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Humanitarian assistance to Maldives from India

In a swift response to the national crisis faced by the Maldives, following the shutting down the desalination plants in a fire incident in capital in Malé, the Indian Government pressed into service as much as five Indian Air Force (IAF) transport aircraft and one naval vessel carrying a large consignment of potable water to meet the immediate requirement of the people in Malé.

Out of five aircraft, the first aircraft to reach Malé was an IL-76 carrying 22 tonnes of potable water, one C-17 Globemaster III carrying 28 tonnes has also reached Male and another C-17 Globemaster III carrying 50 tonnes also reached Malé. Two more IL-76 transport aircraft of IAF left New Delhi on December 5.



The Indian Navy dispatched INS Sukanya to Malé. INS Sukanya carried 35 tonnes of freshwater and has two reverse osmosis (RO) plants onboard which have a capacity of producing 20 tonnes of freshwater per day. INS Sukanya, an offshore patrol vessel, was on a routine patrol off Kochi. She was diverted to reach Malé at the earliest to render necessary assistance and all the possible help to Maldivian authorities.

Maldives, an island nation in the Indian Ocean, has no natural water source and consumes only treated sea water. 



Cover:

Prime Minister Narendra Modi with the President of the Russian Federation, Vladimir Putin, in New Delhi on December 11, 2014.

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Indo-Russian ties stronger than ever

The quick visit of the Russian President Vladimir Putin to India in December certainly has ruffled many a feather, specifically the United States which categorically said it was 'not time for business as usual' with Russia considering its involvement in the Ukraine crisis. Notwithstanding these murmurs, India and Russia have further endorsed their relationship which has a place of its own in the geopolitics of the region.

This relationship has to be seen in the backdrop of the US-Pakistan relationship. Recently, the US House of Representatives accepted President Barack Obama's argument that stopping US funding to Pakistan would hurt US interests and approved \$65.8-million US aid to Pakistan for 2015. And last year, the United States is said to have released over \$1.6 billion in military and economic aid to Pakistan. Though relations between India and the US have considerably improved, Russia remains India's key and strategic partner for best known reasons. Last year a BBC World Service poll indicated that 42 per cent of Russians viewed India positively with only 9 per cent expressing a negative view.

Before Russia became separate, India has had close ties with USSR, enjoying a strong strategic, military, economic and diplomatic relationship. After the collapse of USSR, Russia inherited this bonding. This bonding is built over six aspects—politics, defence, economics, civil nuclear energy, anti-terrorism cooperation and space. Economically, both countries have set a target for \$20 billion in bilateral trade by 2015.

However, in the realm of defence, the relationship has been spread over many years. India being the second largest market for the Russian defence industry, the latter is keen on extending this in the light of India's Make in India aspirations. India and Russia have several major joint military programmes such as the BrahMos missile programme, Sukhoi Su-30MKI programme (over 230 aircraft to be built by the Hindustan Aeronautics Limited), etc. The joint ventures to develop the fifth-generation fighter aircraft (FGFA) and the multi-role transport aircraft are testimony to the cooperation. Both countries signed a defence deal worth \$2.9 billion during President Putin's visit to India in December 2012. However, during this visit

no military-technical contracts were signed as the two countries already have drawn up a portfolio of orders to 2020 that are worth \$20 billion.

As military deals with many foreign suppliers are going to be on the radar, there is need for making the purchasing system transparent and efficient. The Ministry of Defence has decided to encourage registration of legalised agents with the new policy expected to be on track soon. Lt General P.C. Katoch (Retd) discusses this issue wherein we see the Modi Government working already to overhaul the policy on hiring of defence agents by foreign armament companies after implementing nuanced blacklisting norms to replace the earlier indiscriminate ones. The October report mentioned that the Ministry had already held one round of top-level discussions on the policy for 'authorised Indian representatives or agents' and the role they can play in facilitating and smoothening arms deals in a legitimate manner.

