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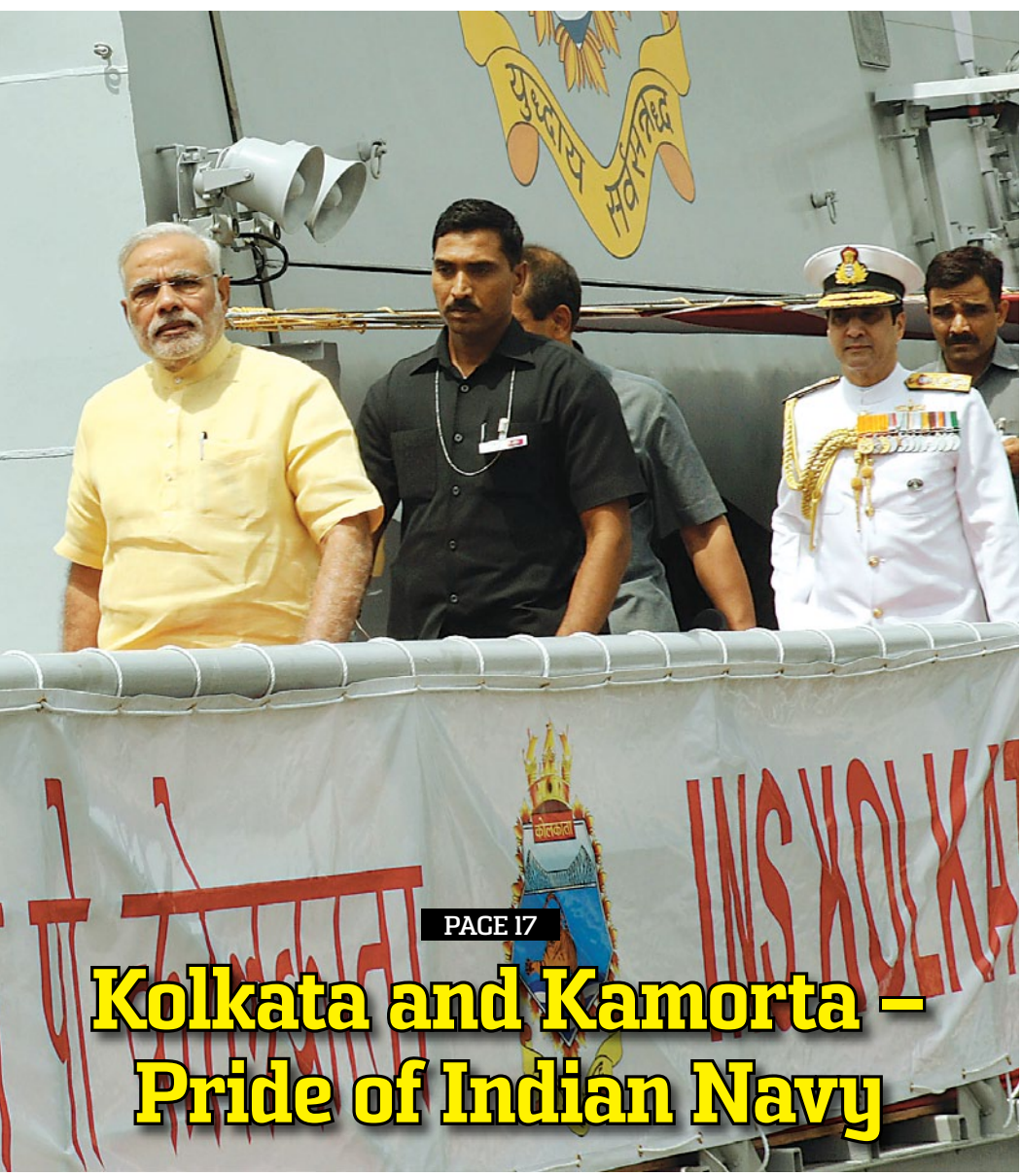

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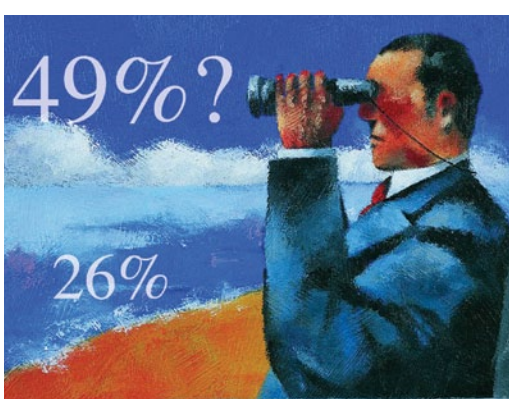

The million-dollar question is that have we facilitated FDI as to attract foreign firms in our defence sector? Ironically, the reply is a big NO. We have just raised the FDI in defence from 26 per cent to 49 per cent. PAGE 10

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Prime Minister addresses armed forces personnel at Leh

Prime Minister Narendra Modi addressed officers, soldiers and air warriors of the Indian Army and Air Force at Leh recently. He condemned the continuing proxy war by Pakistan. He said that the neighbouring country has lost the strength to fight a conventional war, but continues to engage in the proxy war of terrorism.

The Prime Minister said the Indian armed forces are suffering more casualties from terrorism than from war. He said this is a global problem and all humanitarian forces of the world should unite to fight it. India is committed to strengthening and uniting these humanitarian forces.

The Prime Minister said India is committed to strong armed forces, well-equipped with modern arms and technology. He said that the jawans should be assured that the entire country supports them. In an emotional vein, Narendra Modi said soldiers

remain undeterred in spite of the many negatives and struggles that their families face in day-to-day life. The Prime Minister said that this energy and sense of duty inspires him and therefore he keeps visiting jawans on the border to seek inspiration.

The Prime Minister said that our armed forces deployed in border areas are well-connected with the people who live there. He highlighted the example of the Kargil infiltrations, about which the first information was given to our armed forces by a shepherd named Tashi Namgyal.

The Prime Minister mentioned provisions made in the recent Union Budget towards the modernisation and welfare of the armed forces, including 'One Rank One Pension'. He also promised that the National War Memorial would be built and would inspire future generations of India. He said that the government is committed to make India self-reliant in defence manufacturing.

Later, writing in the Visitor's Book at Leh Auditorium, Narendra Modi said that peace and security is a pre-requisite for development. SP

PHOTOGRAPH: PIB

Cover:
Prime Minister Narendra Modi dedicated to the Indian Navy the country's most modern and ferocious warship INS Kolkata on August 16, 2014.

Cover images: Indian Navy, US Army, Anoop Kamath

PUBLISHER AND EDITOR-IN-CHIEF
Jayant Baranwal

ASSISTANT GROUP EDITOR
R. Chandrakanth

SR TECHNICAL GROUP EDITORS
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Jayant Baranwal

PLANNING & BUSINESS DEVELOPMENT
Executive Vice President: Rohit Goel

ADMIN & COORDINATION
Bharti Sharma

DESIGN & LAYOUT
Creative Director: Anoop Kamath
Designers: Vimlesh Kumar Yadav, Sonu Bisht
Research Assistant - Graphics: Survi Massey

SALES & MARKETING
Director: Neetu Dhulia
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Web Developer: Ugrashen Vishwakarma

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LETTERS TO THE EDITOR
editor@spsmai.com

FOR ADVERTISING DETAILS, CONTACT:
advertise@spsmai.com
neetu@spguidepublications.com
rajeev.chugh@spguidepublications.com

SP GUIDE PUBLICATIONS PVT LTD
A-133 Arjun Nagar
(Opposite Defence Colony)
New Delhi 110 003, India.

Tel: +91 (11) 24644693,
24644763, 24620130
Fax: +91 (11) 24647093
E-mail: info@spguidepublications.com

REPRESENTATIVE OFFICE
204, Jal Vayu Vihar
Kalyan Nagar
Bengaluru 560043
Tel : +91 (80) 23682204

MOSCOW, RUSSIA
LAGUK Co., Ltd, Yuri Laskin
Krasnokholmskaya, Nab.,
11/15, app. 132, Moscow 115172, Russia.
Tel: +7 (495) 911 2762,
Fax: +7 (495) 912 1260

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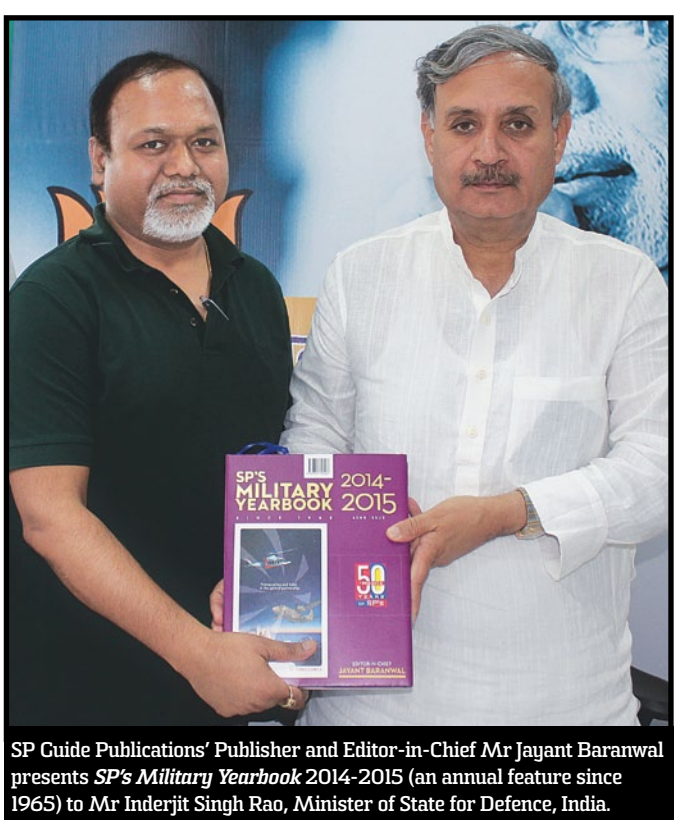
Radical decision on FDI cap urgent

The debate on increasing foreign direct investment (FDI) in defence has been on for quite some years. In the previous UPA Government, the FDI cap was at 26 per cent. That did not bring in the kind of investments that was anticipated. There were continuous exhortations from the industry, the original equipment manufacturers (OEMs) and defence experts that the FDI level had to be increased.

The new Narendra Modi Government took a decision to increase the FDI to 49 per cent, but if an OEMs is going to invest 49 per cent and still has no control over the project, the OEM is better off with 26 per cent. The less the investment, the less is the risk.



SP Guide Publications' Publisher and Editor-in-Chief Mr Jayant Baranwal presents ***SP's Military Yearbook*** 2014-2015 (an annual feature since 1965) to Mr Inderjit Singh Rao, Minister of State for Defence, India.

