OSAMA AND BEYOND: A VIEWPOINT

SP's

AN SP GUIDE PUBLICATION

ISSN 2230-9268

₹55.00 (INDIA-BASED BUYER ONLY)

MAI

ONLY FORTNIGHTLY ON
MILITARY
AEROSPACE
INTERNAL SECURITY

www.spsmai.com

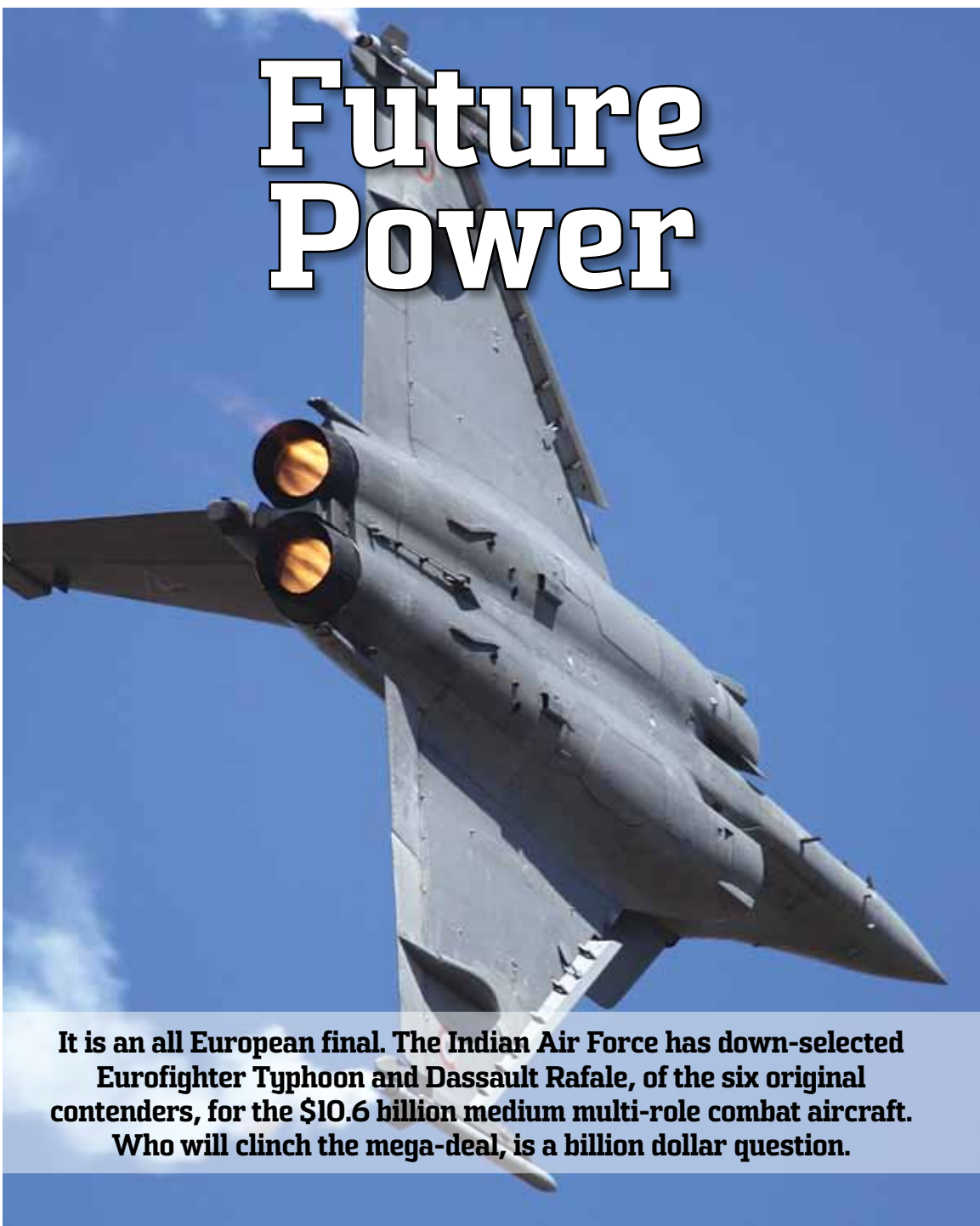
May 1-15 • 2011





DELENG/2010/34651

# Future Power



**It is an all European final. The Indian Air Force has down-selected Eurofighter Typhoon and Dassault Rafale, of the six original contenders, for the $10.6 billion medium multi-role combat aircraft. Who will clinch the mega-deal, is a billion dollar question.**


**Cover:**
*It is an all European final. The Indian Air Force has down-selected Eurofighter Typhoon and Dassault Rafale (on the cover), of the six original contenders, for the $10.6 billion medium multi-role combat aircraft. Who will clinch the mega-deal, is a billion dollar question.*

*Cover Image: Wg Cdr (Retd) R.S. Chauhan*

PUBLISHER AND EDITOR-IN-CHIEF
Jayant Baranwal

ASSISTANT GROUP EDITOR
R. Chandrakanth

SR TECHNICAL GROUP EDITORS
Air Marshal (Retd) B.K. Pandey
Air Marshal (Retd) V.K. Bhatia
Lt General (Retd) Naresh Chand
Lt General (Retd) V.K. Kapoor
R. Adm (Retd) S.K. Ramsay

SPECIAL CONTRIBUTOR
Lt General (Retd) P.C. Katoch

SR COPY EDITOR & CORRESPONDENT
Sucheta Das Mohapatra

CHAIRMAN & MANAGING DIRECTOR
Jayant Baranwal

ADMIN & COORDINATION
Bharti Sharma
Survi Massey

PHOTO EDITOR
Amit Bhardwaj

DESIGN & LAYOUT
Senior Art Director: Anoop Kamath
Designers: Vimlesh Kumar Yadav, Sonu Bisht

DIRECTOR SALES & MARKETING
Neetu Dhulia

SALES & MARKETING
Head Vertical Sales: Rajeev Chugh

SP'S WEBSITES
Sr Web Developer: Shailendra P. Ashish
Web Developer: Ugrashen Vishwakarma



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

E-mail: subscribe@spsmai.com

LETTERS TO THE EDITOR
editor@spsmai.com

FOR ADVERTISING DETAILS, CONTACT:
advertise@spsmai.com
guidepub@vsnl.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: guidepub@vsnl.com

POSTAL ADDRESS
Post Box No 2525
New Delhi 110 005, India.

REPRESENTATIVE OFFICE
534, Jal Vayu Vihar
Kammanhalli Main Road
Bengaluru 560043, India.
Tel: +91 (80) 23682534

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


**SP GUIDE PUBLICATIONS**
www.spguidepublications.com

# Osama killed, hope al-Qaeda movement is next

As we were going to press, the world was abuzz with the news of the killing of Osama bin Laden, the Al-Qaeda leader and the chief architect of the September 11 attacks on the US. If it is true (we presume it is true as the announcement was made by none other than the US President, Barack Obama), we do hope that the Al-Qaeda movement will find a similar fate. Talibanisation of Pakistan and Afghanistan have been having security ramifications in India and the Home Minister, P. Chidambaram has reiterated India's concern of how Pakistan continues to be a "sanctuary" for terrorists.

With the growing threat perception, India has embarked upon modernisation of armed forces and the last week of April had headline-grabbing news on the down-select of vendors for the 126 medium multi-role combat aircraft (MMRCA). Of the six contenders, the Ministry of Defence has shortlisted two Europeans—Eurofighter Typhoon and Dassault Rafale. The developments need to be closely monitored.


Dr V.K. Saraswat, Scientific Adviser to Defence Minister, releasing the latest issue of SP's MAI at the NCW Seminar in the presence of the Chairman and Managing Director of SP Guide Publications.

While the Americans have lost out on the mega-deal, they do understand that the Indian defence and aerospace market is burgeoning and have to be around for the long-haul. Only recently, did the Americans make a breakthrough in military aircraft when the Indian Air Force got delivery of the C-130J Super Hercules transport aircraft, a turning point, according to Air Marshal (Retd) B.K. Pandey.

In his fortnightly viewpoint, Lt General (Retd.) P.C. Katoch has not minced words on bringing to book the former dictator of Pakistan, General Pervez Musharraf for 'complicity' in Taliban operations in Pakistan. In another viewpoint on nuclear safety, the General has suggested thorium-based nuclear reactors instead of uranium as in the former there is no possibility of a 'meltdown'.

In this issue, we have a comprehensive report on the seminar we jointly organised with the Centre for Land Warfare Studies (CLAWS) on "Network Centric Warfare: The Indian Context". Inaugurating the conference, the Scientific Adviser to the Minister of Defence and head of Defence Research and Development Organisation (DRDO), Dr V.K. Saraswat, underlined how the future battlespace will be dominated by those having edge in network centricity. SP

**Jayant Baranwal**
Publisher and Editor-in-Chief

# Network Centric Warfare is a "key enabler": Seminar


Lt General P. Mohapatra, Signal Officer-in-Chief delivering the valedictory address. A section of the audience

There is a groundswell of support among the higher echelons of power for speedy deployment of network centric warfare (NCW) systems, borne out of a robust homegrown network. At a seminar on "NCW in the Indian Context", organised jointly by SP Guide Publications and the Centre for Land Warfare Studies (CLAWS), eminent speakers, including Dr V.K. Saraswat, Scientific Adviser to the Defence Minister; Lt General N.B. Singh, Director General Information Systems; Lt General P. Mohapatra, Signal Officer-in-Chief and others were unanimous on how NCW would be a "key enabler" in the emerging battlefield scenario.

