torpedoes have been the backbone of the Indian Navy underwater operations for more than 30 years. WASS has supported Indian Navy in its efforts to maintain and operate these optimally. In 2010, Indian Navy contracted WASS for up gradation of these torpe-



does, with all the latest and modern features.

WASS is willing and keen to participate/collaborate with DRDO/NSTL for development of future LWT in India, by transferring key technologies.

Torpedo Decoy System for Submarines

WASS supplied first C303 system to the Indian Navy in the late 1990s. After exploiting this system for some time Indian Navy contracted WASS in 2005, for supply of NINE C303 additional systems (with transfer of technology - ToT). BDL was nominated as production agency and consequently received (ToT) and reached an indigenisation of more than 35 per cent.



The Ministry of Defence (MoD) made significant investments in BDL by the way of building new infrastructure, purchasing special to type equipment. As a result of this very successful ToT, BDL has started receiving direct orders from Indian Navy and WASS has

become its sub-supplier. Indigenisation of more than 50 per cent is being achieved in the latest orders.

ToT for Effectors

WASS is committed for transferring technology for manufacture of effectors in India and has submitted a proposal to BDL.



Future Submarine

BDL in all probability will be contracted for supply of C303, C303S Torpedo Decoy System (TDS) for future submarine projects.

Torpedo Decoy System for Ships

Indian Navy is in the process of procuring TDS for ships. TDS for ships is very similar to TDS for submarines.

MoD having invested time, money, energy in building up expertise for manufacturing of TDS for submarines in BDL, the orders for TDS for ships must logically flow to BDL to keep its expertise and production lines fully utilised or at least BDL should be given right to first refusal. Involving other companies will lead to duplication of expertise and underutilisation of already acquired capacity and capability in the country. WASS is committed to supporting BDL in their efforts for supplying TDS for IN ships.



Heavy Weight Torpedo for Submarines

WASS has already been shortlisted for supply of heavy weight torpedo (HWT) - Blackshark for Scorpene submarine and BDL has been nominated the production agency. With execution of this contract, which involves transfer of technology to BDL and offset, India would receive large number of technologies and BDL would become established manufacturer of heavy weight torpedoes. This would pave the way of all future orders flowing to BDL.



Heavy Weight Torpedo for Ships

The HWT for ships is similar to HWT for submarines. WASS is very keen to supply these for the Indian Navy ships and is willing to increase the indigenous content to more than 50 per cent, with transfer of some key technologies. Once BDL has received the entire TOT, it should be the logical choice for placing order for these torpedoes. **SP**





First batch of Brazilian Army's new armoured vehicle delivered in Paraná

The Brazilian Army has received the first batch of Guarani wheeled armoured vehicles, developed in conjunction with Italy's IVECO and which it plans to buy in over 2,000 copies, including special versions.

The first batch of 13 vehicles was officially handed over to the 33rd Mechanised Infantry Battalion in Cascavel, in Western Paraná

state, in a ceremony attended by the Defense Minister, Celso Amorim, and the Army Commander, General Enzo Martins Peri.

Developed from research undertaken by different units of the Department of Science and Technology of the Army, the Guarani family of armoured vehicles is being produced in partnership with the Italian multinational Iveco, which built an industrial facility for this purpose in the city of Sete Lagoas (Mato Grosso state). The intellectual property of the Guarani – which is planned to be exported – belongs to the Brazilian Army.

The Guarani will replace the Cascavel and Urutu families of armoured vehicles that the military has operated for almost 40 years in the military. It is expected that another 86 vehicles to be delivered by the end of the year to the infantry battalions stationed in Foz do Iguaçu (PR), Apucarana (PR), Francisco Beltrán (PR) and the Armored Instruction Center in Santa Maria (RS).

With a capacity for 11 men – nine combat troops, a gunner and a driver – Guarani contains, in addition to air conditioning, a number of technological innovations: low thermal and radar signature, which makes its location by enemies more difficult; armoured protection against armour-piercing and incendiary ammunition and antitank mines, GPS navigation, ABS brakes, night vision, a 383 hp engine allowing a maximum speed of 100 kmph; a battlefield management system, and a system providing situational awareness.

The Guarani is also prepared for swimming, with rear propellers that provide amphibious capability. Its turrets can be equipped with 30mm cannon ammo, as well as .50 calibre and 7.62mm machine guns. It is designed to engage air and ground targets. SP

Airbus Defence and Space receives radar contract extension in the Middle East

Airbus Defence and Space has been awarded a contract for the delivery of four of its Spexer 2000 security radars to further improve the surveillance of the borders of a major Middle Eastern country. The contract is an extension to an existing contract for the delivery of more than 40 Spexer 2000 radars, which have been operating successfully for almost two years now.

Thomas Müller, head of the Business Line Electronics at Airbus Defence and Space, said: "Spexer 2000 is using state-of-the-art Active Electronically Scanning Array (AESA) technology, which provides a multi-tasking and multi-mode capability, and increases the detection and target assessment capability substantially. Due to this, Spexer 2000 can replace several conventional radars."

Spexer 2000 is optimised for the surveillance of borders and other applications which require the monitoring of vast areas over long distances of 40 km. With high Doppler and velocity resolution as well as high clutter suppression, Spexer 2000 is able to reliably detect, track and classify even very small and slowly moving targets such as pedestrians, and also fast objects such as speed boats or low-flying objects such as unmanned aerial vehicles. In addition, a camera mounted on top of the radar can be cued to the radar in



order to identify suspicious objects.

This technology ensures a high level of situational awareness providing border guards and security forces with additional reaction time towards illicit intrusions.

The radar is qualified according to several military standards and provides a very high availability and MTBCF (mean time between critical failure), combined with a low false alarm rate and reliable performance even in severe environmental conditions. SP

DRS Technologies' solutions to Royal Australian Navy frigates

DRS Technologies, a Finmeccanica Company, said that its Canadian subsidiary will be providing communications systems in support of the Royal Australian Navy's (RAN) ANZAC class frigates.