In this issue, we have industry captains and defence analysts making a case for increase in the limit of FDI. In his frank and forthright views, Lt General P.C. Katoch (Retd) argues that FDI is the route to indigenisation and keeping this in mind, it would be appropriate if the government goes beyond the 50 per cent level, of course, with checks and balances. If India has to get the best of technologies, then it needs to take quick, transparent and radical decisions.

Prime Minister, Narendra Modi, while addressing armed forces personnel in Leh, promised to equip them with the most modern of equipment. Around the same time, the Defence Acquisition Council (DAC) gave clearance to make high-tech defence products in India which includes systems and platforms from light utility helicopters to Arjun Tanks. In the same week, INS Kolkata and INS Kamorta, which are going to add to the marine combat capabilities, were dedicated to the Indian Navy. Analysing India's marine capability, Ranjeet Kumar acknowledges the capabilities of the Indian shipbuilding industry.

In SP's Exclusives, we look at the light combat aircraft (LCA) project. The Aeronautical Development Agency (ADA) has been told clearly that the future of squadron numbers depends largely on the LCA Mk.2. In fact, the Prime Minister recently exhorted the Defence Research and Development Organisation (DRDO) to complete projects in time. Meanwhile, India and Russia will soon sign the $11-billion contract for the crucial experimental design phase of the fifth-generation fighter aircraft (FGFA) programme.

SP's M.A.I. will keep you updated on the developments in defence and internal security and we look forward to your feedback to help us improve further.

Jayant Baranwal
Publisher & Editor-in-Chief

Crucial to IAF plans, all eyes on LCA Tejas Mk.2

PHOTOGRAPH: SPSC

With the Indian Air Force (IAF) all but officially writing off the LCA Tejas Mk.1 as a fast jet trainer with limited offensive capabilities, all eyes are now on the LCA Mk.2 that will sport a more powerful engine and an upgraded flight envelope. The Aeronautical Development Agency (ADA) has been told in no uncertain terms that the future of squadron numbers depends largely on how the Mk.2 avoids the pitfalls of its predecessor. The question, therefore, is: Will the LCA Mk.2 fulfil all IAF requirements and emerge, on time and cost, as the frontline interceptor? The IAF is hoping it will be to shore up squadron numbers and operate across the country.

The action taken report on the Mk.2 so far doesn't inspire great confidence. The ADA has so far completed a preliminary design review of the GE414-INS6 turbofan engine, but moved no further. Systems designs of fuel system, hydraulic system, electrical system, environment control systems were completed in the 2012-13 period and limited system design reviews had been carried out at the time, but not moved forward in a substantive manner.

Fabrication of 1:15 scales force & moments models and 1:7.645 scale air intake models were completed, while wind tunnel tests at the Calspan Corporation in Buffalo, New York. ADA has also managed to complete the preliminary design review of the Integrated Flight Control System and critical design review of the GTSU-127 Jet Fuel Starter. A redesign of the vertical stabiliser (fin) of the LCA Mk.2 has been carried out to based on changes required to accommodate conformal antennas that will form part of the platform's improved electronic warfare suite. Studies of an alternate gun for LCA MK.2 were also carried out, with detailed studies still on to zero in on a final weapon, likely to be the Gryazev-Shipunov GSh-23. After eight options for in-flight retractable refuelling probes proposed by Cobham, U.K., weren't found feasible, a ninth option has been chosen, with detailed studies in progress to finalise the configuration.

Coming to the LCA Navy Mk.2, things are slightly more complicated. The second and third prototypes NP3 & NP4 will be Mk.2 variants of the LCA Navy, while NP5, a second trainer is under build as a risk mitigation exercise. As is well known, the main contributors to improvement in LCA Navy Mk.2 are higher thrust engine (the F414), increased wing span, lighter landing gear and structure, and improved systems layout towards better safety and maintainability. A design consultancy with Airbus Defence & Space (earlier EADS/Cassidian) has been initialised following its assistance in the LCA Navy Mk.1. In the interim, computational fluid dynamics (CFD) studies on several configurations of LCA Navy Mk.2 have been carried out. Performance estimation with new GE-414-INS6 engine has also been carried out. The next phase will involve wind tunnel testing. Design iterations of LCA Navy Mk.2 surface geometry has also been undertaken based on suggestions made by design consultant Airbus D&S and have been evaluated with CFD studies. "Meanwhile, based on the design suggestions, design teams involving aerodynamics, structures and various groups are working on the concept design of LCA Navy Mk2," says the ADA.

An improved landing gear design, supplied by Airbus Defence & Space is currently under review for implementation on the Mk.2. "This would reduce landing gear mass considerably," admits ADA. All issues related to landing gear observed during initial block of flight testing on the NP1 have been rectified. Part fabrication of the arrester hook assembly and the actuator-cum-damper assembly have been progress at ADA. The arrester hook assembly has been integrated on the NP2. A modified arrester hook system conformal to the fuselage is being studied for implementation on LCA Navy Mk2.

The LCA Mk.2, both Air Force and Navy variants, are intended for far improved performance across the flight envelope, including higher turn rates, acceleration and climb, a much smaller logistics and maintenance footprint, longer endurance with a larger fuel carrying capacity, a vastly improved electronic warfare suite and a full weapons capability, including beyond visual range air-to-air missiles, stand-off strike weapons and anti-ship missiles. The G limits on the Mk.2 will be up from +8/-3.5 to +9/-3.5. The platform will also sport an onboard oxygen generation system and will be 45 per cent composites by weight. SP

Update on PMF/FGFA programme

India and Russia will soon sign new $11-billion contract for the crucial experimental design phase of the Fifth-Generation Fighter Aircraft (FGFA) programme. This follows a series of contracts since 2007, including a general contract on joint design and production, followed by a contract for engineering development. The crucial phase will involve the actual 'shift' of some of the work to India, including the setting up of facilities, building the Indian prototype and flight testing that is expected to begin by the end of this decade. The Indian Prospective Multirole Fighter (PMF), as the Indian single-seat version is officially called, will take shape during this crucial phase, with deeper clarity on the workshare between Sukhoi and the Hindustan Aeronautics Limited (HAL).

As things stand, the Indian Air Force (IAF) plans to order 144 single-seat aircraft. Indications are that there is negligible scope for HAL to tinker with the T-50/PAK FA airframe given the timeframes provided by the IAF for delivery. Secondly, HAL will not be looking to improve upon an airframe that will be largely proven in test flights by the time the Indian PMF prototype takes shape in fabrication facilities. While development work itself may be something of a fait accompli given that the Russians are already testing a full fleet of prototypes, including two ground test aircraft, HAL has been asked not to surrender workshare in the final matrix of cooperation. Currently there are four T-50 fighter aircraft undergoing flight tests in Zhukovsky (the first flight of the PAK FA took place on January 29, 2010, in Komsomolsk-on-Amur.) Two more are dedicated to ground testing: one as a complex ground stand and the other undergoes static tests. The complexity of the negotiations and deliberations mean there is a fear that HAL could settle for much less work than initially agreed upon, thereby placing the IAF in precisely the sort of position it is looking to avoid: total dependence on Russia for yet another frontline platform.

The flight test programme had a bit of a scare in June this year when after the regular test flight of T-50 prototype at the airfield of the M.M. Gromov Flight Research Institute in Zhukovsky near Moscow, while the plane was landing, a fire broke out and smoke was observed above the right air intake. The fire was quickly extinguished but not before some damage to the airframe. The aircraft is still under repair, with the Sukhoi Design Bureau's commission still investigate the cause of the accident. Sukhoi had stated at the time that this incident would not affect the timing of the T-50 test programme.

In February this year, one prototype of the T-50, piloted by the test pilot of the 1st Class Sergey Chernyshev, flew to the 929th Chkalov State Flight Test Centre's airfield in Akhtubinsk for joint testing, where the aircraft was put through aerodynamic features evaluation, tests of stability and controllability and of dynamic strength, function check of onboard equipment and aircraft systems. According to Sukhoi, the optical locator system as well as active electronically scanned array radar was tested on the aircraft with "positive results obtained". Crucial air refuelling mode was also tested. "Supermanoeuvrability tests of the aircraft are under way. Aircraft systems are being tested on the test stands, ground experimental works continue," the Design Bureau states.

Constant comparisons with the F-22 Raptor and F-35 Lightning II don't bother the Russians too much. They believe that a long-term relationship makes them a natural partner in the PMF programme. "Compared to the previous generation fighters, the PAK FA combines the functions of a strike aircraft and a fighter, thus offering a number of unique capabilities. The use of composite materials and innovative technologies plus the aerodynamic layout of the aircraft, special airframe coating and measures to reduce the power plant, antenna and cockpit signature assure unprecedentedly low radar, optical and infrared observability. This considerably improves the operational effectiveness against air and ground targets at all times and in all weathers," says Sukhoi.

HAL says, "The proposed FGFA will have air combat superiority, high tactical capability, group action capability in the regions even with poor communication support. The aircraft will have advanced features like increased stealth, supersonic cruise, data link and network centric-warfare capability." SP

PHOTOGRAPH: Sukhoi

Apache capability blitzkrieg for IAF as decks cleared for deal

As the Indian Air Force (IAF) awaits contract signature on the keenly awaited Apache attack helicopter deal, it has been given a chance to savour the future of its attack copter capability through three recent events where the Apache was deployed. The material, made available through the Air Wing at the Indian Embassy in Washington D.C., depicts US Army AH-64 Apache helicopters conducting operations this month (August 2014) off the flight deck of the aircraft carrier USS George H.W. Bush (CVN 77) deployed in the Persian Gulf, a capability the IAF hasn't seen so far. The second is the live-fire exercise Northern Strike this month at Camp Grayling's Air to Ground Gunnery Range in Michigan

in which Apaches from the Charlie Company, 1-104th Attack Reconnaissance Battalion demonstrated their blistering offensive power in the joint multinational combined arms training exercise.