The Scientific Adviser who inaugurated the well-attended seminar, set the tone by stating that NCW is evolutionary and that it should be treated as 'an enabler and not as the main tool.' A force with NCW capability will easily transform itself to a seamless, network-enabled information age force. Information advantage provides a decisive warfighting advantage, with its shared battle-awareness, speed of command and rapid knock-out capability. NCW is based on a network and the nation is on course to deploy the next generation network (NGN).

Mentioning how different technologies such as satellite communication; mobile ad hoc network; active array digital radars etc had been deployed, Dr Saraswat underlined the importance of security architecture in all the technologies.

Dr Saraswat released the latest issue of *SP's MAI*, a fortnightly which addresses security concerns.

Brigadier (Retd) Gurmeet Kanwal, Director, CLAWS, welcomed the gathering.

The Chairman and Managing Director of SP Guide Publications, Jayant Baranwal, in his vote of thanks, underscored the importance of NCW in the emerging threat scenarios in India.

## Security Concerns

In the session on NCW and the Indian Armed Forces: Present Status and Concerns, Lt General N.B. Singh stated that the Indian Army had embarked upon NCW and was factoring risk-mitigation strategies. Mentioning how import of electronic equipment, particularly from "our adversaries" increased security risks, he said one of the adversaries (referring to the Chinese) had over 4,00,000 hackers and "we have to be prepared for this".

Major General (Retd) D.V. Kalra, former ADG IS said NCW increased intelligence and surveillance capabilities; enhanced weapon deployment (increased lethality) and seamlessness. With NCW the means of surveillance and the means of engagement had become decisive.

Colonel K.P.M. Das of Cisco said the procurement conundrum would continue in India and one had to be prepared to the delayed introduction of tactical communications system (TCS). As for NCW, he drew an analogy with football where it is not just a technology-game but a mind-game as well. He mentioned that over 90 per cent of C4ISR platforms were on Cisco.

Brigadier L.B. Chand, Deputy Assistant Chief of Integrated Defence Staff (DAC IDS) dwelled on tri-services effects-based operations (EBO) and how it incorporated the behavioural element (political, economic and cultural), but for this it was as good as netcentric operations. Giving the example of EBO, first deployed on January 17, 1991 in Iraq, he said the operations worked simultaneously, paralysing different elements of the opponents.

PHOTOGRAPHS: SP Guide Pubns

# Indian Operating System in three years: Saraswat, DRDO Chief

*With security concerns running high, the government has tasked several agencies, including the DRDO, for speedy deployment of India's own Operating System. The Indian Operating System (IOS) should be in place in about three years time (2014), according to* ***Dr V.K. Saraswat, the Scientific Adviser to the Defence Minister and the Director General of Defence Research and Development Organisation (DRDO)****.*

*In an interview on the sidelines of a seminar on Network Centric Warfare (NCW), organised jointly by SP Guide Publications and the Centre for Land Warfare Studies, the DRDO chief lays emphasis on indigenisation.*

[ By **R. Chandrakanth** ]

**SP's: You have pointed out on several occasions that import of key technologies runs a high risk of security vulnerability, what then is the solution?**
**Saraswat:** In one word, indigenisation. But that does not happen overnight. It is a continuous effort and the security agenda of the nation is well enunciated. There will be no compromise on security at any cost. We are all working in that direction.

**SP's: What is the status of network centric warfare in India?**
**Saraswat:** The focus now is on next generation network (NGN) which encompasses video telephony, video surveillance, voice over Internet protocol (VoIP), etc. We are almost there with deployments of software defined radios, versatile cellular technologies etc. NGN which is a packet-based network will provide telecommunication services to users. Different groups are working on waveform development. And NCW's success depends on NGN. The military NGN architecture will have multiple layers of convergence—wireless; radars; advanced computing. India has transitioned from 'single' blocks to full active array digital radars. All the sensors are NCW-enabled. We must understand that NCW is a key enabler and not the whole in itself.

**SP's: What are the areas of concern in NGN security?**
**Saraswat:** Most of our equipment, including military, is imported. The vulnerability to attacks, jamming, etc is high. We have launched a programme for indigenisation of telecommunication equipment such as routers, operating systems etc. We have also embarked upon a programme for an Indian Operating System (IOS), an open source architecture and this should be in place in three years time. Whatever the programmes, security architecture for NGN has been a prime factor as the risks to the systems include by way of disruption, interruption, corruption etc.

There are many agencies involved in the development of a robust operating system and DRDO is one of them, besides key academic institutions. A software development centre has been set up in Delhi for the same. SP

In the session on 'Future Prospects and Challenges for NCW', Lt General (Retd) V.K. Kapoor and Editor of SP Guide Publications, who chaired the session, said with nuclear deterrence in the region, the likelihood of a large-scale war is limited, but there would be other disturbances/skirmishes. These forces need to get ready and NCW would substantially assist in their operations. "Think big with smaller forces," he quipped.

Air Vice Marshal (Retd) D.N. Ganesh said network centric operations would entail global awareness; global tools and communication and global decision-making (as it will be transparent). However, he cautioned that there were perils of emulating the US example.

Harvinder Singh Rajwant of Cisco highlighted how cyber warfare had assumed dangerous dimensions. Even networks such as that of the army are not threat-proof and with the opening up of networks, the threat potential was increasing.

Wing Commander (Retd) Arif Khan of Ericsson talked about leveraging COTS (commercial off the shelf) technologies from the civilian domain to the military domain through customisation.

## Valedictory Session

Lt General P. Mohapatra, Signal Officer-in-Chief, said net centricity is not a goal in itself and that it is ever evolving. "It is about networking," he said and cautioned that there was possibility of information overload which would reduce the speed of decision-making. This had to be guarded against. On interoperability between the tri-services, he said if a network is in place, it would be a great driver for jointness. "Once the defence communication network is there, it would bring about tri-services integration." SP

PHOTOGRAPH: SP Guide Pubns

## Antony asks top brass not to succumb to corrupt practices

The Defence Minister, A.K. Antony has called upon the top brass of the Army and Air Force not to succumb to corrupt practices indulged by vested interests in the garb of 'aggressive marketing'. Addressing the commanders of the two Forces separately here, Antony asked them to strive for probity and fair play in their day-to-day dealings.

"Time and cost overruns apart, there is always the danger of falling prey to corrupt practices perpetrated by vested interests in the garb of aggressive marketing. I strongly urge you all to stand guard with resolve against any such overtures. You must strive to uphold sincerity, probity and fair play, even in your day to day administrative work", Antony told Army commanders.

Political disturbances in West Asia and North Africa have forced fresh challenges for global security. Any adverse developments will without doubt have a far reaching effect on the energy security and overall security of the nations across the world. Antony said that the government remains fully committed to the modernisation of the Armed Forces and upgrading of infrastructure.

"For far too long, we have remained over dependent on foreign equipment." Stating that "no nation will ever part with its first generation equipment," he observed that modernisation and indigenisation must proceed apiece. "If our efforts to achieve self-reliance are to assume greater relevance, our soldiers, scientists and the defence industry must regularly consult each other—at every stage of designing, manufacturing and production of equipment to minimise procedural delays and understand each other's requirements."

Speaking to the Air Force Commanders earlier Antony said, "At times, vested interests bring about unnecessary pressure and resort to corrupt practices that can wreak serious havoc upon our security in more ways than one. We must resist such efforts collectively and resolutely in national interests. Even though I have full faith in your capacity and ability to uphold our security interests, I strongly urge you to remain vigilant, cautious and alert to any wrongdoing at all times." SP

PHOTOGRAPH: PIB

## Harris introduces tactical 3G cellular network-in-a-box for warfighters

Harris Corporation has introduced KnightHawk 3G — a ruggedised, highly mobile tactical base station that enables warfighters on the move to maintain 3G cellular services in locations with limited or no cellular connectivity.

Jointly developed by Harris and Battlefield Telecommunications Systems (BTS), KnightHawk 3G is a customisable cellular network-in-a-box (NIB) compatible with commercial off-the-shelf (COTS) equipment, including smartphones and tablets. Each KnightHawk 3G is installed with BTS Praefectus mission management software, which automates configuration and management of the cellular network, and enables each KnightHawk to operate autonomously or as a scalable network with hundreds of nodes for increased range. This compatibility allows users in the battlefield to leverage existing applications, thereby enabling them to track a team's location, automatically translate foreign languages, and conduct remote training using existing advanced programmes.

KnightHawk 3G features UMTS high speed packet access, providing extremely fast connectivity of 14.4 mbps for downloads and up to 5.76 mbps for uploads. SP

## DRS gets certification for Armor X10gx

DRS Technologies has announced that the Armor X10gx rugged tablet computer has been approved for connectivity on the Sprint 3G network. This certification will enable Armor customers that utilize the integrated WWAN capabilities of the X10gx on Sprint's network to experience the benefits of a seamless data and communication exchange.