The subcontract was awarded to DRS Technologies Canada Ltd. in support of a communications modernisation contract by Selex ES. DRS Technologies Canada Ltd. is the primary subcontractor to Selex ES.

Under the subcontract DRS will provide all internal tactical and secure voice switching systems and terminals, including the SHINCOM 3100 central switching unit, wideband audio network data switching system, console dual screen terminals, outdoor terminals, jackboxes and ancillaries.

SHINCOM 3100 is the latest generation of shipboard communications switch technology; and provides reliable, red/black secure tactical communications for Navy operators. DRS Technologies Canada Ltd. will produce and deliver eight ship-sets and two shore systems under the subcontract. SP

Safran rolls out ToT plans for India

Safran is a high technology group in the realm of aerospace, defence and security and has registered revenues of \$20 billion. With over 67,000 workforce worldwide, the group continues to expand its global footprint.

Stephane Lauret, Chief Executive Officer, Safran India, explains how the group has evolved over the years. Of the three businesses it is in, aerospace accounts for 75 to 80 per cent of the group's revenues, of which engines account to nearly 50 per cent. Defence (Sagem) accounts for 10 per cent, followed by Security (Morpho). In Security, it is a world leader in some of the activities such



as biometric (finger and face recognition) data management, explosive detection, etc. The company, he states, is in the process of reinforcing its global brand of Safran.

In India, the group is strong with over 3,000 workforce with about 1,700 based in the National Capital Region, about 1,200 in Bengaluru and the rest in Hyderabad where along with CFM it is in pilot training. In terms of workforce, the top two countries are France and the United States, followed by Morocco and Mexico. India is the fifth most important country for Safran. "We are in India for India," he remarks and mentions that there are less than 20 French personnel in India. "Safran has big plans for India, we are Indians."

Safran has an important 50:50 joint venture with the Hindustan Aeronautics Limited (HAL) wherein Turbomeca is providing technical support. For Turbomeca, after Airbus Helicopters, HAL is the second biggest customer. Safran has a 100 per cent marketshare on Airbus wheels and brakes on the Airbus 320 family and also on Boeing 737s in India. As regards Sagem, there are 700 professionals working on the inertial navigation systems (INS) and other products. India is the second biggest country for Sagem. The company has a transfer of technology understanding with HAL for the INS. "You don't come to India, sell and leave." Turbomeca has been partnering with HAL for years and is teaming up with local companies to develop technologies.

Here in conversation with the Editor-in-Chief of **SP's M.A.I**, **Jayant Baranwal**, the CEO of Safran India, **Stephane Lauret** talks about Safran's plans.

SP's M.A.I (SP's): Safran has leadership status in aerospace and France offers indigenous systems. Rafale is a French product not an international product and most of the solutions come from within the country such as engines, landing gears, airframes, fly-by-wire, armaments, etc. What does it take to create a strong base? You are not dependent on any other country? With such a background what does it take to create a base of indigenous solutions for your customers?

Stephane Lauret (Lauret): It takes lot of time and lot of money. In aerospace business you cannot have too many players. France has got big groups in aerospace and a lot of SMEs. Before India, I was

in Mexico for four years. In Aerospace, there is need for Tier I and SMEs. One company alone cannot do everything. In Mexico they have an aerospace industry but the SMEs are missing. They don't have a network. Mexico is like India where we see automobile companies getting into aerospace business. One should understand that aviation is totally a different business.

SP's : What is the investment in R&D?

Lauret: It is 20 per cent, that is about four billion dollars.

SP's: Has your government been supportive of entrepreneurship?

Lauret: The government always helps. What is important is the association between the companies and government. You cannot have internal competition, but should compete with other countries.

SP's: What is the perception of opportunities in India in the near and long term for Safran?

Lauret: In aerospace, various companies have estimated sales of 1,400 to 1,600 commercial aircraft. At present in India, the number of people travelling by planes is very small, but this is expected to grow fast. The government is promoting air travel and it is promising for our engines.

In the defence segment we are growing here. One key aspect in India is the need for indigenisation and we are here to coordinate on that.

SP's: How India can become self-reliant?

Lauret: It has to go through the transfer of technology route. A good case is the regional transport aircraft (RTA) which India is planning. They should do that in partnership aiming at the top end and it will take about 10 years to launch. It takes that long to come to the market with a high end product. Brazil and China have started doing it while India is just making a beginning. What is important is to pursue it.

SP's: What are the cutting-edge technologies for aerospace and defence markets?

Lauret: We have many things. In association with HAL we are transferring technology in navigation systems. The plan is to develop inertial navigation systems (INS) in India.

SP's: Any partnership on aeroengines in India?

Lauret: Part of the Rafale deal is to have engine assembled in India. We are working on other projects too, particularly to develop military engines with India.

SP's: You had strong relationship with Russia?

Lauret: We developed one engine—Powerjet—with them. The Powerjet programme was 50:50 venture. They have developed the first Russian civil aircraft in the last 30 years.

SP's: Do you expect Superjets to sell in India?

Lauret: I think so, it is doing well.

SP's: What do you think of the defence procurement procedures (DPP) in India and do you think it needs changes?

Lauret: The DPP is key for the Indian Government to develop its industry and the OEMs have to follow them. The DPP is evolving year after year. It is good that India wants to build its defence industry. They should take profit of the contract they are signing.

SP's: Any views on offset obligation?

Lauret: It is the same. To use the offsets in all industries is welcome. They need to loosen up a bit.

SP's: Is it a political answer?

Lauret: No, it is a candid answer.

SP's: The belief here is that the offset aspects are not handled professionally.

Lauret: It is a new process. The view is harsh. It is easy to criticise. You have to see positively the process.

SP's: Could you talk about propulsion engines run on fossil fuel?