The Indian Air Force will operate the first 22 Apaches, while the Indian Army will contract (negotiations will begin later this year) for 39 more Apaches for three attack helicopter squadrons to be deployed with its three strike corps. The Indian Air Force deal includes 50 T700-GE-701D engines, 12 AN/APG-78 Fire Control Radars, 12 AN/APR-48A Radar Frequency Interferometers, 812 AGM-114L-3 Hellfire Longbow missiles, 542 AGM-114R-3 Hellfire II missiles, 245 Stinger Block I-92H missiles, and 23 Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensors, rockets, training and dummy missiles, 30mm ammunition, transponders and simulators. SP

PHOTOGRAPHS: US Army

Indian Army operating from CH-47F Chinook

The Indian Air Force is keenly looking forward to operating the Boeing CH-47F Chinook. The Ministry of Defence (MoD) has cleared the decks for a contract for 15 helicopters, though an internal assessment suggests the IAF may ultimately looking to order another 15. Either way, the Chinook brings to bear a game-changing delivery capability, the kind the Indian Air Force (IAF) has never had before in terms of flexibility and access, especially in high altitude areas. The IAF will also employ the Chinook for special operations with the Indian Army. In fact, **SP's** has photographs of the Yudh Abhyas 2013 exercise that took place in May last year that involved Chinook operations in an simulated real-world environment. The Indian Army's 99th Mountain Brigade and the US Army's 1st Brigade Combat Team, 82nd Airborne Division participated in the exercise at Fort Bragg, North Carolina, along with the 3rd Squadron, 73rd Calvary Regiment from the US forces; and from India, the 2nd Battalion, 5th Gurka Rifles; the 50th Independent Para Brigade, and the 54th Engineers Regiment. The exercise gave Indian forces their first operational brush (apart from field evaluation trials of the aircraft that took place in 2010-11) with the Chinook.

The IAF will use the Chinook for troop transport, nation building, special operations, equipment transport, search and rescue, humanitarian relief, firefighting, Medevac and logistical resupply. As the workhorse of US Army aviation, the question is whether the Indian Army will also look to operate the Chinook, just as it has achieved authorisation to procure its own attack helicopters (39 AH-64D Apache Block IIIs if the Army's plans work out). The questions then are these: will control over tactical battlefield assets stretch to a platform like the Chinook? Would the Army look at the Chinook from the perspective of its 'aviation brigade' plans? Probably most important, will the government step in, send out a clear message on jointmanship and synergies between the forces and rationalise procurements so that a stretched budget doesn't involve operational overlaps as is bound to be the case with anti-armour air support? SP

Indian Coast Guard, Marine Police express interest in Israeli USVs

Israel Aerospace Industries (IAI), which unveiled its Katana unmanned surface vessel (USV) at Defexpo this year, has received feelers from the Indian Coast Guard and Marine Police forces of states like Maharashtra and Tamil Nadu, asking for more information and a demonstration of the system. The forces have similarly expressed interest in the Rafael Advanced Defense Systems Protector USV. Developed primarily as a homeland security vessels, the Katana and Protector have been developed for missions including protection of exclusive economic zones, including harbour security, patrol of shallow coastal and territorial waters, surface and electronic warfare and offshore platform protection (plus oil rigs, pipelines, and more). According to IAI, features of the Katana include autonomous navigation, collision avoidance, advanced control system and more. The vessel is equipped with various payloads (including electro-optical), communication systems, radio (Line of Site, LOS, or NLOS), radar and optional weapon systems. The Protector is projected as an 'integrated naval combat system' based on unmanned, autonomous, remotely controlled highly manoeuvrable and stealthy surface vehicles. The Protector's well regarded anti-terror mission module payload includes sensors and weapon systems. The search radar and the Toplite electro-optical pod enable detection, identification and targeting operations. The weapon systems are based on Rafael's Typhoon remote-controlled, stabilised weapon station, capable of operating various small calibre guns. SP

HTT-40 wind tunnel tests by year end

The Hindustan Aeronautics Limited (HAL) has revealed that it plans to undertake comprehensive wind tunnel tests to study spin and recovery characteristics for compliance to FAR-23 (aerobatic category) standards on its HTT-40 basic trainer aircraft by the end of this year or early 2015. HAL has announced its requirement for a test agency to design and manufacture the required scale model(s) to achieve all test objectives, which include rotary and static tests towards development of mathematical model for analysing the spin and recovery characteristics of HTT-40. The scope of work includes model design, manufacture, testing, analysis of results and associated mathematical model generation for compliance. HAL has revealed that the HTT-40 weighs about 3,000 kg. The winning vendor will also be required to provide a simulation (mathematical) model of the HTT-40 aircraft to aid HAL in understanding predicted aircraft spin response and recovery controls based on wind tunnel/ other data. Already fighting an uphill battle on the basic trainer front, HAL wants to ensure there are no slippages in the programme. And given the problems it has had with the HJT-36 in terms of spin and stall characteristics, in addition to "very low" engine flying hours before overhaul. SP

PHOTOGRAPHS: Rafael, Indian Navy, SPSC

TCAS cleared for Indian Navy special aircraft

The government has cleared the purchase and integration of Traffic Collision Avoidance Systems (TCAS) on the Indian Navy's Tu-142, Dornier Do-228 and Il-38SD aircraft fleets, in a crucial move to shore up flight safety during extended operations at sea. The navy has for years felt the need to give its reconnaissance fleet airborne collision avoidance systems. The recent deployment of P-8I aircraft in the hunt for missing Malaysia Airlines flight MH-370 underscored the need for TCAS on all

aircraft. The navy's Tu-142s, also based at INS Rajali in Arakkonam, Tamil Nadu, had also been on standby for the search operation but were not used since they would have been deployed in airspace that was thick with other aircraft and helicopters. The navy's worst ever disaster before the INS Sindhurakshak tragedy last year was the mid-air collision of two Il-38s in Goa during jubilee celebrations of the navy's air arm. The effort to arm these aircraft (new ones were procured subsequently) with TCAS and other safety systems has been on since then. SP

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New acquisitions – Boost to domestic industry

[By **Ranjeet Kumar**]

In a major push to defence manufacturing in India the Defence Acquisition Council (DAC), under the Minister of Defence Arun Jaitley, has given a clearance to make high-tech defence products in India which includes systems and platforms from light utility helicopters (LUH) to Arjun Tanks and even leaving the door open for the Americans to jointly develop and manufacture more advanced versions of their anti-tank missile Javeline in India in collaboration with Indian private or public sector firms. Overall, the clearances given by DAC will generate business worth ₹40,000 crore for the Indian defence sector.

Prime Minister Narendra Modi, from the ramparts of the Red Fort had expressed his resolve to encourage domestic private manufacturing in defence sector and had said that he will encourage 'Make in India' policy which will lay a new foundation for the manufacturing sector of India that is vital for Indian economy. While launching the indigenous destroyer INS Kolkata on August 16 Prime Minister Modi had said, "My government has taken important steps in improving indigenous defence technology. We dream about making India strong enough to export defence equipment to the world."

Since India imports defence equipments worth over $8 billion annually, it is desirable that the government adopts policy which is compatible with encouraging the foreign equipment suppliers to manufacture their systems in India itself in collaboration with Indian partners. Only a month ago the Defence Ministry had announced the revised foreign direct investment (FDI) policy which raised the limit from 26 to 49 per cent. Though the foreign manufacturers are not entirely happy over this policy, they see it as a step in right direction and expect enhancement of the limit by next annual budget. Perhaps within the confines of 49 per cent FDI limit the Indian defence sector is enthused as it will give them controlling stakes in the defence companies.

Said Sujith Haridas of CII, "Key decisions on major defence procurements have finally started rolling out. The vision statement of the Prime Minister in his Independence Day speech 'Make in India,' is being implemented in an expeditious manner. In the second meeting of DAC, the Ministry of Defence (MoD) has cleared projects worth ₹17,500 crore. In the first DAC meeting, Avro project was cleared. CII welcomes the Government of India approach of 'Make in India' which will definitely give a boost to the manufacturing sector, revive economy and create millions of jobs in India."

It is indeed a significant decision as it opens vast door for Indian private defence industry and pose a challenge to Indian public sector defence industry to gear up to face the competition, considering the fact that a country which plans to import weapon systems worth over $100 billion in the next decade, should have a congenial investment regime so as to encourage the foreign companies to set up their shops in India and make the country as the international manufacturing and export hub.

However, before moving on to this level, the DAC, headed by Defence Minister Jaitley, took a landmark decision, which will have a significant bearing on the nature of future acquisition decisions.

Had this decision been put in place decades ago, India would have been today a major producer of weapon systems. However, this belated decision has opened new opportunities, as a platform like light utility helicopter of not great technological value needed a government push. A country manufacturing advanced light helicopter, light combat aircraft, etc could easily make such rotary platform. The Hindustan Aeronautics Limited (HAL) should have been encouraged to produce such platforms in India, considering its technological and human resources strength.

However, the latest decision to manufacture 400 helicopters in India would leave the field wide open for not only HAL but other emerging private sector companies to set up joint ventures in India. The order for 197 LUH would also have entailed off-the-shelf purchase of a few dozen and licence manufacture of the rest, but that would have closed the chapter. Not only Indian armed forces, but civilian agencies also need such rotary platforms, which would need several competing companies to supply for decades to come. So the order for 197 LUH worth ₹6,000 crore would not remain limited to this figure.

Similarly, the order for indigenous main battle tank Arjun Mk-II has also given another opportunity for the Indian public sector company to strengthen its base. Due to skepticism in the Army Headquarters over the capabilities of the Arjun Tank, the country had to import the Russian T-90 tanks. Now, in future Army will have to rely on the capabilities of the Arjun Tanks. The order worth ₹6,600 crore for 118 Arjun Tanks will embolden the Indian PSU and expand the Indian market.

Also the midlife upgrade of six submarines will be carried out in India, a programme worth ₹4,800 crore. This will include four of the Russian-made Kilo class submarines and two German-built HDW submarines. The MoD has also given job to Indian companies, from both public and private, for the acquisition of integrated anti-submarine defence suits for 11 frontline warships worth ₹1,170 crore.

For the Army, the DAC has cleared the supply of border communication system for the deployment along Sino-Indian border at a cost of ₹900 crore, to be sourced domestically. The clearance of attack helicopter Apache and heavy-lift helicopter Chinook for the Indian armed forces has also offset element which will benefit Indian defence industries. The ₹15,000-crore deal will have more than one-third domestic sourcing requirements. Besides, the decision is also a signal to the US Administration that India will continue to deepen defence relations with US, which has emerged on the top slot as foreign defence supplier to India. The MoD has also cleared the Indian Navy proposal to acquire 16 multi-role helicopters at a cost of ₹1,800 crore.

Besides Apache and Chinook helicopters the anti-tank Javeline deal will also offer good business to Indian defence industries, which will also add to the kitty of commitments delivered to the US Administration. The Javeline missiles will be manufactured in India after the initial off-the-shelf acquisitions.

The DAC decision on major acquisitions clearly indicates that the MoD has embarked on a definite roadmap of the indigenisation of defence industry in the country. SP

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Better prospects for speedy modernisation

On August 29, 2014, the government cancelled for the second time, the ₹6000 crore tender for 197 light utility helicopters (LUH) for the Indian Army and the Indian Air Force (IAF) to replace the vintage fleet of Cheetah and Chetak helicopters whose induction had begun in the early 1970s. The tender was on hold for the last two years following investigation into allegations of wrongdoing.