The computer met several technical requirements to achieve certification on Sprint's network. The fully rugged tablet was tested in key functional areas, including: antenna performance, network selection, network impact, regulatory confirmation, and data connection management.

"This certification demonstrates our commitment in offering robust rugged mobile solutions, especially given Sprint's industry-leading open approach to product development," said Mike Sarrica, Vice President and General Manager of DRS Tactical Systems. "Strong connectivity is a critical requirement of the mobile workforce, which is among several benefits the Armor X10gx offers."

It features a range of connectivity options that go beyond WWAN, including Bluetooth wireless, integrated GPS, and 802.11 a/g/n WiFi. With a weight of just 4.7 lbs., it is designed for those mission-critical tasks that require connectivity, mobility, ease of use and the durability to support all-weather operations. SP

## DCNS begins trials of frigate Aquitaine

One month early, DCNS begins the sea trials of the Aquitaine, the first ship built under the FREMM multimission frigate programme. The campaign takes place off the Brittany peninsula and is expected to last several weeks including return trips to DCNS's shipyard. Delivery to the French Navy is scheduled for 2012.

The joint crew comprising French Navy personnel, customer representatives and employees of DCNS and its partners will demonstrate the ship's seakeeping and other nautical qualities as well as the performance of the propulsion and navigation systems.

FREMM frigates are among the most technologically advanced and competitively priced on the world market. These heavily armed warships are being built under DCNS prime contractorship to carry state-of-the-art weapons and systems including the Herakles multifunction radar, MdCN deep-strike cruise missiles, Aster anti-air missiles, Exocet MM40 anti-ship missiles and MU90 torpedoes. SP

## US firm to acquire DRDO's technology for explosive detection kit

Crowe & Company has entered into a licensing agreement with Defence Research and Development Organisation (DRDO) to acquire the technology of explosive detection kit developed by the High Energy Material Research Lab (HEMRL), Pune, one of the constituent laboratories of DRDO. A memorandum of understanding was signed by Dr Subhananda Rao, Director HEMRL on behalf of DRDO, and Faye Crowe, President, Crowe & Company.

HEMRL has developed the kit for quick detection and identification of explosives that can detect and identify explosives based on any combination of nitro esters, nitramines, trinitrotoluene (TNT), dynamite or black powder. The testing requires only three to five mg of suspected sample and about four drops of reagents. The explosive detection kit comes packed in a box the size of a vanity case and in miniature vials that can be kept in shirt pockets. It contains reagents capable of detecting explosives, even in extremely small, trace quantities."

Dr Prahlada, distinguished Scientist & Chief Controller R&D (Aeronautics & Services Interaction), DRDO, said, "The present technology can also be helpful to control illegal trafficking of the explosive materials as it can equally detect and identify explosive materials in the pre- and post-blast scenarios."

Dr Subhananda Rao said the security forces now can instantly identify the explosive that was used for the detonation in the aftermath of a blast. They just have to take a sample of the residues from the scene of the crime and test it against the chemicals given in the kit. The change in colour tells them if the explosive used is RDX, TNT, PETN or any other chemical.

Faye Crowe said that after getting the necessary approvals from the US regulatory institutions they are planning to introduce the explosive detection kit to the US army and US homeland security forces and in other international markets. SP

PHOTOGRAPHS: DCNS & US Navy

## Raytheon BBN Technologies to improve command and control systems

Raytheon BBN Technologies has been awarded $10 million in defence funding to develop technical solutions that will help maintain command and control systems' superiority.

The Defense Advanced Research Projects Agency (DARPA) award, issued under the resilient command and control (RC2) programme, is part of an effort to develop technologies for complex command and control information systems.

The programme goal is to enhance mission assurance through better situational awareness, greater insight into the impact of changes that occur during missions, and adaptive replanning.

John Zinky, Principal Investigator, Raytheon BBN Technologies, said, "Government operations rely on large-scale, distributed and complex computer systems to complete their missions successfully. Under the RC2 programme, we will develop technologies to assess and mitigate the mission-related impact of anomalous behaviour in these computer systems regardless of cause. This ambitious programme will contribute to maintaining government and military command and control systems' superior performance." SP

# Europeans in MMRCA finals

*IAF shortlists Eurofighter and Dassault Rafale*

[ By **Sucheta Das Mohapatra** ]

The Indian Air Force (IAF) has made its choice clear on the medium multi-role combat aircraft (MMRCA) deal. Of the six contenders in the $10.6 billion MMRCA race, French fighter Dassault Rafale and Eurofighter Typhoon, built by European consortium EADS Cassidian, Finmecanica and BAE Systems – have been shortlisted. The Ministry of Defence (MoD) has asked the two European companies to extend validity of their commercial bids for the 126 jet fighter contract.

The IAF tested the six programmes —Eurofighter Typhoon; Dassault Rafale; Lockheed Martin F-16IN Super Viper; Boeing F/A-18E/F; Saab Gripen and UAC's MiG-35 on 643 parameters during the field evaluation tests and the European fighters met most of the parameters. The decision came only a day before the commercial bid of the six contenders was due to expire on April 28.

Air Chief Marshal (Retd) S. Krishnaswamy

Air Chief Marshal (Retd) F.H. Major

The down-selection of the European fighters has invited disparagement among critics who are of the view that it could be a political decision not to go for the US programmes.

## Former Chiefs' Reaction

Speaking on condition of anonymity a former Chief of the Air Staff said there could be reasons other than not meeting the technical standards, it could be a political decision as well. "I still consider the US made Boeing F/A-18 and Lockheed Martin F-16IN the best. And if I were asked to select between Eurofighter and Dassault Rafale, I would go for Rafale," he said.

But former Air Chief Marshal (Retd) S. Krishnaswamy denied any political interference and said, "The IAF's choice is based on technical evaluation. It is quite straightforward and there is nothing political about it. It is just a process; the other programmes (US and Russian) were falling short in the technical standards needed by the IAF. It is good that there is

PHOTOGRAPHS: Boeing, Eurofighter Typhoon, SAAB & Anoop Kamath (ILLUSTRATION)

## Boeing seeks a debrief on MMRCA shortlist

Boeing has expressed that it was "obviously disappointed" with the news that it was not on the shortlist for India's medium multi-role combat aircraft. In a statement Boeing said, "Our next step is to request and receive a debrief from the Indian Air Force. Once we have reviewed the details, we will make a decision concerning our possible options, always keeping in mind the impact to the Indian Air Force."

"We believe we offered the Indian Air Force a fully compliant and best-value multi-role aircraft for the defined mission. We will continue to look for opportunities to help India modernise its armed services and enhance its aerospace industry." SP

progress in the MMRCA competition. The commercial negotiations will start now."

Former Chief of the Air Staff Air Chief Marshal (Retd) F.H. Major was also of a similar view. "The IAF has diligently completed the evaluation and selection process keeping in the mind the capabilities required in the medium multi-role combat aircraft. Eurofighter Typhoon and Dassault Rafale were found compliant with the IAF requirements. Many factors are taken into consideration during the technical evaluation and flying tests including life cycle maintenance, other facilities, etc. It was a pure selection process, political and commercial negotiations will start now," he opined. SP

**Eurofighter Typhoon Overview**

| | |
|---|---|
| OEM | EADS, BAE Systems, Finmeccanica - Europe |
| Aircraft | Eurofighter Typhoon |
| Year of 1st delivery | 2004 |
| Countries operating | Germany, UK, Italy, Spain, Austria, Saudi Arabia |
| Countries ordered | Germany, UK, Italy, Spain, Austria, Saudi Arabia |
| Unit sales as of April 30, 2011 | 707 |
| Order book | 447 |
| Generation | 4th Generation |
| Competitive Edge | Eurofighter is unmatched regarding its operational capabilities, agility, flexibility and affordabilty over the entire service life with outstanding life cycle costs. |
| Wars involved in | Libya |
| Crashes, if any | 2 |
| Highpoint in one sentence | Eurofighter Typhoon is currently the most modern combat aircraft available on the world market providing its customers unique multi-role capabilities for today's and future defence scenarios. |

*Source: Cassidian / Eurofighter Typhoon*

# Saab to closely monitor MMRCA developments

The President and CEO of Saab, Hakan Buskhe has said, "We are offering India a world class next generation fighter aircraft at a very competitive price and an extensive technology transfer programme. We have received this decision and will closely monitor the future process and provide additional information if requested by the Indian Ministry of Defence. We are confident that the Gripen system is the perfect match for the Indian Air Force as well as meeting the highest requirements for the international markets."

India is one of Saab's most important markets. For example, Saab recently announced an investment in a research and development centre in India. "We are committed to the Indian market and continue our plans for growth and see huge business opportunities in the aerospace, defence and security sectors," added Håkan Buskhe.