Lauret: In Mexico we had the green engine run on Jatropa. We

were using it for the engines. About two or three years ago biofuel was developed. The CFM Leap engine is about 15 per cent less fuel burn, less noise and less emission. We are working on green engines.

SP's: Any development with regard to MRO from Safran?

Lauret: We have been considering it but it won't happen tomorrow here. The fleet size is not big as yet. In civil engines, we will wait a bit. It could be interesting for military engines, helicopter engines. Yes, it is on the map, though not tomorrow.

SP's: Any team from Snecma working with IAF Mirage fleet?

Lauret: We are there since the beginning of Mirage induction. We have a lot of interaction with the Indian Air Force. We have people working in Gwalior.

SP's: Is there any plan for the next-gen aeroengine in india?

Lauret: We would like to do. We are not the only one deciding. We worked on the Cauvery project. We are working on new project. We would love to do that. Partnerships or ToT in the aerospace business is the way to go ahead.



Safran manufactures two engines, landing gear and wiring for Rafale

SP's: What do you think about the MMRCA programme? Are you excited about it?

Lauret: Yes, of course. We are well positioned. On the project, discussions are still going on with the HAL.

SP's: What is the involvement of Safran in the Rafale programme?

Lauret: It is two engines. We also do landing gear, wiring, basically one-third of the plane is Safran. Engine is the most critical part in the aircraft.

SP's: Can you describe your involvement in the Indian Space Research Organisation (ISRO) and the space programme?

Lauret: The cryoengine story with us started some years ago. We have very little business with ISRO presently. India is showing that it wants to be independent in space business. We will have space top level mission coming this year to meet with ISRO and discuss possibilities of opportunities. It is a core business for us. We will be happy to work with ISRO. I was in Trivandrum recently and I found the space engine programme interesting, not many countries are doing it. You cannot invent a space engine. It will take 50 years. The space business is very tricky and requires bilateral relationship. **SP**

E-2D Advanced Hawkeye enters US Navy service

The E-2D Advanced Hawkeye officially became ready for tasking with Airborne Early Warning Squadron 125 (VAW-125) during a ceremony at Naval Station Norfolk Chambers Field, on March 27.

"This is a revolutionary jump in capabilities," said Captain Todd Watkins, Commander, Airborne Command Control and Logistics Wing. "The E-2D serves as the eyes of the fleet. If it's out there, we will see it."

The "Tigertails" of VAW-125 are the first Navy squadron to become fully operational with the Advanced Hawkeye, the newest, most technologically capable variant of the venerable E-2 airborne early warning command and control platform.

The E-2D is expected to be instrumental to how the Navy will conduct battle management command and control. Able to sweep ahead of the strike, the E-2D can manage the mission and keep carrier battle groups out of harm's way.

"We were very excited to be the first squadron to receive the [Advanced] Hawkeye," said Lt. James Beaty, a naval flight officer who has worked extensively with the E-2D. "It's been a challenge, but I've enjoyed learning everything this aircraft is capable of."

The E-2D's advanced technology makes it a multi-mission platform through its ability to coordinate concurrent missions



which may arise during a single flight. These missions can include airborne strike, ground force support, rescue operations and managing a reliable communications network capable of supporting drug interdiction operations.

"I laid down the challenge to learn this new platform and defend the fleet," said Captain William Ewald, Commander, Carrier Air Wing 1. "Today, the Tigertails are ready for tasking and I can assure you, they will succeed." **SP**

Alenia Aermacchi roll-out of M-346 for Israel



The first M-346 advanced trainer for the Israeli Air and Space Force was rolled out recently at Alenia Aermacchi's plant in Venegono Superiore, Italy.

In July 2012, Alenia Aermacchi, a Finmeccanica company, was awarded a contract from the Israeli Ministry of Defence (IMOD) to supply 30 M-346 advanced jet trainer aircraft, to replace the TA-4 Skyhawk currently operated by the IAF, to include ground based training systems in collaboration with other Israeli and International companies.

The delivery of the first M-346 to the Israel Air & Space Force is scheduled for summer 2014. **SP**

Thales and Qatar armed forces to develop an optionally piloted vehicle - aircraft

Thales has recently signed a memorandum of understanding (MoU) with the Qatar armed forces to assist in the development of an optionally piloted vehicle - aircraft (OPV-A), a high performance intelligence, surveillance, target acquisition and reconnaissance (ISTAR) system, and the delivery of a full end-to-end training solution.

The OPV-A airframe, to be selected by the Qatar armed forces, will be integrated with a mission systems capability to enable the optionally piloted capability.

OPV-A to be developed is a hybrid between a conventional aircraft and an unmanned aircraft system (UAS). They are able to fly with or without a pilot on board the aircraft. Unimpeded by a human's physiological limitations, an OPV is able to operate under more adverse conditions and/or for greater endurance times. Retaining on-board controls, the OPV can operate as a conventional aircraft during missions for which direct human control is preferred or desired as an immediate option.

"This is an exciting prospect that Thales is looking forward to developing with the

Qatar Armed Forces. Our experience in mission systems and unmanned air vehicles will provide Qatar with a world leading solution," said Victor Chavez, CEO of Thales UK. **SP**

The space debris radar developed by Indra passes ESA tests

The demonstrator radar developed by Indra for detecting objects in space has successfully passed the validation tests performed within the European Space Agency's Space Situational Awareness (SSA) preparation programme.

The first phase of this programme aims to establish the basis for building the future European system that will monitor the waste from other missions that is floating freely in space. There are an estimated 7,00,000 objects orbiting our planet in an uncontrolled manner, and this poses a serious risk to our missions and operational satellites.

The tests performed at Santorcaz (Madrid) had the aim of verifying that the technology used by the radar system is mature enough to be used in the design of a definitive surveillance system.