The case for the LUH was initiated by Army Headquarters in 2001 but the tender was floated for the first time only in 2004. In December 2007, after intensive effort during which the contenders were put through an elaborate technical evaluation followed by flight evaluation in different weather conditions and operating environment, the Eurocopter AS550 Fennec was selected as the platform of choice. However, the Indian Army was shocked to learn that on the day the contract was to be signed with the the Eurocopter (now Airbus Helicopters), the tender was cancelled rather abruptly. This decision was taken by the Ministry of Defence (MOD) due to allegations of irregularities in the process of selection as well as the involvement of middlemen which was and is not permitted under the Defence Procurement Procedure. Reports in the media indicated that one of the contenders who was eliminated from the race, had complained of lack of fairness in the selection process. Whatever the case, years of effort by Army Headquarters in processing the case as also the time, effort and resources expended by the contending OEMs, proved to be in vain!

The tender was floated for the second time in July 2008 by which time the total requirement of helicopters in this class including that of the IAF, had gone up to 384. However, the numbers to be procured from a foreign vendor was retained at 197 (133 for the Indian Army and 64 for the IAF) and the Indian aerospace major the Hindustan Aeronautics Ltd (HAL) was tasked to indigenously develop a platform of equivalent payload (three tonnes) capability and performance. Tentatively, the numbers indicated to HAL for the new machine was pegged at 187. In the second round of tendering, there was only machine, the Russian Kamov Ka 226T competing against the Eurocopter AS550 C3 Fennec. Once again the MOD ordered investigations into allegations of wrong-doing in the processing of the tender. Based on the results of the investigation as also under the ominous shadow of the scam tainted AgustaWestland deal, the second tender for the 197 LUH was also cancelled.

But while the NDA government has now abandoned the idea of procuring the LUH from abroad a decade after the tender was floated for the first time, the responsibility for this fiasco must lie squarely with the UPA government for having dithered for a decade and having complicated the matter to a point of no redemption. As the case had practically reached a dead-end, the present government had no other option. However, they ought to be given credit for clearing a number of other long pending contracts for the three services. These include tenders for 22 Apache helicopters as well as for 15 Chinook heavy-lift helicopters, both from Boeing, 16 multi-role helicopters for the Indian Navy and for 118 Arjun MkII Tanks for the Indian Army apart from a number other smaller projects all totalling to ₹20,000 crore. While the cancellation of the LUH deal has certainly created serious difficulties for the Indian Army and the IAF, it may prove to be bonanza for the Indian aerospace industry that can look forward to a business worth ₹40,000 crore to build at least 400 machines initially.

Rafale medium multi-role combat aircraft

These latest decisions by the NDA government clearly reflects their appreciation of the need to modernise the armed forces quickly while also pushing its agenda of "Made in India". The IAF can now look forward with renewed confidence to the early finalisation of the contract for the 126 Rafale medium multi-role combat aircraft. SP

These latest decisions by the NDA government clearly reflects their appreciation of the need to modernise the armed forces quickly while also pushing its agenda of "Made in India".

PHOTOGRAPH: Dassault Aviation

49 per cent is not enough!

The million-dollar question is that have we facilitated FDI as to attract foreign firms in our defence sector? Ironically, the reply is a big NO. We have just raised the FDI in defence from 26 per cent to 49 per cent.

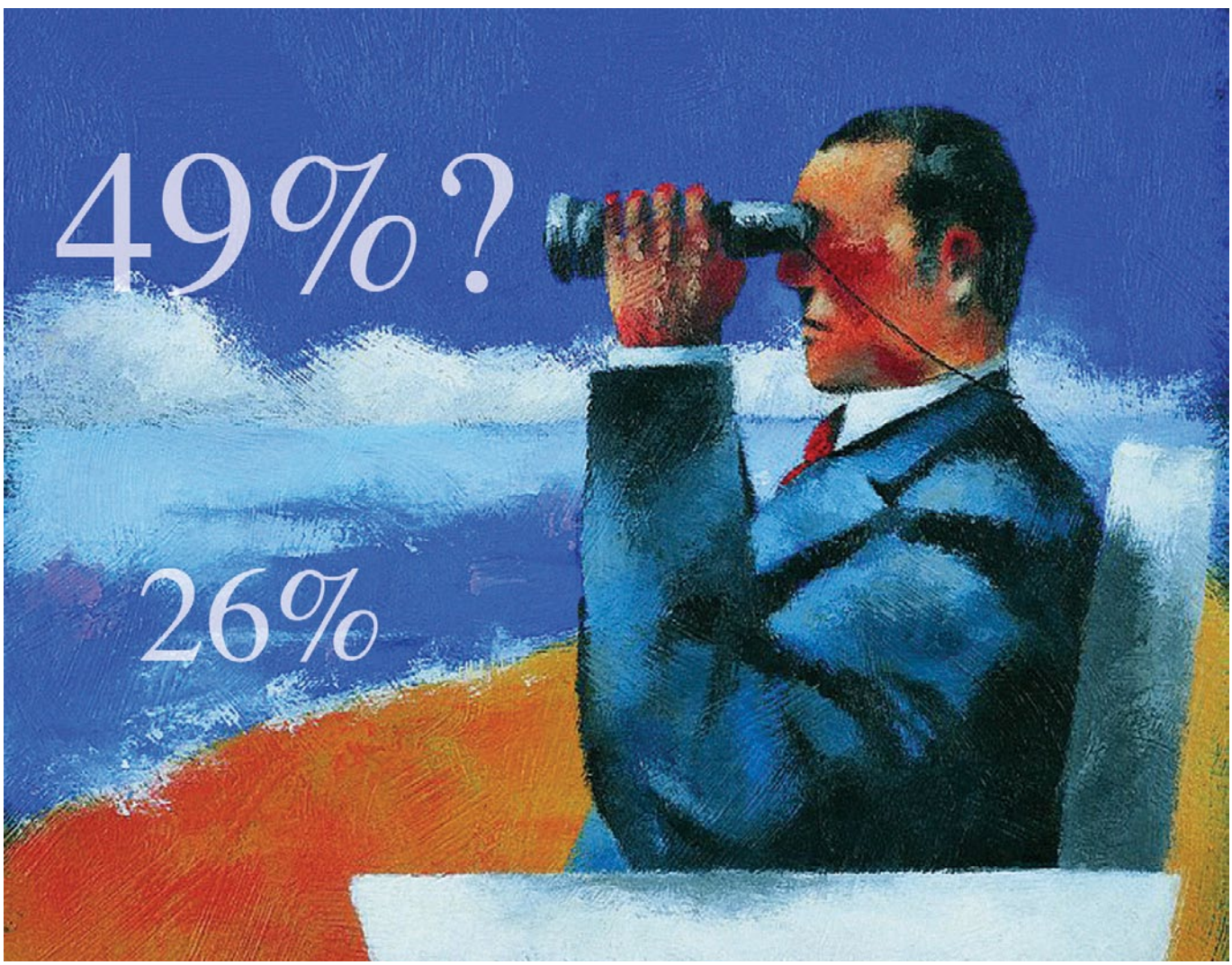


ILLUSTRATION: Anoop Kamath

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

The title of this article may cause critics to sit up questioning how can foreign investment be the route to indigenisation? The answer is pretty simple. When you have a glut in technology including specific voids, then you need to get it from overseas, implying foreign direct investment (FDI).

The next question would be, who in the hell will give you state-of-the-art technology? Valid point, but the answer is that someone just might, if they find it suiting their own national interest given the rapidly changing geopolitical scene. Heading the US side during the launch of the US-India Defence Technology and Trade Initiative (DTTI) in New Delhi in September 2013, the US Deputy Secretary of Defense Ashton B. Carter (now replaced by Frank Kendall) had said that US technology and exports control areas were being looked at so that India has the same status as the 'closest allies' of US, for the US system to operate on a timescale consistent with the needs for the Indian side to make decisions, the aim being to take the Indo-US defence relationship to the next level and help India raise the indigenisation of its defence systems.

Then we have strategic partnership with many other countries

Key Facts Need Rational Attention

- **50 per cent defence equipment in India is obsolete**
- **Defence procurements to touch $100 billion by 2022**
- **With 26 per cent FDI, India attracted less than $5 million FDI**
- **Foreign OEMs do not find the hike from 26 to 49 per cent attractive**
- **Foreign OEMs will not have control with 49 per cent stake**
- **Without control, foreign OEMs do not want to part with state-of-the-art technology**
- **Ministry of Commerce recommendation of 74 per cent FDI for ToT and 100 per cent FDI for state-of-the-art technology**
- **Arms mafia at work to continue imports**

as well. However, even in the instance where we do not get top-of-the-line technology, we still can get the next best. Therefore a joint venture (JV) with transfer of technology (ToT) is the route to indigenisation. Of course countries like China and her two nuclear talons (Pakistan and North Korea) excel in reverse engineering and exploit dual use technology in order to leapfrog technology without inhibitions of intellectual property rights and global norms.

With reference to India's defence equipment, our Ministry of Commerce and Industry states that the defence equipment currently held by us is 50 per cent obsolete. The proportion of state-of-the-art equipment also needs to grow from its current level of 15 per cent to 30 per cent, and the current cycle including acquisitions drafted under the long-term integrated perspective plan (LTIPP), is expected to include procurements worth $100 billion by 2022. So the picture is not very rosy.

Interestingly, the Ministry website also says that as per a survey undertaken by the Defence Division of the Confederation of Indian Industry (CII) conducted by KPMG, approximately 62 per cent of the companies believe that the Indian market is an attractive proposition for foreign defence companies owing to India's large procurement plans. This is hardly surprising. In fact, the surprise should be why only 62 per cent and not more number of companies want to invest in the defence sector in India? However, this notwithstanding the point to note is that these 62 per cent companies are interested on the basis of India's 'large procurement plans.'

But the million-dollar question is that have we facilitated FDI as to attract foreign firms in our defence sector? Ironically, the reply is a big NO. We have just raised the FDI in defence from 26 per cent to 49 per cent. It is not clear whether we incisively analysed what were the reasons that with 26 per cent FDI in defence in the last 14 years, we could attract just less than $5 million (just 4.34 per cent). Had we done this analysis, it would have probably indicated as to what should be the level of FDI that would make the defence sector lucrative to foreign companies.

The 49 per cent hike in FDI was announced by the Finance-cum-Defence Minister while presenting the union budget in the Parliament amongst thunderous clapping but ironically the very next day Ulrich Grillo, President, Federation of German Industries met the Defence Minister and later told reporters that German Industries would not like to invest in India since with 49 per cent FDI they would not have control over selling the products. That is the harsh truth applicable across the board as far as the defence sector is concerned.

The fact is that while the FDI Confidence Index of the country per se has been very high, in the defence sector it has been extremely low, and in the current context is likely to remain so despite the Prime Minister's call of 'Make in India, Sell Anywhere.'