Gripen is in service with the Swedish, Czech Republic, Hungarian, South African and Royal Thai Air Forces. The UK Empire Test Pilots' School (ETPS) is operating Gripen as its advanced fast jet platform for test pilots worldwide. SP


# IAF needs airlift

[ By **Air Marshal (Retd) B.K. Pandey** ]

The induction of the first of the six C-130J Super Hercules aircraft from Lockheed Martin of USA into the Indian Air Force (IAF) to make its debut at Aero India 2011 in February flagged a turning point in the history of its transport fleet. Other than the induction of three Boeing Business Jets in 2009 for VVIP use and the recent order for eight P8I Long Range Maritime Patrol Aircraft for the Indian Navy, the last time India received aircraft of US origin in large numbers were the C-119 Fairchild Packet after the Sino-Indian conflict in the early 1960s. This fleet remained in service with the IAF for over two and a half decades after which it was consigned to the museum or the scrap yard. Like the rest of the armed forces, since the mid- 1960s the IAF too leaned heavily on the Soviet Union for military aircraft. Initially, the IAF inducted the 20-tonne payload capacity AN12 and subsequently the 6-tonne class AN-32 medium tactical transport aircraft followed by the 43-tonne payload capacity IL76 Strategic Airlifter. The fleet of AN-12 was phased out two decades ago but the remaining transport aircraft of Soviet origin continue to be in service with the IAF for a variety of reasons are becoming increasingly difficult to sustain. The overall airlift potential of the IAF today stands substantially eroded and is in urgent need of infusion of capability.

## Westward Tilt

The C-130J Super Hercules is a four-engine turboprop tactical transport aircraft with a maximum payload capacity of approximately 19 tonnes or 92 fully equipped troops. It has a range of over 5,000 km and is capable of short field operations. Developed over half a century ago, the C-130 Hercules has evolved continuously and is perhaps the most widely used transport aircraft by the armed and paramilitary forces of the world. Apart from all routine tasks, the version acquired by the IAF is customised and is equipped to give it the capability for special operations such as executing high-speed precision air drops on unmarked dropping zones in the darkness of night, landing by night on unlit runways and in counter-insurgency scenarios.

The C-130J has excellent night vision capability and can operate effectively in all types of weather and requires minimal ground support. Depending on the experience with the first batch of six aircraft, the IAF may acquire another six to build up to full squadron strength.

Beyond the Super Hercules, as a replacement for the ageing fleet of IL 76 heavy-lift aircraft, the IAF has identified the four-engine Boeing C-17 Globemaster III that is currently touted as the most advanced strategic military transport aircraft in the world. Developed in the 1980s, it can carry a payload of over 75 tonnes or 134 fully equipped troops and despite its enormous size, it has an amazing capability to operate from runways as short as 3,500 ft. Proposed to be acquired under the Foreign Military Sales programme of the US Government, the deal for the first batch of 10 aircraft currently hinges on agreement over the quoted price, which, in the opinion of the Indian Government, is somewhat high. If acquired, the C-17 would significantly enhance the strategic airlift capability of the IAF.

## Medium Tactical Transport Aircraft

But an equally pressing need is to find a suitable replacement for the 100-odd AN-32 aircraft that were inducted two and a half decades ago. A midlife upgrade programme currently underway would give the AN-32 fleet a lease of life at best for 10 to 12 years. Meanwhile Hindustan Aeronautics Limited has entered into a joint venture with United Aircraft Corporation of Russia to co-develop a multi-role transport aircraft (MTA). With a payload capacity between 15 and 20 tonnes or 80 fully equipped troops, the aircraft will have a range of 2,500 km which presumably would be extendable through in-flight refuelling capability. It is likely to be

PHOTOGRAPHS: Airbus Military, Lockheed Martin, Embraer & Alenia Aeronautica

ready for induction by the end of the current decade. Given the complexities of programmes related to the development of new generation aircraft, the timeframe for its induction cannot be predicted with any degree of certainty. It may, therefore, be prudent to explore alternatives not only to cater for unforeseen delays that are not unknown in aircraft development programmes but also to diversify options, which in the context of labile international equations, is perhaps equally critical.

Currently, there are three aircraft either recently developed or are under development that warrant closer examination. These are the C-27J Spartan from Alenia Aeronautica of Italy, the Airbus A400M from Airbus Military and the KC-390 from Embraer of Brazil.

## Alenia C-27J Spartan

The Alenia C-27J Spartan, an advanced derivative of Alenia Aeronautica's G222, is a twin-engine medium-size turboprop, inducted into the Italian Air Force in October 2006. It shares a high degree of commonality with the C-130J Super Hercules in respect of power plant and systems and is similar to the C-130 in appearance. It is in service with the armed forces of the US, Italy, Greece, Lithuania and Afghanistan. The aircraft has been ordered by Bulgaria, Morocco and Romania. With a payload capability of around 11.5 tonnes or 60 fully equipped troops, the aircraft has a range of approximately 1,800 km with maximum payload and over 4,000 km when carrying six tonnes. The aircraft can operate from unprepared surfaces and has impressive short-field capability. Its experience in Afghanistan validates the versatility of the aircraft in high mountainous terrain.

## Airbus A400M

The Airbus A400M is a four-engine turboprop military transport aircraft in the final stages of development by Airbus Military. It can be employed both in strategic and tactical roles. Armed with the latest and most advanced technologies available in the world, the A400M is projected as a "Future International Military Airlifter". As of April 2011, the prototypes have completed a total of 1,400 flight hours. With a maximum payload of 37 tonnes, which is half of what the C-17 can lift, the aircraft has a range of 3,300 km. However, with a payload of 30 tonnes, the range is over 4,500 km and over 6,000 km if the payload is reduced to 20 tonnes. As of 2010, the company has orders for 174 aircraft from eight nations. The aircraft is positioned between the C-17 and the C-130J Super Hercules.

## Embraer KC-390

The Embraer KC-390 is a medium-size, twin-jet military transport aircraft under development since the end of the last decade in collaboration with Chile and Colombia. The aircraft is expected to have a maximum payload capability of around 23 tonnes including wheeled armoured vehicles and a range of over 2,400 km. Apart from the Brazilian Air Force that has already placed firm orders for the aircraft, France and Sweden have shown interest in this new machine from the Brazilian aerospace major. The KC-390 will be the heaviest aircraft that the company has manufactured so far. The first prototype is expected to take to the skies in 2014.

## India—Emerging Regional Power

Consequent to its emergence as a regional economic and military power, India's security interests will extend from the Middle East to South East Asia. As a regional power, India will also be expected to play a critical role towards regional security and stability. Such a responsibility will require the nation to possess the capability of power projection through rapid transportation and deployment of sizeable forces as also support to combat elements operating both within and beyond national boundaries. India's capability in playing its role meaningfully as a regional power will hinge to a large extent on its strategic and tactical airlift capability. SP

### C-130J Super Hercules

Power plant: 4× Rolls-Royce AE 2100D3 turboprop, 4,637 shp each
Maximim payload: 48,000 lb/21,772 kg
Maximum cruise speed: 355 KTAS/660 km/hr
Range with 35,000 lb/24,690 kg: 2,900 n.mi/5,375 kg

### A400M

Power plant: 4 x EuroProp International TP400-D6
Maximim payload: 81,571 lb/37,000 kg
Maximum cruise speed: 0.68-0.72 Mach
Range with 20 tonne payload: 3,450 nm (6.390 km)

### KC-390

Power plant: 2 x turbofans, 120-129kN (27,000-29,000 lbf) each
Maximim payload: 52,029 lb/23,600 kg
Maximum cruise speed: 300 KCAS (Mach 0.8)
Range: 1,320 nmi (2,445 km)

### C-27J Spartan

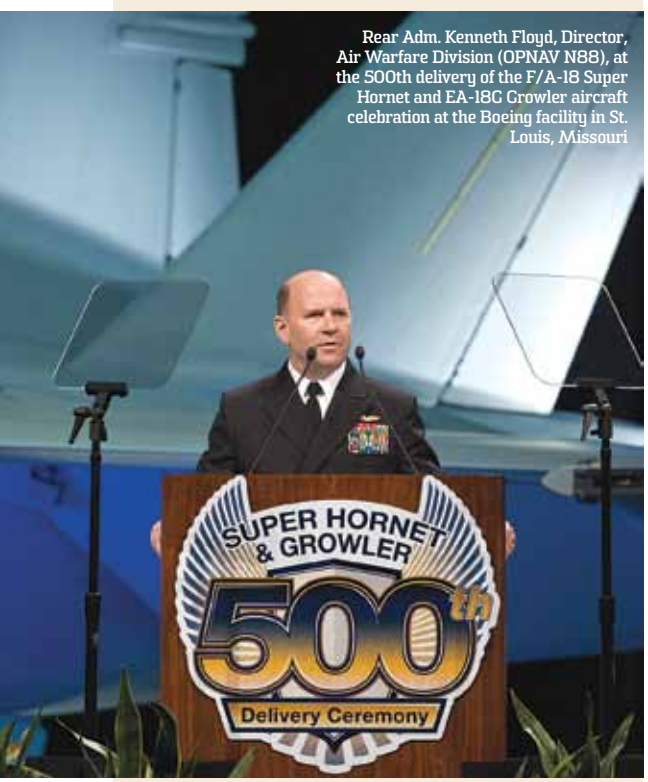
Power plant: Rolls-Royce AE2100-D2A (Power 4,637 SHP)
Maximim payload: 24,471 lb/11,100 kg
Maximum cruise speed: 325 KTAS
Range with 6,000 kg payload: 2,000 nmi (3,704 km)

*Source: OEMs*

# US Navy marks delivery of 500th Super Hornet/Growler

Boeing and the US Navy celebrated a milestone delivery on April 20 in St. Louis: 500 F/A-18E/F Super Hornets and derivative EA-18G Growlers have joined the Navy's tactical aircraft fleet.