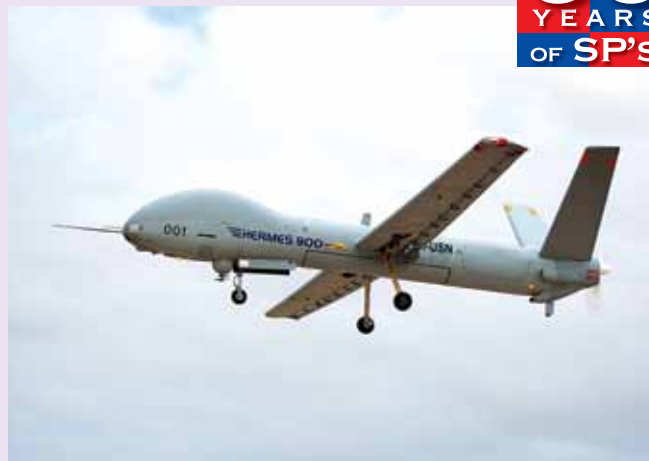
The tests were focused on observing and detecting known objects for which orbital information is already available. **SP**

Elbit Systems bags contract to supply Brazil with Hermes 900 UAS

Elbit Systems Ltd. announced that it was awarded a contract by the Brazilian Air Force (FAB) for the supply of a Hermes 900 unmanned aircraft system (UAS).

The Hermes 900, which will be equipped with a new and advanced intelligence gathering system considered as a breakthrough operational solution, will be operated by FAB in combined missions with the Hermes 450 fleet, already in operational use. Both UAS will carry safety and security missions in the 2014 FIFA World Cup Games. The contract is in an amount that is not material to Elbit Systems, and the Hermes 900 will be supplied within two months.

Hermes 900, already in service with the Israeli Air Force and additional world leading armed forces, offers longer endurance, flight altitude of 30,000 ft. and a large payload capacity, suitable for carrying a wide range of payloads as well as capabilities to operate in adverse weather. The UAS is highly autonomous, enabling automatic take-off and landing and includes advanced avionics and electronic systems. The system allows for joint flight missions with



the Hermes 450, controlled and operated from the same universal ground control station, transmitting the gathered imagery, while using various communications systems. SP

Northrop Grumman, US Navy complete initial testing of Triton UAS



Northrop Grumman Corporation and the US Navy have successfully completed the first major milestone of the Triton unmanned aircraft system (UAS) flight test programme, clearing the aircraft to fly at various altitudes, speeds and weights.

During the test programme, which is known as initial envelope expansion, the Northrop Grumman/Navy test team validated more than 568 test points. The flights took place at the company's manufacturing facility in Palmdale, California.

Once both Triton test aircraft reach Naval Air Station Patuxent River, Maryland, the test team will install and flight test the aircrafts' sensor suite to validate the capabilities of each payload.

Triton carries a variety of intelligence, surveillance and reconnaissance sensor payloads that allow military commanders to gather high-resolution imagery, use radar to

detect targets, and provide airborne communications and information-sharing capabilities to military units across long distances.

The Navy plans to build 68 Triton UAS and they will be used with the manned P-8 Poseidon maritime patrol aircraft to conduct persistent intelligence, surveillance and reconnaissance missions across vast ocean and coastal regions. SP

MBDA's Brimstone demonstrates its precision from Reaper

MBDA has successfully demonstrated its Dual Mode Brimstone missile on an MQ-9 Reaper remotely piloted aircraft (RPA), scoring nine direct hits against a range of targets including very high speed and manoeuvring vehicles.

Dual Mode Brimstone is the combat proven weapon of choice for the engagement of moving and manoeuvring targets, and targets in high collateral risk/urban environments. Brimstone can now provide Reaper crews with a weapon that reduces collateral damage risk and demonstrates first pass, single shot lethality against high speed manoeuvring targets on land and at sea and in complex environments.

Brimstone scored nine direct hits in a range of very challenging scenarios including static, accelerating, weaving, fast and very fast remotely controlled targets. Two of the more challenging scenarios were against trucks travelling at 110 kmph in a crossing target

scenario. At times, the targets were manually tracked by the Reaper crews, showing how the integrated semi-active laser and active MMW radar seeker works in tandem to ensure direct hits, even while tracking and designating targets manually over SATCOM. SP

Star is born: "Hermes 900" UAV christened

The Hermes 900 UAV, manufactured by the Israeli company Elbit Systems, received its official Hebrew name in the IAF: "Kochav" (Star in Hebrew). The Kochav UAV strengthens the UAV arm of the IAF and is designed for HALE (High Altitude Long Endurance) reconnaissance missions

The Israeli-built UAV serves at the Palmachim airbase and takes part in all kinds of reconnaissance missions and special missions.

The Kochav UAV, which is manufactured by the Israeli company Elbit System, has joined the UAV Division of the IAF. It possesses a wide range of capabilities, including the ability to carry out missions in all weather conditions.

The Kochav has innovative UAV capabilities: automatic take-off, landing and braking capabilities. Additionally, it can carry multiple payloads, allowing it to perform several missions during a single flight. SP





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Internal security The looming crisis

The nation's involvement in forthcoming elections has apparently diverted the attention from the accelerating internal security threats, not that they were taken that seriously earlier. One example is the response to the Maoist insurgency which has been left generally to the concerned states, Centre's involvement being limited to dishing out central armed police forces and periodic intelligence inputs despite the Prime Minister stating for past so many years that the Maoist insurgency is the greatest internal security threat to the country.

In this context, the recent Maoist strike in Sukma district that claimed the lives of 11 CRPF, four local police personnel and one civilian in the crossfire was a repeat of past so many incidents, including the repeat story of ignoring the alert sounded by the Ministry of Home Affairs (MHA) which themselves are generic in nature and periodic and violating the laid down standard operating procedure for movement in Maoist-infected areas. The Maoist tactics of mass attack was repeated in daylight reportedly by a group numbering between 100 and 200 taking the column by surprise in an area ideal for ambush, not dissimilar to and just eight kilometres away from the May 25, 2013, ambush on the Congress convoy. Not only had the column established a routine pattern, drills for sending advance scouts and moving from bound to bound were reportedly not followed. No lessons have been drawn from scores of similar earlier ambushes.