We hope that the processes become efficient, transparent and progressive.

Happy Holidays!

Jayant Baranwal
 Publisher & Editor-in-Chief

Peshawar, a wake-up call

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

December 16, 2014, will perhaps go down as the blackest day in Pakistan's history as far as terrorism goes, as the Pakistan Taliban gunned down 132 children and nine staff members of Army Public School in Peshawar and injured over 200. While all seven terrorists who had entered the school were shot dead, the Tehreek-e-Taliban (TTP) claimed this attack was to extract revenge for their children killed by the Pakistani army.

The fact that children were lined up and shot in the head and chest, as reported by the media, was most heinous and horrific, even as Pakistan dabbling in terrorism is well established. Ironically, news emanating from Pakistan had been indicating that eyewitness accounts during the so-called Operation Zarb-e-Azb stated that the radical leadership was forewarned by the military to enable them move to safe havens before the army entered these areas; subsequently, large areas were subjected to indiscriminate aerial bombings killing scores of civilians, women and children – all claimed as Taliban killed while towns like Miren Shah were raised to the ground, and similar collateral damage is happening in Baluchistan through periodic aerial bombings, with pictures of dead and wounded children posted on social media along with appeals by civilians to the world to save them from the Pakistani army.

In other words, it will remain a question mark if the December 16 attack on Army Public School was not an invitation to hell by the Pakistani army itself. If the Pakistani army has been successfully double-dealing the 'good' and 'bad' Taliban and Haqqani network to the US, West and China, in the bargain it has perpetrated enormous sufferings on the Pakistani public, of which the Peshawar massacre may only be a forerunner. While institutionalised radicalisation was instituted by Zia-ul-Haq, his successors like Pervez Musharraf and Ashfaq Parvez Kayani played Pakistan's state policy of terrorism to the hilt, which is still continuing. The stranglehold of the Inter-Services Intelligence (ISI) over Pakistan was aptly described through an editorial in *Friday Times* in March 2012 when he wrote, "The ISI has walked into GHQ and seized command and control of the armed forces". That Pakistan (read the military) has been supporting Al Qaeda, Taliban, Haqqani network is well acknowledged by western scholars as well as officials—including US-NATO officials posted in Afghanistan.

The Pakistani public thinks that the army is waging an all-out war against radical organisations like Taliban but then the ISI has been hand in glove all along. Even two years back when the army had purportedly launched an offensive against the Taliban, media had reported that the TTP chief's escape to Afghanistan was facilitated by the ISI where he remained the guest of Afghan Taliban for nine months before returning back to Pakistan, also courtesy ISI. Presently, both the Afghan and Pakistan Taliban are inexorably linked and in turn are linked to Al Qaeda, ISIS and Pakistan's ISI. Bulk Pakistan Taliban has declared allegiance to ISIS while Ayman

al-Zawahiri, the Al Qaeda chief, has declared full support to Mullah Omar of Afghanistan Taliban.

Number of Wahabi-Salafi groups in Af-Pak backed by Saudi Arabia including in Nuristan & Kunar Provinces of Afghanistan have pledged support to the ISIS. Groups like Ahraul Islam (another TTP splinter) and ETIM also think on lines of ISIS – rule of Sharia, Islamic Caliphate/Emirate. Significantly, Pakistani Asim Umar has been nominated Al Qaeda's South Asia head. Sartaj Aziz, Advisor on Foreign Affairs to Pakistani Prime Minister talking to BBC recently said, "Pakistan should not engage in a war with those [insurgents/militants] whose target is not Pakistan." He obviously was talking with organisations like LeT, which to Pakistan are 'good' terrorists waging proxy war against India.

Sure, Pakistan has been suffering from terrorist attacks but that is the price that must be paid for spawning decades of terrorism. The Peshawar massacre is a definite wake-up call for Pakistan to shun terrorism but the million-dollar question is will that call be taken and by whom – a government where democracy is a facade, public who crave peace but are powerless, or the military who hold all the cards.