The Super Hornet Block II is the Navy's frontline strike fighter, deploying leading-edge technology and multirole strike capability around the globe. The EA-18G is now the premier airborne electronic attack platform in the Navy's arsenal and the United States' newest tactical aircraft, providing the ability to block enemy radar and electronic systems.




Rear Adm. Kenneth Floyd, Director, Air Warfare Division (OPNAV N88), at the 500th delivery of the F/A-18 Super Hornet and EA-18G Growler aircraft celebration at the Boeing facility in St. Louis, Missouri

"The Super Hornet and Growler, both combat-deployed, have continuously increased capability for the warfighter while reducing cost for the Navy and the taxpayer," F/A-18 and EA-18 Programs Vice President Kory Mathews said at the ceremony. "Boeing has delivered every F/A-18E/F and EA-18G to the US Navy on budget and ahead of schedule." SP

PHOTOGRAPHS: US Navy, Swedish Air Force

# First Swedish female Gripen pilot

Captain Anna Dellham recently completed her first Gripen solo flight to become the first female Gripen pilot in the Swedish Air Force.

Anna Dellham is Sweden's only female combat pilot. She was awarded her wings in the mid-1990s and flew the Viggen until the aircraft was taken out of service before going onto fly the SK 60. She now works with Gripen's development at FTS, the Aeronautical Command of the Air Force Headquarters.

In the Swedish Defence Recruitment Agency's magazine she explains: "Flying combat aircraft is extremely special and rewarding. Flying is no harder for a woman than a man. There are no rational arguments why there are not more female combat pilots. It is about coping while your body is subjected to g-forces when flying. Those wanting to become pilots should be in good physical condition, but it isn't necessary to be super-fit."

She has flown in Gripen several times before, but now she has flown solo for the very first time. The flight took off from Skaraborg wing. Initially she will fly the Gripen A/B and will later move on to the C/D version. SP

# Lockheed Martin tests JAGM tri-mode seeker

Lockheed Martin recently tested its joint air-to-ground missile (JAGM) tri-mode seeker in high-speed captive flight tests on a Sabreliner jet at Yuma Proving Ground, Arizona, demonstrating the robustness of the seeker on fixed-wing aircraft.

The long-range, high-speed seeker tests were company funded and collected data that validated the maximum ranges of the imaging infrared (I2R) and semi-active laser (SAL) sensor modes at speeds approaching 400 knots at a 20,000 ft altitude.

"We continue to invest in JAGM testing to mature our design," said Hady Mourad, JAGM programme director at Lockheed Martin Missiles and Fire Control. "We plan to conduct additional fixed-wing seeker tests in the near future against maritime surface combatants, and we expect the same robust performance."

Conducted at altitudes and airspeeds reflecting typical fixed-wing target engagement profiles, positive SAL, cooled I2R and millimeter wave sensor detections occurred at ranges far exceeding the threshold target engagement range requirements of the F/A-18 Super Hornet. SP

# Tatas in record deal to modernise 30 Air Force bases

Tata Power's Strategic Electronics Division, a Tata group company, has bagged the largest-ever defence contract awarded to an Indian private sector company through a competitive global tender. The Ministry of Defence signed a Rs 1,094-crore (Rs 10.94 billion) contract with Tata Power's Strategic Electronics Division for modernising 30 Indian Air Force (IAF) airbases across the country.

Tata Power SED has 42 months to execute the modernization of airfield infrastructure (MAFI) project. Starting with the Bathinda airbase in Punjab, Tata Power SED will refurbish and modernise airfield infrastructure so that the IAF can operate its next generation of modern combat aircraft from there. SP

## Chandigarh to get UAV for police work

Chandigarh Police has become the first police force in the country to acquire an unmanned aerial vehicle (UAV) for law enforcement. "We have procured the UAV for four months on trial basis. Golden Hawk will be with the city police by mid-May 2011. DRDO officials have already demonstrated the machine at Sarangpur village on the city's outskirts recently," Chandigarh IG P.K. Srivastava has said.

"Depending on its success, bigger UAVs will be procured later on for surveillance purposes," Srivastava said. "We are the first urban police force to have an UAV," he said, adding that the machine would be of immense help during demonstrations and VVIPs' visit. SP

## Embraer and AEL Sistemas pact to focus on UAS market

Embraer Defense and Security and AEL Sistemas, a subsidiary of the Israeli company Elbit Systems Ltd, announced the signing of a strategic agreement envisaging the evaluation of joint exploration of the unmanned aerial systems (UAS), including the potential creation of a company with majority participation of Embraer.

"The UAS are a reality and a need for solutions on defence and security, and Embraer Defense and Security considers that this agreement intends to strengthen both companies' ability to offer solutions with an excellent cost-benefit ratio for the Brazilian Government," said Luiz Carlos Aguiar, President of Embraer Defense and Security. "In addition, these vehicles allow for dual-use for monitoring of ports, agricultural, forest, and coastal areas, traffic, etc."

The agreement foresees the intention to evaluate joint activities in marketing, development, systems integration, manufacturing and support of UAS, as well as in simulators and activities for the modernisation of avionics systems, and the possible participation of Embraer Defense and Security in the capital of AEL Sistemas. SP

## New warhead reduces size of Raytheon small tactical munition

Raytheon Company tested a new warhead for its small tactical munition (STM), a new weapon specifically designed to be employed from unmanned aircraft systems (UAS). STM is a 13-pound guided munition that is approximately two feet long, making it the smallest air-launched weapon in the Raytheon portfolio.

The new five-pound warhead, manufactured by NammoTalley, is lighter than the current warhead but has significantly improved blast-fragment capability compared with the old design enabling Raytheon to reduce the size and weight of STM significantly.

"The low weight and small size of STM enables UAS to fly farther, faster and carry more weapons then they could if they were limited to carrying a single 100-pound class weapon," said Bob Francois, Raytheon Vice President of Advanced Missiles and Unmanned Systems. "STM's small size also enables weaponization of smaller UAS, such as the Shadow 200, that currently cannot be weaponized because of payload limitations."

"NammoTalley's new warhead is purpose-built for Raytheon's STM and the associated target set encountered in warfare today. This design packs the same 'punch' into a smaller package and is optimally designed for this target set," said John Hill, NammoTalley Vice President of business development and programme management. SP

## Avibras unveils a new drone


At LAAD 2011 the Brazilian defence company Avibras showcased its new unmanned aerial vehicle called Falcao. The UAV is currently in advanced stage of development and the first flight test is scheduled for end 2011.

This UAV is designed for a gross takeoff weight of 650 kg, carrying 150 kg of payload over a range of 2,500 km flying at 15,000 ft altitude. Falcao is designed for a wide range of applications. It is being developed by the Aerospace Technology Development authority FINEP, under a Brazilian Air Force programme.

Falcao can be used in support of many military and homeland security applications, including supporting other Avibras weapon systems, including the long range surface/surface rocket systems, such as the new GPS/INS guided Astros 300mm rocket, which requires precision targeting at long range. Falcao can also support homeland security applications, as border and maritime surveillance, environmental protection and control and crisis management. SP

# Terminator-like reality!

In a comprehensive 112-page report the British Ministry of Defence has questioned the proliferation of unmanned aerial vehicles (UAVs) and its impact on human beings. In Chapter V on "Moral, legal and ethical issues", the report mentions the possibility of armed robots taking over from human beings in a war situation, making war lot more dangerous.

The report titled "The UK Approach to Unmanned Aircraft Systems" has questioned: will future wars be fought remotely, at least initially, with little or no loss of friendly human life? Is human nature such that the next arms race will seek to pitch increasingly complex unmanned systems against other unmanned systems or humans?

The first area for consideration involves the removal of risk to ones own forces in warfare. This raises a number of interesting areas for debate, not the least being the school of thought that suggests that for war to be moral (as opposed to just legal) it must link the killing of enemies with an element of self-sacrifice, or at least risk to oneself. This raises two interesting issues.

Firstly, does it follow that the ability to use unmanned systems, without risk to an operator's life, will lead to the rapid escalation of what would previously have been considered a simple diplomatic problem, to full-on technological warfare?

It is essential that, before unmanned systems become ubiquitous (if it is not already too late) that we consider this issue and ensure that, by removing some of the horror, or at least keeping it at a distance, that we do not risk losing our controlling humanity and make war more likely. For example, the recent extensive use of unmanned aircraft over Pakistan and Yemen may already herald a new era. That these activities are exclusively carried out by unmanned aircraft, even though very capable manned aircraft are available and that the use of ground troops in harm's way has been avoided, suggests that the use of force is totally a function of the existence of an unmanned capability – it is unlikely a similar scale of force would be used if this capability were not available.