There have been MHA advisories in the run up to the Lok Sabha elections but these again are routine and without specific inputs though issued to Maoist infested states and states that are to hold elections including like Chhattisgarh, Bihar, Jharkhand, Odisha, West Bengal, Madhya Pradesh, Maharashtra and Uttar Pradesh. Significantly, in the run up to the 2004 and 2009 Lok Sabha elections, there were 109 Maoist attacks claiming nine lives in the former and 125 attacks claiming 24 lives during the latter. But what should be of serious concern is that Revolutionary People's Front (RPF) of Manipur communiqué that an ambush was carried out under "Operation Leopard" on March 11, 2013, in Sita village of Chandel district on the convoy of Commanding Officer of 24 Assam Rifles using explosives, RPGs and M-79 assault rifles. The communiqué went

on to boast recovery of several arms and ammunitions, including one AK-47, one AR-M1F41, three magazines, 87 live bullets, one magazine pouch, one INSAS LMG, one INSAS rifle with two magazines, 48 live rounds and a Motorola wireless radio.

Even of more concern is the statement of the RPF being a strategic partner of the Maoists, congratulating the CPI (Maoist) on its successful conduct of an attack on an CRPF on March 11 at Sukma district, Chhattisgarh. A spokesperson of RPF described RPF "as a force fighting against India's colonial occupation of a country can fully understand the suffering and fully support the correct revolutionary movement launched by the CPI (Maoist) for the liberation of the marginalised and to bring about equality in society".

Such development should have been foreseen with media reports citing intelligence inputs since last two years that China was providing arms and communication equipment to the Maoists through the Kachen rebels in Myanmar and onwards through the PLA of Manipur and that China was also organising joint PLA Manipur and Maoists training in the Northeast India aside from providing assault rifles production facilities to Kachens of Myanmar and Indian Maoists. Paresh Barua and his main cronies of ULFA are reportedly based in Ruli, in mainland China. NSCN (IM) leader Isaac Muivah accused the Central Government of deliberately delaying the ongoing political talks between the two entities as per a report in the *Nagaland Post* though Muivah NSCN IM's Isak Swu have been camping in Delhi for the last four months. Such intransigence needs to be viewed in concert with Chinese nationals apprehended with fake Indian documents two years back on a mission to contact Naga insurgents.

A significant report put under wraps was the recovery of a 1.5 kg Uranium mine by the Army in Assam in January 2013. CBRN attacks have occurred in Japan in 1995 (Sarin gas attacks on Tokyo subway) and anthrax attack in the US in 2001. Terrorists would have no compunctions in conducting CBRN attacks in India, which can be even more lethal if coupled with suicide bombing. This is no time to be complacent. **SP**

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



Since last two years that China has been providing arms and communication equipment to the Maoists through the Kachen rebels in Myanmar and onwards through the PLA of Manipur and that China was also organising joint PLA Manipur and Maoists training in the Northeast

BJP seeks security during elections

The Bharatiya Janata Party (BJP) has urged the government to take effective steps on internal security, fearing its leaders could be targeted in the run-up to the general elections. The party's appeal came recently after two suspected fidayeen attackers from Pakistan were arrested in Gorakhpur while Naxals targeted mobile telephone towers ahead of Narendra Modi's meeting in Bihar and Jharkhand.

"BJP would want people to see where the threat perception lies, see where action is missing and see where people are failing to do their duties and only talking. We are repeatedly appealing to the

establishment and home minister to do a better job of internal security and there is now enough proof of inaction," BJP spokesperson Nirmala Sitharaman said.

"It is now clearly getting reinforced that the concerns of BJP were well founded. Every day there is information from Delhi Police which also build a terror module by arresting people from Jodhpur," she said.

The two Pakistani nationals arrested by Uttar Pradesh anti-terrorist squad are said to have been planning attacks on election rallies, particularly in Varanasi from where Modi is contesting the polls. **SP**

Report states Pakistan is the most terror-hit country

Pakistan is the most terror-hit nation in the world after Iraq, a new report has found. Also considering the severity of the incidents, Pakistan even surpassed the Middle Eastern nation, according to a policy document on internal national security.

The draft of National Internal Security Policy (NISP) 2013-18 describes the scenario as dangerous, posing an existential threat to the integrity and sovereignty of Pakistan. According to *Dawn News*, the draft revealed that from 2001 to 2013, there were 13,721 incidents in Pakistan, which is marginally less than Iraq.

From 2001 to 2005, there were 523 terrorist incidents in Pakistan, but from 2007 to November 2013, the total number of incidents has risen to 13,198, the report said. According to the report, similarly, the number of suicide bombings between 2001 and 2007 were only 15, but from 2007 to November 2013, suicide attacks jumped to 358 – the highest anywhere in the world.

According to data released by the US National Consortium for the Study of Terrorism and Responses for Terrorism (Start), Pakistan led the chart with 1,404 terrorist attacks in 2012, surpassing Iraq (1,271). Even Afghanistan was behind Pakistan at number three with 1,023 incidents. The document revealed that the economy lost nearly \$78 billion due to terrorism in the last 10 years. **SP**

TSA's behavioural detection programme questioned

The United States Transportation Security Administration (TSA) has spent roughly \$1 billion training thousands of "behaviour detection officers" as part of the Screening of Passengers by Observation Techniques (SPOT) programme.

The purpose of SPOT is to identify facial and body expressions that signals terrorist activity. Psychologists – and the GAO – question the effectiveness of the programme. "The common-sense notion that liars betray themselves through body language appears to be little more than a cultural fiction," says one psychologist.

The results have not been impressive: fewer than one per cent of the more than 30,000 passengers a year who are identified as suspicious end up being arrested, and the offenses have not been linked to terrorism.