A change of heart by the latter is unlikely, least peace prevail with India and Afghanistan and they be asked to return to the barracks divested of the demonic power acquired over the decades and overflowing coffers. The military has been waiting for the drawdown of US-NATO-ISAF from Afghanistan.

Since 2013, military has trained 20 Mujahid battalions under the watchful ISI for operations and in conjunction with Taliban – the obvious objective being the cherished strategic depth. This training has not been for a mock exercise but for live subconventional operations. Some of them may already be inside Afghanistan mingled with some 25,000

Pakistan refugees that have fled to Pakistan this year. It is for this reason that speaking on Afghanistan in London recently, Asad Durrani, a former head of Pakistan's ISI, was gloating that US was exiting Afghanistan. Then it is also the landowner polity of Pakistan that has been giving wholehearted support to terrorist organisations willingly or maybe due to fear. These include Nawaz Sharif and his brother Shehbaz Sharif, the Chief Minister of Punjab, who has been openly doling out millions to terrorists.

Under Prime Minister Nawaz Sharif's Government, we have already witnessed official support to Hafiz Saeed's recent anti-India rally in Lahore, state security to India's most wanted terrorist Dawood Ibrahim, non-closure of 'Karachi Project' and not punishing perpetrators of 26/11 Mumbai terrorist attacks. These are just few examples other than Pakistani complicity in most terrorist attacks in India. Prime Minister Narendra Modi had invited Nawaz Sharif for the oath-taking of his government. Post the Peshawar massacre, Prime Minister Modi personally spoke to Nawaz Sharif expressing deep sympathies for the loss of innocent lives and assuring that India stands with Pakistan in the fight against terror. To say that the Peshawar massacre is a wake-up call for Pakistan would be an understatement. It is up to Pakistan how to respond. **SP**





LT GENERAL
PC. KATOCH (RETD)

President Putin's visit – future portends



Prime Minister Narendra Modi and the President of the Russian Federation, Vladimir Putin at the joint press conference in New Delhi on December 11, 2014

The Joint Statement (Druzhba-Dosti) issued during the visit of President Putin for the Summit was in the backdrop of Prime Minister Modi reassuring President Putin that Russia will stay India's top defence partner.

Talking to the Indian media before his recent visit to India, President Vladimir Putin remembered his previous visits to India particularly in October 2000 when both countries signed the Declaration on Strategic Partnership. He mentioned his meetings with Prime Minister Modi in Brazil and Australia and felt confident to further develop the bilateral relationship with serious preparatory work done during past sessions of the Inter-Governmental Commis-

sion on Trade, Economic, Scientific, Technological and Cultural Cooperation and the Indo-Russian Forum on Trade and Investment held on November 5, 2014, at New Delhi; joint projects for construction of nuclear power plants, promoting Russian Sukhoi Superjet-100 and MS-21 aircraft, introduction of GLONASS system in Indian economic sector and Russian priorities to build butyl rubber plant, helicopter manufacturing, creating smart cities, assembling industrial tractors, etc. He stressed

importance of military, technical and nuclear energy cooperation, adding that the 20-year agreement between Gazprom Group and India's GAIL caters for 2.5 million tonnes natural gas every year commencing 2017. He pointed out that Kudankulam is the world's only plant which meets all the post-Fukushima safety requirements. He emphasised possibilities in the development of high-technology areas of cooperation, namely nuclear energy, military and technical cooperation, space research, aircraft and automobile production, pharmaceuticals industry, chemical industry, information technologies and nanotechnologies.

President Putin's visit to India was the sixth as Russian President, this time to attend the 15th Annual India-Russian Summit. His meeting and discussions with Prime Minister Modi and others were on wide-ranging issues in cordial and friendly environment. The Annual India-Russia Summits are at the apex of an elaborate multi-layered mechanism for bilateral interaction, one of the largest India had with any other country in the world. The other key institutional mechanism for high-level dialogue between the two countries are an Intergovernmental Commission on Military Technical Cooperation, co-chaired by the two Defence Ministers; and an Intergovernmental Commission on Trade, Economic, Scientific, Technological and Cultural Cooperation, the other one being India-Russia Trade & Investment Forum.