The second area for consideration is that use, by the western nations, of high technology unmanned platforms, offering no risk to their own personnel, may directly impact on the apparent legitimacy of their actions. While notions of fairness are not necessarily appropriate in war, the UK, as a democratic nation *'cannot achieve long-term security and prosperity unless we uphold our values.'* We must consider the war of ideas inherent in all modern warfare, particularly counter-insurgency operations. Robots cannot be emotive, cannot hate. A target is a series of ones and zeros, and once the decision is made, by whatever means, that the target is legitimate, then prosecution of that target is made mechanically. The robot does not care that the target is human or inanimate, terrorist or freedom fighter, savage or barbarian. A robot cannot be driven by anger to carry out illegal actions such as those at My Lai.

The pace of technological development is accelerating and the UK must establish quickly a clear policy on what will constitute acceptable machine behaviour in future; there is already a significant body of scientific opinion that believes in banning autonomous weapons outright. There is a danger that time is running out—is debate and development of policy even still possible, or is the technological genie already out of the ethical bottle, embarking us all on an incremental and involuntary journey towards a *Terminator*-like reality? SP

## Osama bin Laden killed

After a long and hard-fought search for the Al-Qaeda leader and named chief architect of the September 11, 2001 terrorist attacks on the United States, Osama bin Laden has been killed by the US Navy Seals operatives, according to an announcement made by President Obama on May 1, 2011.

According to reports, Osama was hiding in Abbottabad, a city in Pakistan's Khyber Pakhtunkhwa province, about 160 km north of Islamabad. As per reports, there was no casualty on the US side.

Announcing his killing, the US President Obama in a worldwide address said, "His demise should be welcomed by all who believe in peace and human dignity. Today's achievement is a testament to the greatness of our country and the determination of the American people. The cause of securing our country is not complete, but tonight we are once again reminded that America can do whatever it is we set our mind to. That is the story of our history." SP

## Pakistan is sanctuary for terrorists: Indian Home Minister

The Union Home Minister, P. Chidambaram in a statement said that the killing of Osama bin Laden confirmed India's concerns that Pakistan continued to harbour terrorists.

In a statement he said, "The United States Government informed the Government of India that Osama bin Laden had been killed by security forces somewhere "deep inside Pakistan." After the September 11, 2001 terror attacks, the US had reason to seek Osama bin Laden and bring him and his accomplices to justice.

We take note with grave concern that part of the statement in which President Obama said that the fire fight in which Osama bin Laden was killed took place in Abbotabad "deep inside Pakistan". This fact underlines our concern that terrorists belonging to different organisations find sanctuary in Pakistan. We believe that the perpetrators of the Mumbai terror attack, including the controllers and handlers of the terrorists who actually carried out the attack, continue to be sheltered in Pakistan. We once again call upon the Government of Pakistan to arrest the persons whose names have been handed over to the Interior Minister of Pakistan as well as provide voice samples of certain persons who are suspected to be among the controllers and handlers of the terrorists." SP

## Reliance forays into homeland security: Vivek to head?

Reliance Industries Limited (RIL) has indicated that it would be moving into the homeland and aerospace sectors and has taken on board Dr Vivek Lall, Vice President, Boeing Defense, Space & Security, India and also a former NASA scientist.

As both the markets – aerospace and homeland security—is set to grow phenomenally in India, Reliance has indicated that it would be a major player, but is yet to make formal announcements of the plans. The Mukesh Ambani-led group is looking at cutting-edge homeland security solutions market and also the aerospace sector. RIL's entry into homeland and aerospace security could have a far bigger impact than the entry of Indian groups such as Tata, L&T and Mahindras.

Vivek has held numerous leadership roles in marketing and engineering at Boeing including manager in the Airplane Performance and Propulsion group. Prior to Boeing he worked for Raytheon and with NASA Ames Research Center in various multidisciplinary engineering fields. He also worked as an adjunct faculty member at Embry-Riddle, McConnell Air Force Base while working at Raytheon. He taught classes in aerodynamics and propulsion for aircraft and spacecraft to US Air Force and Boeing personnel. SP

PHOTOGRAPHS: US Government and SP Guide Pubns

LT GENERAL (RETD)
P.C. KATOCH

# Osama & Beyond

## Al-Qaeda is certainly not dead and will continue its nefarious pursuits

Benazir Bhutto had said a few years back that Osama lived in Musharraf's backyard. She wasn't lying. Post the US Special Forces raid, when a local from Abbotabad says Osama and his caboodle were living in a mansion for the last 10 years, it indicates Musharaff's complicity. Now that he expresses glee over Osama's killing, Al-Qaeda should actually target him. Funding for 9/11 was traced back to Pakistan. Should we doubt Pakistani Military/ISI complicity in at least planning 9/11, considering the military precision of the execution part? Ajmal Qasab has already admitted that Pakistani terrorists responsible for the 26/11 mayhem were trained by the Pakistani Marines. Confrontation between the US and Pakistan's Inter-Services Intelligence (ISI) had to eventually come. Good that it has begun with the killing of Osama because ISI has become an uncontrollable monster, spawning global terror including in India and Afghanistan, and choking North Atlantic Treaty Organisation (NATO) supply line. The raid by the US Special Forces had to be flawless considering the Iranian hostage rescue fiasco of 1980 and the repercussions that a failed raid would have had deep inside Pakistan today, and especially after the recent Raymond Davis episode. Despite the façade of Pakistan being frontline partner of the US in the Global War on Terrorism (GWOT), the US must have been forced to take action, considering Pakistan's role in choking NATO supplies, continuing covert assistance to Taliban, Lashkar-e-Toiba (LeT) filling Al-Qaeda voids courtesy ISI, expanding Chinese presence in Pakistan and latter advising Afghanistan to chuck latch onto the Chinese bandwagon. Pakistan has pushed the erstwhile Afghan refugee camps into areas of Taliban strongholds. The Pir Ali Camp today is a major Taliban terrorist training facility used as a launch pad to hit NATO supply lines. To top this, there have been reports of Chinese military advisors advising Taliban how to battle NATO forces. Osama's safe haven was adjacent to the military cantonment of Abottabad, with a host of serving and retired military officers in close proximity—the likes of Hamid Gul perhaps periodically even dining and wining with him. Notwithstanding the announcements of the US withdrawal, considering the strategic importance of the area and the fact that such withdrawal will imply Afghan National Army fighting not only the Taliban but also the Pakistani Army in the garb of Taliban—a situation culminating in Taliban's takeover of Afghanistan, it can be expected that US will continue its presence for the next few decades albeit at reduced scales. How long could it tolerate the double game of Pakistan, especially with the latter bending back towards China? The US had already given the ISI too much of rope and more the delay in confronting them and Pakistan leaning more and more towards China, the situation would have had been uglier for the US, especially with China already having established strategic footprints in Pakistan and Pakistan Occupied Kashmir (PoK).

The ISI has become a state within a state and international pressure must come to bring it under Parliamentary oversight with appropriate legal structures. Exposure of ISI complicity in harbouring Osama should actually be cashed upon to clip the wings of ISI. What happens now? The sheepish and blatant denials of Pakistani authorities fool no one. Al-Qaeda is certainly not dead and will continue its nefarious pursuits. In addition to Taliban, the US should bring terrorist organisations like LeT, Jammat-ud-Dawa (JuD), Jaish-e-Mohammad (JeM) within active ambit of GWOT. The Indian polity and bureaucracy need to shake out of a defensive mind set. Currently, India is at a major disadvantage without an appropriate irregular deterrence. We need to develop both publicised overt and deniable capabilities in order to create necessary deterrence and our Special Forces must be used proactively to achieve this. SP

**The ISI has become a state within a state and international pressure must come to bring it under Parliamentary oversight with appropriate legal structures.**

PHOTOGRAPH: US Navy

Working in association with

ASSOCHAM

Fourth Edition

# INDESEC 2011

20 - 22 June, Pragati Maidan, New Delhi

## Homeland Security solutions you've been waiting for!

### Visitors at INDESEC include:

- Ministry of Home Affairs
- Ministry of Defence
- Ministry of External Affairs
- Ministry of Shipping
- Ministry of Civil Aviation
- State Governments & State
- Large Corporates
- International Embassies
- Institutes & Think Tanks, among others

### Free to attend

**Don't miss the INDESEC free-to-attend programme which includes:**

- Meeting with over 100 participating companies
- Seeing new product launches
- Networking with your peers
- Finding new suppliers
- Hearing expert views from homeland security leaders
- Discovering industry trends and new market opportunities at the INDESEC Conference


## INDESEC - the annual event for professionals involved with homeland security


### Products & solutions on display at INDESEC 2011

- Cyber Security
- Coastal Security
- Border Security
- Surveillance
- UAVs
- Infrastructure Security, and much more!

**REGISTER NOW**

**REGISTER TO VISIT INDESEC FOR FREE AT WWW.INDESEC-EXPO.COM**

# India's first cyber crime investigation manual

As a first step towards setting up of procedures and strategies, Deloitte, along with Nasscom, and its technology security arm DSCI has released India's first cyber crime investigation manual which aims to bring a uniform and scientific approach in investigating these crimes and bringing them to court of law.