A November 2013 report by the Government Accountability Office (GAO) recommended that the TSA should reduce future funding for the agency's behavioural detection programme because there is little evidence of the programme's effectiveness. According to the GAO, "available evidence does not support whether behavioural indicators, which are used in the SPOT, can be used to identify

persons who may pose a risk to aviation security."

The recommendation was supported by a survey in which psychologists Charles Bond and Bella DePaulo analysed more than 200 studies in which participants correctly identified 47 per cent of lies as deceptive and 61 per cent of truths as non-deceptive, resulting in an average of 54 per cent – only 4 per cent better than chance. Accuracy rates were lower in experiments when judgement had to be made relying solely on body language.

Researchers have found that the best clues to recognising liars are verbal clues. Dr Nicholas Epley, a professor of behavioural science at the University of Chicago, has found that people over-rely on reading facial expressions. "Reading people's expressions can give you a little information, but you get so much more just by talking to them," he says. "The mind comes through the mouth." **SP**

Iraq veteran kills three and himself at Fort Hood

As many as four people were killed and 14 were wounded after a gunman in uniform opened fire at Fort Hood on April 2, shutting down the sprawling Army base and inciting a huge police response. The shooting echoed the deadly rampage carried out there in 2009 by an officer who turned on his fellow soldiers.

Officials at Fort Hood released few details about the shooting but said that it appeared that the gunman was among the dead. Reports of the shooting sent dozens of local, state and federal law enforcement officials rushing to the base in Killeen, Texas, as they had back in November 2009.

In Chicago, President Barack Obama described the shooting as a fluid situation that the White House and Pentagon officials were closely following. "We are going to get to the bottom of exactly what happened," the President said. "We're heartbroken something like this might have happened again."

The Chairman of the Joint Chiefs of Staff, General Martin Dempsey, said that many questions remained but that their focus was on supporting the victims and their families. "This is a community that has faced and overcome crises with resilience and strength," he said in a statement. **SP**



Government constituted DDMB holds first meeting

The first meeting of newly constituted Design & Development Management Board (DDMB) by the Government to strengthen design and development in aerospace and promote self-reliance in the critical areas of India's defence preparedness was held recently at the Hindustan Aeronautics Limited (HAL) Corporate Office in Bengaluru. The Board comprises key members of India's premier defence organisations involved in research, production and manufacturing activities. "We need to have clear road map to take on the challenges in defence sector as issues concerned range from basic and applied research, involvement of academia, production, spotting and retaining talent", said Chairman of DDMB, Dr R.K. Tyagi who is also Chairman of HAL. Dr K. Tamilmani, DG (Aeronautics), Dr C.P. Ramanarayanan, Director, GTRE, Dr Ajit Kalghatgi, Director (R&D, BEL), Dr Shyam Shetty, Director, NAL, P. Srikumar, Director, ADE and T. Suvarna Raju, Director, Design and Development of HAL (who is Member Secretary of the Board) were present on the occasion.

The meeting brain-stormed on how to build a strong foundation for R&D by synergising the core competency of all the organizations involved, creating conducive environment for research and support business academia collaboration. The meeting also felt that all the concerned organisations must share the lessons learnt from the past programmes and make combined efforts to ensure success of future programmes with thrust on indigenisation. Acquiring of modern technology and measures to be taken to



DDMB Board Members along with Dr R.K. Tyagi, Chairman (fourth from right) and Dr K. Tamilmani (third from right), Co-Chairman at their first meeting at HAL Corporate Office, Bengaluru

retain quality manpower were also discussed.

The forum would act as a platform for stimulating initiatives and suggest policy interventions for bringing inclusive growth. The DDMB members will deliberate at length most of these issues in their future meetings and the recommendations will be communicated to the stakeholders. **SP**

Bell Helicopter's new composite facility

Bell Helicopter, a Textron Inc. company, announced its newly-constructed composite facility in Broussard, Louisiana. The new facility represents a \$4.5 million investment by Bell Helicopter and was achieved through collaboration with the Lafayette Economic Development Authority (LEDA).

"At Bell Helicopter, we are committed to providing exceptional value throughout the aircraft's lifecycle," said Eric Cardinali, Executive Vice President, Bell Helicopter Customer Support and Services. "To do this, we need to have the right talent and resources in place to meet our customer's aftermarket requirements and to accommodate the future growth and capabilities we consider to be core to our customer support and services offerings."

The new 28,000 sq. ft. facility was specifically designed for Bell Helicopter's composite manufacturing capabilities, which include manufacturing new composite panels, as well as repair and overhaul of existing panels for much of Bell Helicopter's current and legacy fleet. The company implemented lean manufacturing processes throughout the facility to improve efficiencies and reduce lead times.

"We were pleased to work with the Louisiana Economic Development Authority on this project," said Cardinali. "LEDA was very involved, and we appreciate their support and collaboration."

"I appreciate the opportunity to be here today and to share in the grand opening of Bell Helicopter's new composite building in Broussard," said Gregg Gothreaux, President & CEO, LEDA. "This is the result of a team effort on the part of Bell Helicopter, LEDA, and the Lafayette and Acadiana parishes and their commitment to growth in the region." **SP**

PHOTOGRAPH: HAL

Northrop Grumman Foundation supports education globally

The Northrop Grumman Foundation joined the National Science Teachers Association (NSTA) to further the conversation around international science education during the NSTA National Conference in Boston, April 3-6.

The Foundation is sponsoring a special session at the conference titled Global Conversations in Science Education, a day-long event that brings together educators from around the world to discuss issues in science education of global concern such as helping students to understand energy and how it impacts worldwide challenges. It is also underwriting costs for an annual award, the NSTA Aerospace Educators luncheon, and for 30 teachers to buy key resource materials at the conference.

As part of the Foundation's global outreach, it is providing funding for two international teachers from Australia who will receive round-trip transportation to the NSTA national conference, complimentary registration, tickets to selected events, and meal reimbursement.