One wonders if the arms import mafia, with its tentacles in the Ministry of Defence and Defence Research and Development Organisation (DRDO), that has impeded indigenisation in defence all these years, is silently at work to continue with defence imports.

Will global military aircraft manufacturing firms go for JVs in India with only 49 per cent FDI? A quick survey should tell us they will not. It is not without reason that the Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry has been recommending 74 per cent FDI in case of ToT and 100 per cent FDI in case of the investing foreign partner willing to make available state-of-the-art technology. After all these recommendations must have been made with due deliberations and need to be taken seriously considering the Ministry of Commerce and Industry would logically have much more expertise in the issue compared to the Ministry of Defence (MoD), and more significantly being outside the influence of the arms mafia that works against the vital need of indigenisation.

Acknowledging that we have already lost many years, government needs to take a call on this urgently. A symbiotic problem is the Defence Procurement Procedure (DPP) which in its present shape is not attractive enough for private industry and more importantly 'cannot' absorb foreign technology. This is despite the yearly propaganda of having 'simplified' the DPP, done in-house in MoD. Agreeably, some steps have been taken but the question is, are these enough, how many years did it take for these steps and are these enough to meet our needs of indigenisation?

A dispassionate analysis would indicate a dismal picture. Whether this has been happening by design (courtesy arms mafia) or default is difficult to gauge but the definitive atmosphere of total unaccountability and unconcern points to the former. FDI and DPP are interrelated. Raising limit of FDI to 49 per cent, which in any case is grossly inadequate, without a DPP to facilitate absorption of foreign technology is enforcing the status quo in terms of arms export, playing into the hands of the arms mafia. Instead of making some more cosmetic changes to the DPP, it would be prudent to review the DPP by an independent body (preferably non-government aided think tank) integrating representatives from military (users), MoD, DRDO, DPSUs, OF, private industry (both Indian and foreign) in 30-45 days. SP


155mm M777 ultra lightweight howitzer

PHOTOGRAPH: US Army

FDI in defence: A growth driver for the industry

***Kishore Jayaraman**, President, Rolls-Royce, India and South Asia*

Rapid Indigenisation

The Indian defence industry, which has grown substantially in the recent years, is poised for even better days. Today, India ranks among the top 10 countries in the world in terms of military expenditure yet imports 70 per cent of defence equipment. For India to successfully continue with its massive acquisition programme of the latest and best equipment in a sustainable way, it has to actively look into indigenisation.

The government's clear vision for building an indigenous defence industry will help boost manufacturing and attract funds to build the country's infrastructure. The foreign direct investment (FDI) hike in defence is intended to cut imports by indigenising defence production. It will also help create jobs and also encourage collaboration between foreign defence equipment manufacturers to get into co-development and co-production arrangements with Indian companies.

Defence technology comes with huge investments in research and development (R&D). Constant improvements are taking place in this sector and better technologies are being developed around the globe. With increased FDI limit India can now focus on increasing its share of defence budget to R&D which is only 6 per cent compared to 15 per cent in France and 12 per cent in the US. At Rolls-Royce, we put great emphasis on technology and this is evident from the fact that over the past 10 years, Rolls-Royce has invested £7.9 billion in R&D. Our investment in R&D has grown in the past decade, with two-thirds aimed at improving the environmental performance of our products.

Leveraging Strong Partnerships

UK has played a pivotal role in India's defence modernisation and share a strong history of mutual cooperation. India is one of the fastest growing economies in the world and is a powerhouse of technology. There are several agreements in the area of encouraging defence industrial partnerships, for example, setting up of Defence

Continued on facing page 13...

***SP's M.A.I.* (SP's) :What do you think about the 49 per cent FDI limit increased from 26 per cent recently?**

Kishore Jayaraman: Rolls-Royce welcomes the government's decision to allow 49 per cent FDI in defence. We believe this is a step in the right direction towards realising the country's efforts in obtaining strategic self-reliance. It will help catalyse rapid indigenisation and substantially increase the attractiveness of the sector as a place to transfer technology and set-up a manufacturing hub. The raise will also help the country to become one of the major defence producers of the world.

SP's: What all can your company offer to India with this change now versus the past limit?

Jayaraman: Roll-Royce has been partners in India's defence modernisation for the past eight decades. At Roll-Royce, we remain committed to India and work towards the indigenisation of the Indian defence industry by exploring strong partnerships with companies who share similar synergies with us. We are already working with many partners in India which we are very proud of – TCS/ Quest, HAL, etc. With a higher FDI limit, there will be opportunities to further contribute in the development and upgrading of India's defence sector by offering world-class innovative products and services.

SP's: As on date can you brief us about your joint activities with Indian industry? And the business arrangements involved in these joint activities?

Jayaraman: Today, Rolls-Royce and its joint venture companies directly employ 500 professionals. In addition, around 1,000 engineers, through our partnership with Quest and TCS, work at Rolls-Royce managed engineering centres in Bengaluru. This is the largest population of Rolls-Royce engineers outside the UK and they provide high quality engineering solutions and services across the entire product development life-cycle.

Last year, International Aerospace Manufacturing Private Limited (IAMPL), a 50:50 joint venture between Rolls-Royce and the Hindustan Aeronautics Limited (HAL) became operational in Bengaluru. IAMPL manufactures engine parts (compressor shrouds and cones) for Rolls-Royce gas turbines both for new production and the aftermarket. Set up across 4,500 square metres with an investment of $25 million, the IAMPL production facility represents another commitment to the long-standing partnership with HAL and the future of Indian aerospace industry. SP

Step in the right direction

***Joseph J. Battaglia**, President & CEO, Telephonics*

***SP's M.A.I.* (SP's) : What do you think about the 49 per cent FDI limit increased from 26 per cent recently?**
Joseph J. Battaglia: I believe that increasing the FDI limit from 26 per cent to 49 per cent is certainly a step in the right direction. This new limit will encourage US industry to much more seriously consider making investments in India. More often than not, the US industry partner is providing intellectual property that they have spent many years and a great deal of internal research and development money to develop and to essentially "give that away" for a 26 per cent share in a joint venture does not always prove to be a prudent decision.

SP's: What all can your company offer to Indian with this change now versus the past limit?
Battaglia: Telephonics will be more willing to share some of the latest state-of-the-art technology at the 49 per cent level than they might otherwise want to do at the 26 per cent level. For India that would mean leap-frogging to a higher, more sophisticated technology base more quickly. For the Indian military, this would mean greater warfighting capabilities and a greater level of readiness with which to confront adversaries.

SP's: As on date can you brief us about your joint activities with Indian industry? And the business arrangements involved in these joint activities?
Battaglia: Telephonics is partnered with the Mahindra Defence Systems (MDS), a division of Mahindra and Mahindra, in a classical 26 per cent/74 per cent ownership of the Mahindra Telephonics Integrated Systems (MTIS) joint venture (JV). The purpose of this JV is to transfer Telephonics' advanced radar and intercommunication systems technology to MTIS, ultimately establishing MTIS as the first indigenous radar house in India specialising in weather radar, maritime surveillance radar, and intercommunication management systems. Eventually, it is expected that MTIS will acquire the capability to design, modify, integrate, and repair radar and intercommunication systems in India for the Indian market.

SP's: Why there seems to be a demand for 51 per cent FDI limit still? Is that justified?
Battaglia: Raising the FDI Limit to 51 per cent or even higher would be the "icing on the cake" because US companies who have spent a great deal of financial, human, and capital resources developing their intellectual property would truly (and justifiably) want to control the fate of their technology. In fact, in some cases, depending on the specific technology, they may be forced by US Government regulations, to closely monitor what happens to the technology they transfer to a foreign entity or they would not be permitted to transfer it. With a 51 per cent+ share of a JV, the US company would have more control over that. SP

...*"**Rolls-Royce perspective**" continued from page 12*

Science and Technology Laboratory. However, as India requires advanced technology and manufacturing capabilities to bridge the existing defense capability gap, there is a need to look at joint production, joint R&D and most importantly the need to move beyond a buyer-seller relationship. With increased FDI limit and the new government initiating forward-looking policy measures, there will be much more scope for greater collaboration and participation between the two countries.

Conclusion

India and Rolls-Royce share a common desire to grow and develop the Indian aerospace industry. This desire is based on a successful partnership that has seen India and Rolls-Royce working together with India's armed forces since 1933, when the IAF took to the skies with Rolls-Royce Bristol Jupiter engines. Over the past 60 years, Rolls-Royce and HAL have produced a wide range of engines together for various military applications. Throughout this period Rolls-Royce has invested time and resources to increase the capability of Indian industry. Rolls-Royce is working towards the indigenisation of the Indian defence industry by exploring strong partnerships with companies who share our goals. We are already working with many partners in India which we are proud of – TCS, Quest and the Hindustan Aeronautics Limited. With a higher FDI limit, there will be opportunities to further contribute in the development and modernisation of India's defence sector by offering world-class innovative products and services. Rolls-Royce is committed to helping the IAF gain the most value from their current and future fleets by applying the best practice it has learnt from supporting over 160 defence customers in 106 countries. SP

OEMs seek higher control of business

***Ram Prasad**, Managing Director, Rockwell Collins India*

***SP's M.A.I.* (SP's): What do you think about the 49 per cent FDI limit increased from 26 per cent recently?**
Ram Prasad: While the limit increase is not a major difference to Rockwell Collins and other investors, the changed mind set of the government is encouraging. As the FDI limit increases, it helps Rockwell Collins, and other companies, who want to invest more in India for development versus having to import directly and then work for offset credit. In the previous arrangement with only 26 per cent FDI, it was harder to justify investing in key technologies. Now that the limit has increased, we can begin to be more assured that we will benefit more from the investments, have more control of the products and manage our intellectual property more closely. Rockwell Collins welcomes this change and we are looking forward to even more favourable FDI changes in the future.

SP's: What all can your company offer to our country with this change, now, versus the past limit?
Prasad: Although it probably does not change the type of products we would sell to India, the change in the FDI limit could change the amount of work we do in country, the type of work, and the structure of our business arrangements.

We believe strongly in our strategy to partner with Indian companies to bring products and solutions to India. We are working with partners in India to customise and add value to our products, solutions and services to meet Indian customers' specific needs. This change in the FDI limit enables more equitable partnerships and allows us to explore different options for business models as we do in other countries, such as JVs, consortiums, teaming relationships and 100 per cent owned subsidiaries. This change is a step in the right direction.

The types of products we are bringing to India include: communications upgrades, network-centric warfare, avionics, commercial aircraft systems, business aircraft systems, aviation passenger processing systems, simulation and training, and service solutions.