The manual covers a comprehensive list of cyber crime topics including procedures for pre-investigation, evidence collection, and handling evidence. It will be a valuable resource in any field investigation, because it provides clear guidance to investigating officers on the procedures to be followed at crime scenes where digital media is present.

Som Mittal, President, Nasscom, said, "India's status as a destination of choice for global outsourcing owes to the well-established security practices with organisations. Nasscom in association with DSCI has set up Cyber Labs in Mumbai, Pune, Bangalore and Thane to train law enforcement agencies for speedier trial of cyber crimes." SP


PHOTOGRAPH: Deloitte

# Cyber security as part of national disaster management plan

The Central Government is planning to include cyber security system in the national disaster management plan. A meeting of top officials including the Prime Minister's National Security Advisor, three defence chiefs, Atomic Energy Commission Chairman and others deliberated upon the same.

The meeting made several recommendations and one of which was to develop a national cyber alert system (NCAS) to deal with security threats through early warnings and response systems. SP

# Chinese cyber attacks on the rise

Security firm McAfee in a report has pointed out that there has been an increase in the number of Internet-based attacks on critical infrastructure such as power, water and other utilities.

The report said that China was one of the major sources of attacks, followed by Russia and the US. Most of the reported security breaches took the form of distributed denial of service (DDOS) attacks. However, there remained a possibility that DDOS attacks could do more harm in future, according to Stewart Baker, a former national security advisor to President Bush and one of the authors of the report. SP

# US strengthens plans to deal with cyber fraud

The US Government has unveiled a plan which is expected to improve confidence levels in cyberspace, through the creation of a single, secure online credential.

"By making online transactions more trustworthy and better protecting privacy, we will prevent costly crime, we will give businesses and consumers new confidence, and we will foster growth and untold innovation," President Barack Obama said in a statement.

The National Strategy for Trusted Identities in Cyberspace (NSTIC) proposes the creation of secure and reliable online credentials that would be available to consumers who want to use them. It would be private-sector driven and participation would be voluntary.

The "identity ecosystem" would involve the use of a single credential — unique software on a smart phone, a smart card or a token that generates a one-time digital password. "The consumer can use their single credential to log into any website, with more security than passwords alone provide," the White House said. SP

# Northrop Grumman and UMBC solutions for cybersecurity threats

Northrop Grumman Corporation and the University of Maryland Baltimore County (UMBC) Research Park Corporation officially opened the Cync Programme, an incubator dedicated to cultivating companies developing solutions to counter cybersecurity threats.

Highlighting the event were remarks by Maryland Governor Martin O'Malley, UMBC President Freeman Hrabowski, and Northrop Grumman Vice President for Cyber Initiatives Dr. Mike Papay.

"The Cync Programme is an important seed within the cyber ecosystem as Northrop Grumman and the state of Maryland work to meet the growing cybersecurity challenges our nation faces," said Dr. Mike Papay.

The Cync Programme is a partnership between Northrop Grumman and bwtech@UMBC to create a new incubator tailored to the specific challenge of developing innovative technology to protect the nation from cyber attacks. The programme builds on bwtech's successful business-incubation framework by offering a "scholarship programme" for companies with the most promising cybersecurity ideas. SP

LT GENERAL (RETD)
P.C. KATOCH

# Nuclear safety versus energy security

While the Prime Minister has assured the nation that safety of our nuclear reactors will be ensured, how do you expect the citizenry to believe this in a scam supreme country amidst media reports of 'cash for votes', including in facilitating the Indo-US nuclear deal, ISRO Chief misleading the Parliament on the spectrum issue, commercial airliners being flown by pseudo pilots and the like? How do you believe that nuclear safety certification, when provided, will not be faked? After all if Fukushima gets replicated in India, the misery of the citizenry can always be shrouded by the usual political blame game in a chaotic Parliament.

Following the Mayapuri radiation incident, where many persons are still suffering from radiation exposure courtesy Cobalt-60 pencils from an irradiator from a Delhi University laboratory, scrap workers continue to deal with all kinds of waste including from laboratories. No effort has been made to survey facilities holding such equipment. Where are our decontamination centres? Do all X-ray facilities in the national capital adhere to the Atomic Energy Regulatory Board regulations? But, then we can always rely on God and as they say atheists start believing in God when they come to India.

That being the cynically lighter side, the issue of nuclear safety is vitally important - technical review of all safety systems of the nuclear power is indeed essential. Suspension of nuclear power in India is unlikely courtesy the Indo-US nuclear deal, notwithstanding after effects of Fukushima (like Chernobyl) continuing for generations. India will need to generate energy from all possible sources to meet future requirements but should certainly not blindly import vintage technology nuclear reactors from the US or for that matter any other country. Neither should any future nuclear facility be set up in earthquake prone areas. Jaitapur (Maharashtra) and Haripur (West Bengal) are reportedly in seismic zones.

Our Kakrapar nuclear reactor being the world's first using thorium and since we hold more than 25 per cent of global thorium reserves (IAEA puts it at 67 per cent — almost two-thirds of global reserves), India should consider switching completely to thorium-based nuclear reactors as they are far safer than the uranium-based ones. Most significantly, a thorium nuclear reactor has "no possibility of a meltdown". Thorium cannot sustain a nuclear chain reaction without priming, as a result of which fission stops by default. Though thorium does require start-up by neutrons from a uranium reactor, from thereon this activated thorium reactor can activate other thorium reactors discounting any further requirement of uranium. Compared to uranium, thorium does not require enrichment, has superior physical and nuclear properties and much reduced nuclear waste production. One tonne of thorium can produce same energy as 200 tonnes of uranium, or 35,00,000 tonnes of coal. Of course it is harder (not impossible) to extract weapon grade fissile material from a thorium reactor but then how many nukes do we need? Thorium being the future of nuclear energy, we need to conserve our reserves and not pass these on under clauses of the Indo-US nuclear deal like "India and the US agree to transfer nuclear material, non-nuclear material, equipment and components".

Concurrently, we should redouble our efforts to exploit renewable energy, alternative fuels, fossil fuels and the like. Learning from Fukushima, can you imagine the consequences of a sustained cyber attack on the power grid of our nuclear reactors, reducing the critical function of cooling to back up generators that themselves get overheated and have to be periodically switched off? Safety and security has many connotations in today's world. We need to tread with caution. SP

**Since we hold more than 25 per cent of global thorium reserves, India should consider switching completely to thorium-based nuclear reactors as they are far safer than the uranium-based ones.**

ILLUSTRATION: Anoop Kamath

# RFI/RFP/TENDERS

## Indian Army

**RFI: Spotter scope with digital camera**
Branch: Dte Gen of Infantry
Publication date: April 13
Last date: May 13

**RFI: Dual technology mine detectors**
Branch: E-in-C Br
Publication date: March 21
Last date: June 30

**Tender: Electro optical tracking system (EOTS)**
Branch: Army AD College
Publication date: February 15
Last date: May 14
*Source: www.indianarmy.nic.in*

## Indian Navy

**Tender: Fire resistant overalls**
Branch: Dte of Procurement, Navy
Publication date: March 30
Last date: May 26
*Source: www.indiannavy.nic.in*

## Indian Air Force

**Tender: Medium range surface to air missile systems**
Air Headquarters, MoD
Publication date: April 7
Last date: May 7

**Tender: Spares for MI series helicopters**
**31 lines of MI series spares**
Air Headquarters, MoD
Publication date: April 11
Last date: May 10

**Tender: Spares for MI-17 helicopters**
Air Headquarters, MoD
Publication date: February 24
Last date: May 5

**Tender: Spares for MiG-23 aircraft**
Air Headquarters, MoD
Publication date: March 4
Last date: May 12

**Tender: Spares for MiG-29 aircraft**
Air Headquarters, MoD
Publication date: March 4
Last date: May 19

# DHS Systems unveils solution for homeland reponse forces

Military shelter manufacturer DHS Systems has unveiled a new mobile consequence management system designed for homeland security forces. DHS Systems consequence management system utilizes deployable rapid assembly shelter (DRASH) technology that has been trusted as part of the US Army's standard integrated command post system to create a workspace capable of supporting numerous operations that may be needed during an emergency – including command and control, medical treatment and decontamination.

Additionally, the system can be fully set up in just a few hours and towed by common, easy-to-find vehicles, including civilian super duty pick-up trucks and a variety of standard Army vehicles. SP

# Puma infantry fighting vehicles

Rheinmetall and Krauss-Maffei Wegmann (KMW) handed over the first two Puma infantry fighting vehicles to the German Federal Office of Defense Technology and Procurement (BWB) in Kassel for verification tests.