NSTA conferences offer the latest in science content, teaching strategies, and research to enhance and expand professional growth for science teachers. More than 10,000 science educators from the kindergarten through college levels are expected to attend the conference.

"Professional development is a central tactic in our efforts to give educators tools and experiences that help them increase student interest in science, technology, engineering and math (STEM)," said Sandra Evers-Manly, President of the Northrop Grumman Foundation and Vice President of Northrop Grumman global corporate responsibility. "We're delighted to support teachers from here and abroad to attend the conference to inform an international dialogue on STEM education." **SP**

Upward falling payloads programme advances deep-sea technology

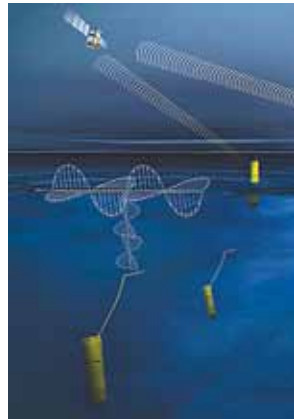
New phase aims to merge payloads with protective containers that lie on the deep-ocean floor for years and recall them for use on demand.

Cost and complexity limit the number of ships and weapon systems the Navy can support in forward operating areas. A natural response is to offset these costs and risks with unmanned and distributed systems. But how do such systems get there in the first place?

The Defense Advanced Research Projects Agency's (DARPA) upward falling payloads (UFP) programme, which intends to address these challenges, centres on developing deployable, unmanned, nonlethal distributed systems that would lie on the deep-ocean floor in special containers for years at a time. US forces could remotely activate these deep-sea resources from remote command centres, and recall them to the surface when needed. In other words, they would "fall upward." The programme is completing its first phase and is about to enter its second.

During Phase 1, DARPA supported more than 10 study and design efforts to figure out approaches for long-range communications, deep-ocean high-pressure containment, and payload launch. The study teams also addressed a variety of missions for the payloads.

"In this first phase, we really learned about how the pieces come together, and built a community of developers to think differently about



unmanned distributed solutions for the maritime domain," said Andy Coon, DARPA Program Manager.

"The trick is to show how these systems offer lower-cost alternatives to traditional approaches, and that they scale well to large open-ocean areas," said Coon.

In the next Phase, DARPA intends to learn from the studies, and develop and demonstrate prototype systems. DARPA is seeking teams to develop UFP nodes that combine expertise in both deep-ocean engineering and advanced payload development.

"We're also looking for the communications technologies for these nodes. As long as you can command the nodes remotely and quickly, and don't have to send a ship out to launch it, you're in good shape. Some Phase 1 approaches were more exotic than others, but we were pleased by the range of challenging options," said Coon.

In today's fiscally constrained environment, such a system of pre-positioned, deep-sea nodes could provide a full range of maritime mission sets that are more cost-effective than existing manned or long-range unmanned naval assets.

For Phase 2, DARPA is particularly looking for technology communities that can team to provide expertise and innovation for small sensors, expendable and small unmanned systems, distributed communications and navigation technology, novel long-range underwater communications, and long-endurance mechanical and electrical systems that can survive for years in dormant states. **SP**

The world's most powerful 3D laser imager

Airborne laser scanning has produced stunning maps and insights in the last few years. Among others, it revealed the faint outlines of a vanished medieval city street grid obscured by the jungle surrounding Cambodia's Angkor Wat, a feat that required 20 hours of helicopter flight time to map 370 square kilometres to a resolution of one metre.

But in a secure hangar at Hanscom Air Force Base in Bedford, Massachusetts, the belly of a Bombardier turboprop has been outfitted with technology that could pull off the Cambodian job in about half an hour. The fuselage holds a new LIDAR (light detection and ranging) 3D imaging system that works with unprecedented speed and high resolution, says Dale Fried, principal developer of the system at Lincoln Laboratory, a federally funded R&D centre run by the Massachusetts Institute of Technology.

LIDAR systems fire lasers and detect returning photons, using the timing of those return trips to measure distance and thus make 3D images. At the heart of the new imaging system is a microchip bearing the largest-ever array of pixels that detect just one photon apiece—more than 16,384 pixels in all. The array of pixels, when

paired with optical lenses, allows imaging of wider areas. "Arrays of these single-photon detectors are able to map wide areas very quickly," Fried says.

In today's airborne LIDAR systems, individual detectors are much less sensitive; and they are mechanically moved along with the laser that emits the light to capture a wider field of view.

While no images from the new system taking shape in Hanscom are publicly available, an earlier generation of the technology—built four years ago with only one-quarter as many pixels—has been tested. The system was dispatched by the US military on a humanitarian mission after the January 2010 Haiti earthquake; a single pass by a business jet at 10,000 feet over Port-au-Prince was able to capture instantaneous snapshots of 600-metre squares of the city at a resolution of 30 centimetres, displaying the precise height of rubble strewn in city streets.

This system was already roughly four times faster and more detailed than the Angkor Wat system. But the detector array now in the Hanscom hangar is another 10 times better and could produce much larger maps more quickly, Fried says.

The technology uses a semiconductor called indium gallium arsenide, which operates in the infrared spectrum at a relatively long wavelength that allows for higher power and thus longer ranges for airborne laser scanning. **SP**



Avatar actor Sam Worthington arrested in New York

Actor Sam Worthington was arrested in Manhattan after police say he punched a photographer in the face. It happened recently as the paparazzi were up close to the couple, breaching their security.

The New York Police Department said that Worthington's girlfriend identified as fashion model Lara Bingle, was blocked by a paparazzi photographer and allegedly kicked her in the shin. Worthington, 37, then allegedly punched the photographer in the face.