The Joint Statement (Druzhba-Dosti) issued during visit of President Putin for the Summit was in the backdrop of Prime Minister Modi reassuring President Putin that Russia will stay India's top defence partner. The main issues highlighted in the Joint Statement comprised: Energy—bilateral cooperation in the field of energy, including oil and gas, electric power production, nuclear energy, renewable energy sources, and energy efficiency. Indian companies to participate in projects related to oil and gas in Russia. Joint study to examine possibility of Russia-India hydrocarbon pipeline system and participation in petrochemical projects in each other's country and in third countries. Cooperation in nuclear energy for serial construction of nuclear power units using Russian design and expand cooperation in science and technology, industry, localisation of equipment and spares, uranium mining, fabrication and supply of nuclear fuel, management of spent fuel and in other aspects of the nuclear fuel cycle.

Towards this objective, the Indian side agreed to expeditiously identify a second site, Energy efficiency agencies of both sides to engage more closely to exchange experiences and best practices including development and efficient use of renewable energy; Technology and Innovation—developing knowledge-economy powered by technology and innovation by increasing collaboration in joint design, development, manufacturing and marketing of technology-driven products and scientific interaction in particular space applications, defence technologies, aviation, new materials, communications and information technology. In 2015, commemorate 40 years of the launch of Indian satellite Aryabhata using Soyuz launch vehicle. Expand defence cooperation increasingly based on joint R&D, joint manufacturing, technology sharing and collaborative research in futuristic technologies, in accordance with existing agreements on military-technical cooperation. Enrich bilateral interaction through regular joint military exercises, training in each other's services institutions and institutionalised consultations between armed forces.

Intensify bilateral scientific and technological interaction to increasingly focus on innovative, high-technology sectors and their commercial applications, support mechanisms and collaboration to include areas like environmental science, power sector (including alternative sources of energy), energy efficiency and energy security, information and communication technologies, nanotechnology and new materials, engineer science, bio-energy, nano-biotechnology,

bio-equipment and affordable diagnosing equipment for health care and agriculture. Cooperative activities to address Arctic issues by the Arctic Council, given that Russia is a member and India has joined as an observer in May 2013. Enhance cooperation in rare earth minerals' mining, technology development and research; Economic Engagement—Promote bilateral economic, trade and investment cooperation to contribute to the enhanced role of emerging markets in the world economy and to foster sustainable, balanced and inclusive global growth. Russian companies to utilise the opportunities in a wide range of Indian sectors and Make in India. Encourage payments in national currencies for bilateral trade. Joint Study Group to explore the feasibility of a comprehensive economic cooperation agreement covering trade in goods, services, investment cooperation, movement of natural persons and mutual recognition of standards, is of great importance for bilateral economic cooperation.

Promoting Russian investments in India in major infrastructure projects like DMIC, smart cities and freight corridors, as well as in broader sectors like telecom, power and roads. In Russia, Indian participation in industrial parks and technology platforms, in sectors like pharmaceuticals, fertilisers, coal and energy will be encouraged. Direct investment fund of \$2 billion between Rosnano and suitable Indian investment partners for implementation of high-tech projects. Agreement to finalise shortly a protocol on a Green Corridor project. Promote strengthening of bilateral inter-regional cooperation. Encourage further linkages between other regions and cities of the two countries with a view to enhance trade and investment, tourism, cultural and people-to-people contacts. Enhance bilateral trade setting target of \$30 billion by the year 2025. It is expected that the level of mutual investments by then will be over \$15 billion each way; Global Order and World Peace – cooperation to promote a polycentric and democratic world order based on shared interests of all countries.