The development of the new infantry fighting vehicle is marked by technological extremes. It will not only be the new transport platform for the German Army but also a cutting-edge technology system. With its unique balance of tactical and strategic mobility, survivability and fighting power, the Puma gives the German Armed Forces a state-of-the-art infantry fighting vehicle systematically tailored to the current and future operational requirements of the German military both at home and abroad. The development achievement was guided by the demand to induce latest mission experience from current operations and to consequently deliver effective mission performance. To that extent this has not been realised in any other infantry fighting vehicle. SP

# Mbombe 6x6 armoured fighting vehicle

The Mbombe armoured fighting vehicle fitted with the 30mm overhead weapon station represents the Paramount Group's newest vehicle model. The Mbombe is a mine-protected, high-mobility, armoured fighting vehicle, which can be easily adapted to fill a wide range of operational roles.

Mbombe is a 6x6 vehicle able to carry considerable loads over all types of terrain without loss of mobility. The three axles give it excellent cross- country performance and make it an exceptionally versatile platform that can be modified to meet the exacting requirements of military operations anywhere in the world. Depending on the role, Mbombe can be configured as a simple armoured personnel carrier or a highly effective armoured combat vehicle mounting a heavy machine gun or autocannon. In these roles it is suitable for use in conventional war, non-conventional war and counter-insurgency operations. It can also be fitted and equipped with a day/night vision capability and sensors to extend the ranges of observation and engagement if these are requested by the customer. SP

PHOTOGRAPHS: Rheinmetall Defence & Paramount Group

Award winners Praveen Jambholkar (Centre) and Anand Jambholkar, MD, Cybermotion Technologies, with Ray O. Johnson (Left) of Lockheed Martin

# Lockheed Martin-DST awards for young entrepreneurs

Lockheed Martin and the Department of the Science and Technology gave away medals, certificates and cash awards to the winners of the Department of Science and Technology (DST)-Lockheed Martin India Innovation Growth Programme 2011. Thirty young innovators were felicitated in New Delhi recently.

The programme is funded by the Department of Science and Technology, Government of India and Lockheed Martin Corporation, and has been developed with the assistance of the Indo-US Science and Technology Forum, IC2 Institute at the University of Texas, and Federation of Indian Chambers of Commerce and Industry.

Dr Ray O. Johnson, Senior Vice President and Chief Technology Office, Lockheed Martin said, "We understand the power of innovation and technology that exist in India and we intend to partner with India to solve global security problems. The government, industry and academia have come together through this programme and the focus is not only on technology but also on commercialisation."

Praveen S. Jambholkar, Director-Technical, Cybermotion Innovative Technologies was awarded for developing a digital signal processing (DSP) based adaptive control algorithm for aerospace and defence. An alumnus of IIT Delhi and IIM Ahmedabad, Jambholkar's innovative technology is an adaptive algorithm that tracks and controls the fins on a missile. The innovation enhances target tracking and accuracy and requires no hardware changes. Besides working closely with Defence Research and Development Organisation (DRDO), Jambholkar said the company is in talks with various companies across the globe. The company which also specialises in navigation control is looking forward to be a part of the Indian armed forces. "Besides our ongoing negotiations with Bell, Tata, Lockheed Martin, there is demand for our products all over the world. But the talks are in an initial stage now," said Jambholkar. SP

# FLIR Systems revenues up

FLIR Systems, Inc. revenues for the first quarter of 2011 is up 30 per cent at $373.5 million, compared to first quarter 2010 revenue of $287.3 million. Operating income in the first quarter was $76.6 million, compared to $84.3 million in the first quarter of 2010, and was impacted by a lack of RAID shipments as well as acquisition-related charges.

Revenue from the Company's Government Systems division increased 13 per cent over the first quarter of 2010, to $178.8 million. Within the Government Systems division, revenue from the Surveillance segment, comprised of the legacy Government Systems business and the imaging and radars businesses acquired with the fourth quarter 2010 acquisition of ICx Technologies, Inc., was $149.9 million, a decrease of five per cent from the first quarter of 2010.Revenues from Government Systems' other two new segments, Detection and Integrated Systems, which were created following the acquisition of ICx, were $17.9 and $11.1 million, respectively. SP

## SECURITY EVENTS

**IDEF'11**
10-13 May
Tuyap Fair, Convention and Congress Center in Istanbul/Turkey
*www.idef11.com*

**International Military Helicopter**
11-13 May
Olympia Conference Centre, London, UK
*www.militaryhelicopterevent.com*

**Cyber Defence**
16-17 May
Istanbul Marriott Hotel, Istanbul, Turkey
*www.smi-online.co.uk*

**IMDEX Asia 2011**
18-20 May
Changi Exhibition Centre, Singapore
*www.imdexasia.com*

**CIPATE 2011 (China International Exhibition and Symposium on Police and Anti-Terrorism Technology and Equipment)**
19-21 May
Beijing Exhibition Centre, Beijing, China
*www.cipatechina.cn/index.html*

**Irregular Warfare Summit 2011**
23-25 May
Key Bridge Marriott, Arlington, VA, USA
*www.irregularwarfaresummit.com*

**Air Weapons Integration 2011**
24-26 May
Le Meridien Piccadilly, London, UK
*www.airweaponsintegration.com*

**Homeland Security Summit India**
30-31 May
Le Méridien, New Delhi, India
*www.homelandsecurity-india.com*

**Cyber Security 2011**
30 May-1 June
Hotel Le Plaza, Brussels, Belgium
*www.iqpc.com/Event.aspx?id=452000*

PHOTOGRAPH: Amit Bhardwaj / SP Guide Pubns

## Van Gogh's painting disappears from Cairo museum

Vincent van Gogh's famous painting "Poppy Flowers", said to be valued at $55 million, was stolen from the Mohamed Mahmoud Khalil Museum in Cairo due to lax security. "Poppy Flowers" is one of the most important works of art by Van Gogh, painted in 1887, three years before he committed suicide.

Investigation revealed that only seven out of 43 security cameras worked and none of the alarms for the paintings was functioning in August last when it was stolen. Incidentally, "Poppy Flowers" had been stolen once before in 1978. It was recovered from an undisclosed location in Kuwait two years later. "Poppy Flowers" came to Egypt in the early 1940s when the late Egyptian artist and former Member of Parliament Mohamed Mahmoud Khalil bought a wide range of valuable paintings from Europe. SP

## Fake 'cake' bomb on cargo flight

A fake bomb concealed in a wedding cake carton was flown undetected on a cargo flight to Istanbul and the British investigative agencies are looking at the security lapse. The wedding cake box was delivered to the UPS office in North London and the box contained a timer, wires and detonator.

This incident and an earlier one wherein a bomb disguised as a printer ink cartridge was flown to East Midlands, led to investigations and tightening of security procedures of cargo flights. A spokesperson of the department of transport said the bomb hoax was not related to terrorism. The UK is said to have one of the toughest security regimes for air cargo in the world. SP


## "P-56" airspace...

Around the monuments and federal structures of Washington, DC, lies the "P-56" prohibited airspace, in which flight of aircraft is not allowed due to security concerns. Most notably, the P-56 covers the US Capitol building, the National Mall, the US Naval Observatory (where the Vice President resides), the Pentagon, and the White House.

In 1994, Frank Corder who had stolen a plane was detected on the radar at Washington International Airport. A little while later, the tower at National Airport began receiving radar signals that showed Corder flying at an altitude of 2,700 feet, about 10 km north of the White House and dropping a 1,000 feet in a span of three minutes. Then, the plane resumed a southbound course, passing over Washington Circle, and violating the P-56 prohibited airspace.

The plane passed over the Ellipse, located south of the White House, and dove directly towards the Executive Mansion at a steep angle of descent. A minute later, with the flaps up and the throttle fully forward, the plane plowed into the White House's South Lawn.

The pilot was killed but concerned Secret Service agents pointed out they had little chance of stopping the attacker even with hand-held Stinger missiles. The plane, the size of a compact car, simply flew undetected at street level. SP

## Yorktown Naval Weapons Station in 'lockdown'

Following two security breaches in April, the Yorktown military installation witnessed a 'lockdown'with no one allowed to leave or enter the premises.

According to Mark Piggott, a spokesperson for the Station, the 'lockdown' occurred when a sailor exited improperly by following another car through the security gate. After half hour, two civilian contractors got impatient waiting for the sentry to finish his phone conversation and entered that side of the installation without approval. These two improper actions forced the authorities to 'secure' the station for a time. SP

PHOTOGRAPHS: Wikipedia, www.aoc.gov

47

Years of Excellence Personified

6

Aesthetically Noteworthy Publications

2.2

Million Thought-Provoking Releases

25

Million Expert Reports Voicing Industry Concerns

*.... aspiring **beyond excellence.***

**SP GUIDE PUBLICATIONS**

www.spguidepublications.com


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

# COTS TECHNOLOGY.
# MIL CREDIBILITY.

DRS has fielded more rugged military computers than anyone else. At the same time, we've developed the ARMOR line of rugged, highly mobile and connected tablets for a range of industries. This unique combination of military and commercial experience makes ARMOR the Commercial-Off-The-Shelf system of choice for non-combat military applications like aircraft maintenance and documentation. To learn more and schedule a live demo, call 1-888-872-1100.

**Rugged And Ready. That's Go To.**

drsarmor.com/military

ARMOR
RUGGED MOBILE SOLUTIONS

DRS
TECHNOLOGIES
A Finmeccanica Company