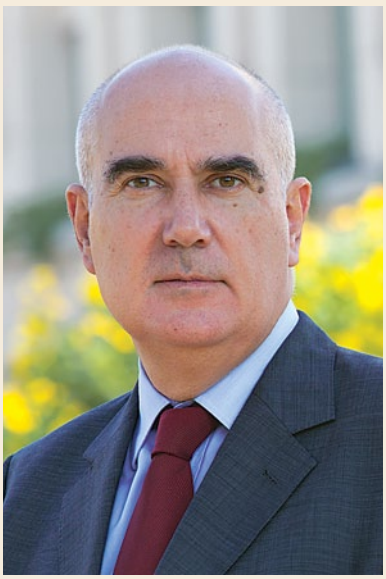
SP's: As on date can you brief us about your joint activities with Indian industry? And the business arrangements involved in these joint activities?
Prasad: In India, for defence applications, we are focused on communications, avionics, situational awareness solutions for helicopters, SATCOM, EW, and networking systems. Today we have radios, GPS and EW equipment on multiple military aircraft, including the following example customers:

- Our partnership with Electronics Corporation of India, Ltd (ECIL) for electronic counter-counter measure (ECCM) radio modules
- DO 228 communications and navigation equipment for Hindustan Aeronautics Limited for Indian Navy, Coast Guard and Air Force
- Various avionics and electronics packages for Indian Air Force C-130, C-17 and future helicopter programmes
- Communications and avionics on the India Navy's P-8I maritime patrol aircraft and new generation helicopter programmes

Teaming with Indian partners has been and will continue to be a key element in our strategy. During Aero India 2013, we announced our teaming with the TATA Strategic Electronics Division (SED) on pursuits related to Software Defined Radios. During Defexpo 2014, we announced that India-based Park Controls & Communications (P) Ltd. selected Rockwell Collins' new 721S Fixed Site Ground radio as an integral part of an advanced telemetry system for the Indian Air Force. Again, this is a good example of how we are partnering well with local companies.

In addition, with our acquisition of ARINC last year, we are also providing our suite of passenger processing technology to Terminals 1D and 3 of Indira Gandhi International Airport. India's Bureau of Immigration also uses Rockwell Collins' ARINC eBorders Advanced Passenger Information System (APIS) which allows them to review passenger information even before the aircraft lands at their destination airport, optimising efficiency and passenger flow and enhancing overall border security and control.

SP's: Why there seems to be a demand for 51 per cent FDI limit, still? Is that justified? Why?
Prasad: As I understand it, the demand is not for a higher number, but instead it is for higher control of business activities and decision making. For example, if FDI is 100 per cent then the decision making process is the easiest as it would lie entirely with one company's board to make all the decisions. It is important to also note that FDI inflow would be at its best if FDI limit is 100 per cent. On the flip side, we understand this is not ideal for the Government of India when at crucial times the decision made by a foreign OEM may not be completely in line with their interests. This is particularly of concern if the technology is critical to the country's security. So a solution is the one which lies in between these two limits. There are several proposals one can think of ranging from 51 to 76 per cent, having the key decision maker CEO be of Indian origin, build non-retraction clauses, etc. Here is an example that would work well for both the OEM and the government: 100 per cent FDI would qualify the OEM for an offset obligation through a local company. As long as the employees of the company are from the local population, and key deliveries are made for local consumption with clauses built in for non-retraction from business, then both the company and the Government of India benefit. SP



"Raising the FDI cap in defence to 49 per cent is a step in the right direction and we welcome it. However, we remain of the opinion that enhancing the cap further, i.e. allowing foreign OEMs to form joint ventures with local partners wherein the former have the management control, will help India attract even more cutting-edge technologies and valuable intellectual property in defence from abroad. Certain checks and controls can be built into such a policy so that India's strategic interests remain fully safeguarded. This approach will best serve India's defence indigenisation objectives and accelerate its emergence as a global production hub for defence equipment."

—Yves Guillaume, President of Airbus India Group

"We have been present in India for the past 60 years and are here to stay because we believe we can contribute to the development of the country in the various fields where our solution, technology, and capability can be used. That long-term commitment is only marginally a function of the legal and regulatory framework to which we simply have to comply. The recent increase in FDI cap is an important move for defining the modalities of our presence in India, but not for defining the interest we have in India.

Indeed, since 1953, Thales has proactively shared knowledge, technical know-how and expertise with the Indian industry. The company has created Joint Ventures with Samtel and BEL, among others. Thales has also been developing its local supply chain with 15 small businesses in India and plans to increase the list with 15 more this year – all that irrespective of the FDI cap level.

This said from a purely technical standpoint, we consider that the real game changer will be to allow 51 per cent of Foreign Direct Investment in the Indian Defense manufacturing companies. This would further enlarge the possibilities to locally develop technology for a company like Thales."

—Eric Lenseigne, Managing Director of Thales in India

LT GENERAL
P.C. KATOCH (RETD)

Accelerating indigenisation

Just before embarking on his visit to Japan, Prime Minister Narendra Modi has signaled another boost to indigenisation. The earlier decision to manufacture medium-level military transport aircraft in India has now been reinforced by the decision of manufacturing light utility helicopters (LUH) also in India instead of importing them. As per media reports, the global tender earlier issued for import of 197 LUH from abroad has been cancelled. This would give a further boost to the defence manufacturing industry.

However, at the moment it is not clear whether the Hindustan Aeronatics Limited (HAL) is permitted to go for joint venture (JV) for the LUH. HAL has been kept away from the medium-level military transport aircraft to be manufactured in India. The global tender for LUH was valued at ₹3,000 crore and had been issued in 2008 under the UPA Government but the selection process was embroiled in allegations of corruption and technical deviations. Significantly, such tender for LUH has been cancelled for the third time that will lead to further delay in replacing the ageing LUH fleets of the Indian Army and the Air Force. As per one media report, this move of manufacturing the LUH in India could result in generating business worth ₹40,000 crore, which would also include making up voids of the Army and the Air Force and also as replacement of some 197 Cheetah and Chetak helicopters in the Alouette category.

As per media reports, the Union Home Ministry is understood to have cleared a proposal from the Tata Group to produce helicopters in India. However, in replacing the Cheetah and Chetak helicopters, the size of the helipad required will need to be kept in mind. The current Dhruv (ALH) helicopter that too was envisaged to replace the Cheetah and Chetak helicopters has not been able to do so fully because it needs a helipad of larger dimensions and because of this cannot land at some of the forward posts, especially in high altitudes, on the Saltoro Range in the Siachen Glacier area.

The mood of indigenisation appears to be catching on with Tata, Reliance and Mahindra all taking steps to open military hardware production facilities in the country. It is estimated that it will take at least five years for the LUH production to start by the Tata Group. Therefore, the Army and Air Force will be expected to wait that much. But this may be ambitious considering that the Tata Group has little expertise in helicopter manufacture, will require time to set up the necessary infrastructure, acquire skilled personnel, plus it depends on how soon the JV can be established and which foreign firm can be roped in considering that the FDI upper limit remains at 49 per cent. Speed and quality will be definite requirements to fructify the Prime Minister's dream to make India an export destination for defence equipment. The government has also cleared the purchase of integrated anti-submarine suits for 11 frontline warships. The instrument which is now being developed by the Defence Research and Development Organisation (DRDO) is likely to cost the exchequer some ₹1,770 crore. With the best GDP growth in the last two-and-a-half years, the government has surely given the signal for indigenisation at the right time. All this boost to industrialisation will not only boost the GDP growth further but also create the much needed employment considering that we have some 4.68 crore of our population unemployed, bulk of which are youth.

It is well known that India is one of the biggest importers of defence equipment and nearly two percent of the country's GDP is spent on defence imports. The decision to make the LUH will give Indian firms assured orders and provided incentive for investing in R&D. Other projects include: acceptance of necessity for 118 Arjun Mark-II main battle tanks, with 89 upgrades at a cost of ₹6,600 crore; 40 self-propelled catapult gun systems on Arjun chasis at a cost of ₹820 crore; opening of commercial bids of European NH-90 helicopter (linked to Finmeccanica) and US Sikrosky-708 helicopter in race to supply 16 naval multi-role helicopters at a cost of ₹1,800 crore; midlife upgrade and life extension of four Kilo or Sindhughosh class (Russian) submarines and 2xHDW or Shiskumar class (German) submarines at a cost of ₹4,800 crore, and; dedicated army communication and mobile system for three Corps along the Sino-Indian border.

Concurrent to signaling boosting indigenisation, the government has also cleared the purchase of 15 x Chinook and 22 x Apache helicopters from the US at an estimated cost of ₹15,000 crore. This is a smart calibrated move that signals strengthening of the Indo-US strategic partnership further as a prelude to Prime Minister Modi's visit to the US and his scheduled meeting with President Barack Obama. It may be recalled that the US-India Defence Technology and Trade Initiative (DTTI) was launched last September at New Delhi and the US Deputy Defense Secretary had assured that the US aims to take the Indo-US defence relationship to the next level and help India raise the indigenisation of its defence systems. SP

PHOTOGRAPH: SPSC

US Deputy Defense Secretary had assured that the US aims to take the Indo-US defence relationship to the next level and help India raise the indigenisation of its defence systems.

Prime Minister Narendra Modi commissioned INS Kolkata into the Indian Navy at a glittering ceremony held at the Naval Dockyard in Mumbai

Kolkata and Kamorta – Pride of Indian Navy

[By **Ranjeet Kumar**]

Though the Prime Minister Narendra Modi has dedicated to the Indian Navy country's most modern and ferocious warship INS Kolkata on August 16 and later the Defence Minister Arun Jaitley on August 23 performed similar job for the INS Kamorta, the two warships will not dare to venture too far in the high seas during combat environment as they are still not equipped with defensive systems like the anti-missile and anti-aircraft missiles which are planned to be deployed. Like the delayed induction of the two warships in Indian Navy by a few years, the plan to deploy the defensive missile shield has also been delayed and are not likely to be fitted onto the deck of the warships before the end of the year.

But this should not demoralise the Indian strategic planners and observers, as the defensive systems are not too far away from deployment. When actually deployed, the warships will prowl in the high seas like lions in the jungle. These are the proud examples of modern shipbuilding in India with cutting-edge technology and design, which can rival any modern warship in the navies of developed world. After induction and with full complement of self-defensive and offensive missile systems, these two newly inducted warships will tremendously boost India's strategic capabilities in the high seas. The Kolkata can in fact effectively control an area of several hundred square kilometres and will be part of a carrier fleet of the Indian Navy.

Dedicating the destroyer to the Indian Navy, the Prime Minister said, "In the coming days INS Kolkata will inspire confidence to those involved in the maritime trade. Fighting a war and winning it has now become less difficult these days. But a modern military armed with state-of-the-art weaponry alone is a guarantee against war. When we are capable no one can dare challenge us."