The *Avatar* actor faces an assault charge. He was released on a desk appearance ticket and is due back in court on February 26. The photographer, Sheng Li, 37, of Manhattan, was arrested on charges of reckless endangerment, assault and harassment. He was being held pending arraignment. It wasn't immediately clear if either had lawyers. **SP**

Michigan terrorism case hinges on informant's testimony

Mohammad Hassan Hamdan of Dearborn Heights, Michigan, was arrested on March 16, 2014, at Detroit Metro Airport by the Federal Bureau of Investigation (FBI) agents who claim that Hamdan told an undercover informant of his plans to travel to Lebanon to join Hezbollah as a fighter supporting Syrian President Bashar al-Assad.

Hamdan's family and defence attorney note that the informant is a friend of Hamdan's ex-girlfriend, and that he is receiving an immigration benefit for his services, two facts that should make the information he provides suspect. The US Government classifies Hezbollah as a terrorist organisation, so appearing before US Magistrate R. Steven Whalen at the District Court in Detroit on March 17, 2014, Hamdan was charged with "attempting to provide material support (money, goods, or services) to a foreign terrorist organisation," a charge that can result in up to 15 years in prison and a \$2,50,000 fine. **SP**

Teenager climbs atop Freedom Tower undetected

The Freedom Tower, America's top terror target, doesn't have a single working surveillance camera inside — a stunning security lapse that let a New Jersey teen roam the top floors undetected.

The video system for 1 World Trade Center "won't be operational until the building opens later this year," said a source familiar with the security plan. That means there is no footage of Justin Casquejo, 16, as he slipped by a sleeping guard to the antenna of the 1,776-foot-tall building. **SP**

Security threats from within

Threats to the US Defense Department personnel and facilities increasingly are coming from trusted insiders, and to defeat them the Pentagon must beef up security from within, according to several reviews triggered by last year's Washington Navy Yard killings.

The reviews say the shooting by a Navy contractor could have been prevented if the company that employed Aaron Alexis told the US Navy about problems it was having with him in the months before he gunned down 12 civilian workers.

An independent study and an internal review ordered after the September 2013 massacre and released recently said the Pentagon must expand its focus beyond defending against external threats. More attention must be paid, they concluded, to defending against threats from inside the workforce.

According to the Navy probe, the Fort Lauderdale, Florida-based company, The Experts, pulled Alexis' access to classified material because of concerns he was having mental health problems. It then restored his access two days later and never told the Navy about it.

The report written by Navy Admiral John Richardson said Alexis' behaviour raised concerns among his supervisors and others and indicated he may harm others. Had such information been reported to the government and acted upon, it stated, Alexis' authorisation to secure facilities would have been revoked.

Alexis' company temporarily withdrew his access to classified information after a series of bizarre complaints and police incidents last August during a business trip to Newport, Rhode Islands. Alexis complained that people were following him, making noise and using a microwave machine to "send vibrations through the ceiling" in his hotel room. **SP**



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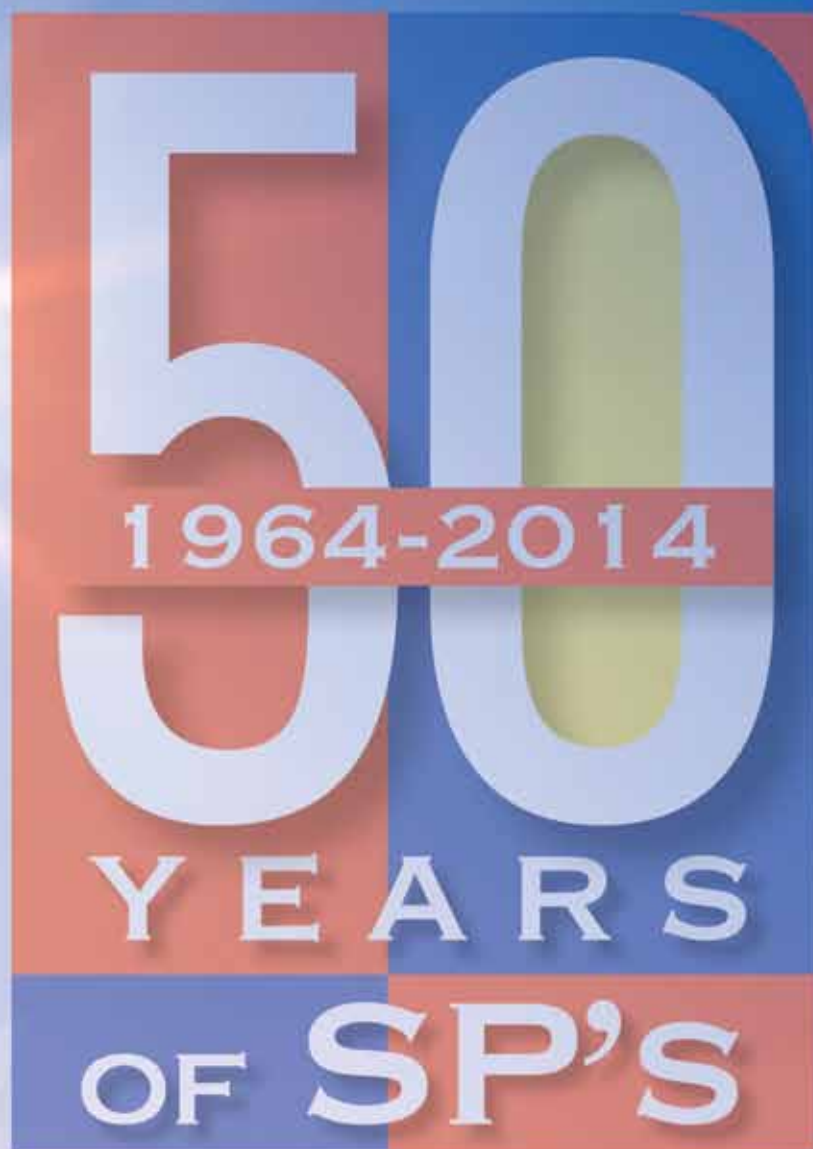
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