The INS Kolkata is the lead ship of the Kolkata class guided missile destroyers. The contract for three ships of the Kolkata class was signed as a follow-on of the legendary Delhi class destroyers commissioned in the Indian Navy in the last decade. INS Kolkata

PHOTOGRAPHS: Indian Navy

has been designed by the Indian Navy's in-house organisation — the Directorate of Naval Design and constructed by the Mazagon Dock Limited, Mumbai. The three ships under the class have been christened after three Indian metro cities— Kolkata, Chennai and Kochi— contract for which was signed in June 2008 at a cost of about ₹11,682 crore.

According to the officials of the Naval Headquarters, the Kolkata class ships have been designed as a follow-on of the earlier Delhi class warship, but this is vastly superior and has made advancements in weapons and sensors. The Kolkata class destroyers incorporate new design concepts for improved survivability, sea keeping, stealth and ship manoeuvrability.

According to an official document, the warship has a displacement capacity of 6,800 tonnes with a length of 163 metres and 17.4 metres at the beam, is propelled by four gas turbines and designed to achieve speed in excess of 30 knots and has an endurance of 3,300 nautical miles. A bow-mounted sonar dome, the first of its kind in an indigenous naval warship, has been deployed to enhance sonar acoustic performance.

The INS Kolkata is packed with an array of latest weapons and sensors with significant indigenous contribution. The ship will have vertically launched missile system for long distance engagement (the BrahMos supersonic cruise missile) offshore and sea-based targets. The ship is one of few warships of the world and the first in the Indian Navy to have a multifunctional conformal array surveillance radar (MFR) to provide target data to link long-range surface-to-air missile systems (LRSAM). The MFR and LRSAM is a joint development project of the Defence Research and Development Organisation (DRDO) and Israel Aerospace Industries (IAI). This missile is yet to be deployed because of the delay in completing trials which are scheduled in late September this year and are likely to be cleared for deployment by the end of the year. These missiles will protect against incoming airborne and surface threats at medium and close in range. The ship also has 76mm and 30mm gun mounts.

The naval officials describe the ship as network of networks as it is equipped with auxiliary control system (ACS) ship data network (SDN), automatic power management system (APMS) and combat management system (CMS). While the remote control and monitoring of machinery is achieved through the AMCS, propulsion and power management is done using the APMS. The CMS performs threat evaluation and resource allocation based on the tactical picture compiled and ammunition available onboard. The SDN is the information highway on which data from all the sensors and weapons ride. The Kolkata class will have two Seaking 42B or Chetak helicopters.

While commissioning the warship INS Kamorta the Defence Minister Arun Jaitley described the development as "coming of age of our shipbuilding industry." Jaitley informed that at the moment, 42 warships are under construction in various shipyards of the country, which is a welcome sign of the health of the shipbuilding industry.

The anti-submarine warfare (ASW) class stealth corvettes have been built under Project 28 (P-28). It is the first indigenous anti-submarine stealth corvette built in India. The name Kamorta has been derived from an island which is part of the Nicobar Islands chain on north-east Indian Ocean. Designed by the Indian Navy's Directorate of Naval Design and built by the Garden Reach Shipbuilders and Engineers Ltd, Kolkata, the contract for four ships under this class was signed in June 2012 at a cost of about ₹7,800 crore.

Equipped with anti-air and anti-surface weapons, Kamorta has been constructed using high grade steel (DMR249A) produced in India. The short-range surface-to-air missiles will provide total self-protection. The ship is also equipped with active towed array decoy system (ATDS). With a displacement of 3,300 tonnes the ship is 109.1 metres long and 13.7 metres at the beam. The ship is propelled by four diesel engines to achieve speeds in excess of 25 knots and has an endurance of 3,450 nm. The P-28 Corvettes boasts of many "firsts" such as revolutionary rail less helo traversing system, foldable hangar door, use of personnel locator system and use of carbon fibre reinforced plastic (CFRP) superstructure integrated with the steel hull in the third and fourth ships of the class.

Enhanced stealth features have been achieved by X form of hull, full beam superstructure, inclined ship sides and use of infrared signature suppression (IRSS) system for cooling the engine and generator exhausts.

Kamorta's weapons and sensors suite is predominantly indigenous, showcasing the nations growing capability in developing and deploying high performance, sophisticated weapon systems and equipment. The ship's advanced stealth features make her less susceptible to detection. With a complement of 15 officers and 180 sailors INS Kamorta is well equipped to fight in nuclear, biological and chemical warfare conditions. SP

Defence Minister Arun Jaitley unveiling the plaque on commissioning of INS Kamorta; (Right) Arun Jaitley walks around onboard INS Kamorta along with Admiral R.K. Dhowan, CNS, Vice Admiral Satish Soni, C-in-C, Eastern Naval Command, Rear Admiral A.K. Verma (Retd) CMD GRSE Kolkata.

Indo-Israel agreements

The Ambassador of Israel to India Daniel Carmon called on the Union Home Minister Rajnath Singh in New Delhi recently. The two sides have Agreement on Homeland and Public Security, Agreement on Protection of Classified Materials & Information and Mutual Legal Assistance Treaty in Criminal Matters.

Ambassador Carmon said that Israel is looking forward to a meaningful cooperation with India in the area of homeland security. He said that the recently signed agreement is a step further in this direction.

The Home Minister welcomed the ceasefire in Gaza and hoped that it would usher in peace and tranquillity in the region that would be beneficial for both the sides. The Ambassador agreed with the Home Minister and indicated that the first priority of Israel is the reconstruction, rehabilitation and demilitarisation of Gaza so that peace and normalcy return to the region at the earliest.

The Ambassador has invited the Home Minister to attend the third Israel Homeland Security International Conference and Exhibition to be held in Tel Aviv during November this year. SP

PHOTOGRAPH: PIB

BSF briefs Home Minister on situation in Jammu & Kashmir

The Union Home Minister Rajnath Singh was briefed by the Director General of Border Security Force Devendra Kumar Pathak recently on the ground situation in the state of Jammu and Kashmir.

Pathak informed about the damage to assets of BSF as well as some damage caused to the civilians living close to the international border. The Home Minister was apprised of the deaths and injuries caused to the BSF and the civilians in the area. Rajnath Singh inquired about the morale of the forces deployed in the areas affected by Pak shelling. The Home Minister was informed that the morale of the forces was very high. It was further informed that the officers of BSF are in position on the ground along with the troops who are constantly being guided and supervised by the officers.

Rajnath Singh appreciated the efforts of the BSF in tackling the situation and assured full assistance of resources to the DG, BSF for taking appropriate action on the border. DG, BSF had visited the area on August 26, 2014, to take stock of the situation and to plan out further course of action. SP

Bangladesh delegation meets Home Minister

A Bangladesh delegation led by Major General Aziz Ahmed, Director General Border Guard Bangladesh (BGB) called on the Union Home Minister Rajnath Singh recently. The Bangladesh delegation is participating in 'Border Coordination Conference' between the BGB and Border Security Force (BSF) in New Delhi.

Devendra Kumar Pathak, Director General of BSF, appraised the Home Minister that the issues of common interest of both countries and forces like violence on the border, trans-border crime, smuggling of narcotics and FICN (faked Indian currency notes) are discussed. The two border forces also discussed action against the Indian insurgent groups and destruction of their hideouts, joint efforts for prevention of illegal migration and human trafficking of Bangladeshi nationals, effective implementation of coordinated border management plan for preventing trans-border crimes.

Rajnath Singh expressed his satisfaction on India-Bangladesh border situation as the two border forces are taking necessary confidence-building measures and are carrying out joint patrolling along the border. He mentioned that the two countries enjoy cordial relations and should continue mutual dialogue for strengthening bilateral relations. SP

India, Sri Lanka share notes on narcotics

The first Director General-level talks between Narcotics Control Bureau (NCB) of India and Police Narcotics Bureau (PNB) of Sri Lanka were held at New Delhi recently. Both sides shared the concern over growing menace of narcotic drugs and latest trends in narcotics smuggling in Indo-Sri Lankan sector.

The two sides also agreed to continue sharing of actionable intelligence and adopt a coordinated strategy to prevent drug trafficking between both the countries. In the present scenario of drug trafficking and in order to improve sharing of intelligence, assistance in investigations and prosecutions and targeting drug trafficking between the two countries in particular and the region in general was also agreed.

The India delegation was led by Vijay Kumar, Deputy Director General of NCB while the Sri Lankan delegation was headed by Pujith Jayasundara, Senior DIG/Northern Province, Sri Lanka.

The charter of the NCB includes implementation of the obligations under the various international conventions to which India is a signatory. The charter also provides to render assistance to the concerned authorities in foreign countries and concerned international organisations with a view to facilitating coordination and universal action for prevention and suppression of illicit traffic in narcotics drugs and psychotropic substances. SP

DG of CISF holds additional charge

O.P. Singh, presently Additional Director General, CISF will hold the additional charge of the post of Director General, National Disaster Response Force from September 1, 2014 till an incumbent to the post of Director General, NDRF is appointed on regular basis, or till further orders. SP

Defence Minister reviews submarine construction at MDL

Defence Minister Arun Jaitley accompanied by Admiral R.K. Dhowan, Chief of the Naval Staff, visited Mazagon Dock Limited, Mumbai, on August 27 and reviewed the progress of the Project 75 (indigenous submarine construction project) as well as the other ongoing warshipbuilding projects including P-15 B class stealth destroyers. The visit of Defence Minister within three months of taking over amply demonstrates the importance being accorded by the Government to the indigenous construction of submarines and warships.

During his visit the Defence Minister inaugurated the Mazdock Modernisation Project (MMP), which would significantly enhance the warship and submarine construction capability of the shipyard. Haskoning Nederland B.V. (HNBV), world renowned consultants in the field of marine construction, were appointed as consultant for this project. The major components created under MMP include a new Wet basin with level luffing cranes, 300-tonne Goliath Crane, Module Workshop, Stores Building, Shipyard transporter and Cradle & Assembly shop at a cost of ₹800 crore approximately.

It may be recalled that Project 75 submarine construction project is a very important project for the country and Indian Navy. Six state-of-the-art submarines fitted with latest equipment are being built at MDL, Mumbai under collaboration with DCNS France, giving a massive boost to the indigenous submarine construction capability of the country. With all the impediments and material hurdles resolved, the construction of the submarines is progressing on schedule to meet the planned delivery schedule of September 2016.

Presently, first three submarines of the project are in outfitting phase, and the systems of the first submarine are being 'Set to Work'. The Project is being reviewed at regular intervals at all levels at Naval Headquarters and Ministry of Defence (MoD) to gear up for the launch of the first submarine in September 2015. Preparations to induct these submarines are in progress and the selected crew has commenced training. The submarines will be initially based at Mumbai and shifted to operational base at Karwar after completion of trials. Necessary impetus is also being given by the government to create associated shore support facilities as per the long-term infrastructure perspective plan (LTIPP). SP

Hervé Guillou becomes Chairman & Chief Executive Officer of DCNS

French President François Hollande has ratified the proposal of the DCNS Board of Directors to appoint Hervé Guillou as Chairman of the Group's Board of Directors and to delegate to him the duties of Chairman and Chief Executive Officer.

Hervé Guillou said: "I am honoured and proud to return to DCNS, which my predecessors and their teams have successfully transformed into an industrial company with ambitious new strategic objectives. Today DCNS is a world leader in naval defence and growing its business in a number of new markets. I know DCNS because I started my career here and have worked with the naval sector throughout my professional life. I share the organisation's core values and admire its technical know-how and its capacity to manage complex industrial programmes. I have full confidence in the talent of its people and their ability to successfully meet the operational and strategic challenges of the coming years and pursue the company's growth and development goals profitably both in France and internationally."

Hervé Guillou began his career in 1978 at the Direction des Constructions Navales (DCN), first in Cherbourg and later at the Nantes-Indret establishment. In 1989 he joined the French defence procurement agency (DGA) in Paris as Chief of Staff. In 1993, Hervé Guillou was appointed Programme Manager for the Horizon international tripartite anti-air warfare frigate programme (United Kingdom, Italy, France). In 1996, he became Managing Director of Technicatome, the nuclear engineering subsidiary of Areva. He joined EADS in 2003 as Chief Executive Officer of EADS Space Transportation, the Franco-German business unit in charge of the Ariane launcher programme and the M51 ballistic missile programme. In 2005, Hervé Guillou became CEO of the Munich-based Defence & Communication Systems business unit of EADS/Cassidian (later renamed Cassidian Systems). In 2011 he founded Cassidian Cybersecurity and became Chief Executive Officer. From September 2012 until January 2014, Hervé Guillou was Senior Advisor Defence & Security at EADS. He was appointed Chairman & Chief Executive Officer of DCNS on July 23, 2014.

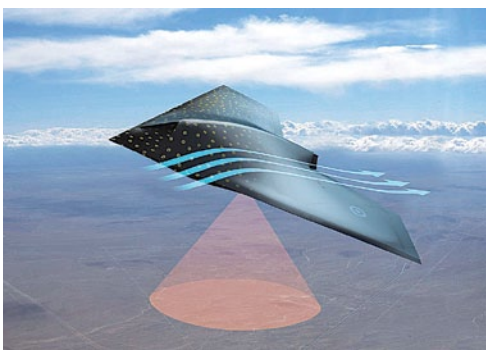
Hervé Guillou is a graduate of Ecole Polytechnique, ENSTA ParisTech (École Nationale Supérieure de Techniques Avancées), INSTN (Institut National des Sciences et Techniques Nucléaires) and INSEAD, and is certified by the Institut Français d'Administration at Sciences-Po. SP

PHOTOGRAPHS: Indian Navy, DCNS

Aircraft set to become more human as engineers develop smart skin which can detect injury

Work is underway at BAE Systems to give aircraft human-like 'skin,' enabling the detection of injury or damage and the ability to 'feel' the world around them.

Engineers at BAE Systems' Advanced Technology Center are investigating a 'smart skin' concept which could be embedded with tens of thousands of micro-sensors. When applied to an aircraft, this will enable it to sense wind speed, temperature, physical strain and movement far more accurately than current sensor technology allows.



The revolutionary 'smart skin' concept will enable aircraft to continually monitor their health, reporting back on potential problems before they become significant. This would reduce the need for regular check-ups on the ground and parts could be replaced in a timely manner, increasing the efficiency of aircraft maintenance, the availability of the plane and improving safety.

These tiny sensors or 'motes' can be as small as grains of rice and even as small as dust particles at less than 1mm square. Collectively, the sensors would have their own power source and when paired with the appropriate software, be able to communicate in much the same way that human skin sends signals to the brain. The sensors are so small that we are exploring the possibility of retrofitting them to existing aircraft and even spraying them on like paint.

Leading the research and development is Senior Research Scientist Lydia Hyde whose 'eureka' moment came when she was doing her washing and observed that her tumble dryer uses a sensor to prevent it from overheating.

Lydia said: "Observing how a simple sensor can be used to stop a domestic appliance overheating, got me thinking about how this could be applied to my work and how we could replace bulky, expensive sensors with cheap, miniature, multifunctional ones. This in turn led to the idea that aircraft, or indeed cars and ships, could be covered by thousands of these motes creating a 'smart skin' that can sense the world around them and monitor their condition by detecting stress, heat or damage. The idea is to make platforms 'feel' using a skin of sensors in the same way humans or animals do.

"By combining the outputs of thousands of sensors with big data analysis, the technology has the potential to be a game-changer for the UK industry. In the future we could see more robust defence platforms that are capable of more complex missions whilst reducing the need for routine maintenance checks. There are also wider civilian applications for the concept which we are exploring."

This research is part of a range of new systems we are investigating under a major programme exploring next-generation technology for air platforms. SP

PHOTOGRAPH: BAE Systems

Ground X-Vehicle technology aims to break the 'more armour' paradigm for protection

For the past 100 years of mechanised warfare, protection for ground-based armoured fighting vehicles and their occupants has boiled down almost exclusively to a simple equation: More armour equals more protection. Weapons' ability to penetrate armour, however, has advanced faster than armour's ability to withstand penetration. As a result, achieving even incremental improvements in crew survivability has required significant increases in vehicle mass and cost.

The trend of increasingly heavy, less mobile and more expensive combat platforms has limited Soldiers' and Marines' ability to rapidly deploy and manoeuvre in theatre and accomplish their missions in varied and evolving threat environments. Moreover, larger vehicles are limited to roads, require more logistical support and are more expensive to design, develop, field and replace. The US military is now at a point where—considering tactical mobility, strategic mobility, survivability and cost—innovative and disruptive solutions are necessary to ensure the operational viability of the next-generation of armoured fighting vehicles.

The Defense Advanced Research Projects Agency (DARPA) has created the GXV-T programme to help overcome these challenges and disrupt the current trends in mechanised warfare. GXV-T seeks to investigate revolutionary ground-vehicle technologies that would simultaneously improve the mobility and survivability of vehicles through means other than adding more armour, including avoiding detection, engagement and hits by adversaries.

"GXV-T's goal is not just to improve or replace one particular vehicle—it's about breaking the 'more armour' paradigm and revolutionising protection for all armoured fighting vehicles," said Kevin Massey, DARPA Program Manager. "Inspired by how X-plane programmes have improved aircraft capabilities over the past 60 years, we plan to pursue groundbreaking fundamental research and development to help make future armoured fighting vehicles significantly more mobile, effective, safe and affordable."

GXV-T's technical goals include the following improvements relative to today's armoured fighting vehicles: Reduce vehicle size and weight by 50 per cent, reduce onboard crew needed to operate vehicle by 50 per cent, increase vehicle speed by 100 per cent; access 95 per cent of terrain and reduce signatures that enable adversaries to detect and engage vehicles.

DARPA aims to develop GXV-T technologies over 24 months after initial contract awards, which are currently planned on or before April 2015. SP

Toddler delays Obama speech

The United States President Barack Obama was about to address the nation on Iraq recently when the briefing was delayed because of a security breach on the North Lawn of the White House. A toddler was the reason for the delay, making the US President, the press corps and the nation to wait, till he was 'hauled' up.

The little boy managed to squeeze himself between the bars of the White House fence, just before the briefing was expected to start. It forced a temporary lockdown. It didn't take long to resolve the matter and he's now back with his parents.

"We were going to wait until he learned to talk to question him, but in lieu of that he got a timeout and was sent on way with parents," according to Edwin Donovan, spokesman for the United States Secret Service. As of now the toddler's parents are talking about he managed to escape their eye and squeezed through the fence. SP

PHOTOGRAPH: Wikipedia

UPS data breach

UPS Stores, a subsidiary of United Parcel Service, said that a security breach may have led to the theft of customer credit and debit data at 51 UPS franchises in the United States recently.

Chelsea Lee, a UPS spokeswoman, said the company began investigating its systems for indications of a security breach on July 31, the day *The New York Times* reported that the Department of Homeland Security and the Secret Service would be issuing a bulletin warning retailers that hackers had been scanning networks for remote access capabilities, then installing the so-called malware that was undetectable by antivirus products.

UPS hired an information security firm and discovered that the malware was on its in-store cash register systems at 51 of its locations in 24 states, roughly 1 per cent of UPS's 4,470 franchises throughout the United States.

In a statement, the company said that customers who had used their debit or credit cards at affected locations, which are listed on the UPS website, from January 20 to August 11, 2014 may have been exposed to the malware, though it said exposure began after March 26 in most cases. UPS said it had eliminated the malware as of August 11.

"I understand this type of incident can be disruptive and cause frustration. I apologise for any anxiety this may have caused our customers. At the UPS Store, the trust of our customers is of utmost importance," said Tim Davis, President of the UPS Store, in a statement. "As soon as we became aware of the potential malware intrusion, we deployed extensive resources to quickly address and eliminate this issue."

The breach at the UPS Store is just the latest in a string of similar cyber attacks on the in-store payment systems at major American corporations, including Target, P.F. Chang's, Neiman Marcus, Michaels, Sally Beauty, and, most recently, the Supervalu and Albertsons grocery stores.

In each case, criminals scanned for tools that typically allow employees and vendors to work remotely, then broke into them and used their foothold to install malware on retailers' systems. That malware, in turn, fed customers' payment details back to the hackers' computer servers. SP

Indiana University reports potential data exposure

In February this year, Indiana University notified the Indiana Attorney General's office of the potential exposure of personal data for some students and recent graduates. The data potentially at risk for disclosure includes names, addresses and Social Security numbers for approximately 1,46,000 students and recent graduates across seven IU campuses who attended the university from 2011 to 2014.

Unlike recent high-profile data breaches, however, no servers or systems were compromised. The information was not downloaded by an unauthorised individual looking for specific sensitive data, but rather was accessed by three automated computer data mining applications, called webcrawlers, used to improve web search capabilities.

Immediately upon discovering the potential issue, IU secured the data, and the university has no evidence that the files have been viewed or used for inappropriate or illegal purposes. As a precaution, however, the university will begin notifying all affected students of the possible data exposure this week.

"IU takes the security of all its data, especially the personal information of its students, extremely seriously and apologises for any concern this issue may cause among our students and their families," said John Applegate, Executive Vice President for University Academic Affairs. "The university also is committed to assisting those whose information was potentially exposed." SP

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