Cooperation in democratisation of global political, economic, financial and social institutions, and jointly opposing economic sanctions that do not have the approval of UN Security Council. Cooperation for UNSC expansion reflecting contemporary realities and effectively dealing with emerging challenges. Consult and coordinate with each other in multilateral fora such as G-20, EAS, BRICS and RIC with Russia looking forward India becoming full SCO member. Both sides support open, balanced and inclusive security architecture in the Asia-Pacific region based on collective efforts, considering legitimate interests of all states and in accordance with international law. Agreement that threat to all humanity posed by terrorism justifies a collaborative approach, in accordance with international law and the Charter of the United Nations, putting aside differences and tensions between countries and regions in other political and economic areas – agreed to work together for the adoption of the Comprehensive Convention on International Terrorism by the 70th Anniversary Summit of the UN. Welcomed peaceful transition of political authority in Afghanistan and called upon the international community to join efforts to support reconstruction and economic development in that country and to continue capacity building of its national security forces. Cooperation in preventing proliferation of weapons of mass destruction.

Russia confirmed its support to India for full membership in the Nuclear Suppliers Group, of MTCR and Wassenaar Arrangement. Cooperation for peaceful use of outer space; people-to-people ties—promote and support cultural exchanges through annual festivals of culture, exchanges between cultural institutions, think tanks, tourism promotion events and other initiatives. Strengthen education ties including partnerships between universities and early conclusion of agreements on mutual recognition of education, qualification and degrees. Enhance sport cooperation through exchanges between



The BrahMos supersonic cruise missile is the best of its kind in the world and hallmark of Indo-Russian joint ventures

sports federations, scientific and research institutions, promote physical training and sports and direct contacts between organisations of the two countries including cooperation to promote Yoga and Ayurveda; Bilateral Perspectives—discussions and bilateral dialogue have given the leaders the confidence that objective political, economic, security and cultural factors will propel India-Russia partnership to a level that meets the aspirations of their people.

President Putin's visit has given a boost to Indo-Russian ties. Reuters reports among other things that Rosatom will build 12 nuclear reactors in India, oil major Rosneft signed a 10-year crude supply deal with Essar Oil and India agreed to assemble 400 Russian multi-role helicopters a year. While the signing the 'vision' document setting out a road map for cooperation in the sphere of nuclear power, Putin said Russia could eventually supply India with 20 nuclear reactors. Indian officials said a total of six reactors will be built at Kudankulam and a further six will follow at a site to be determined. Other strategic deals covered oil supply, infrastructure and an increase in direct diamond sales to India by Russian state monopoly Alrosa. A \$1 billion joint venture to support hydro-electric power projects in India has also been agreed. Earlier in March 2014, India had concluded a contract with Rosoboronexport of Russia for procurement of 42,000 rounds of fully formed AMK 339 tank ammunition. Besides this, the Ordnance Factory Board, Kolkata has entered into 'transfer of technology' contract with the same Russian company for indigenous manufacture of AMK 339 tanks rounds.

The US was quick to criticise by saying that this was not the time to do 'business as usual' because of Russia's aggressiveness

in Ukraine. This was only expected after the deliberate snub given to President Putin during the G-20 Summit in Australia by US and its allies. As regards criticising India for 'business as usual', the US needs to look at its own record for continuing to do much more than business as usual with a country like Pakistan that has been sponsoring terrorism in India and Afghanistan for over past three decades, and even ignoring blatant nuclear proliferation of that country. For India, Russia has always been a reliable strategic partner albeit and how can we forget the actions by the Russian Navy during 1971 while the US positioned the USS Enterprise in the Bay of Bengal and wanted to enter the Arabian Sea as well but the arrival of Russian submarines forced the issue. Yes there have been hiccups in Indo-Russian relations in recent years; costs and time delays, Russia critical of India going for the Rafael and Apaches, India critical of Mi-35s to Pakistan and the like. But then, hiccups in bilateral relationships are globally across the board. Media is also raising question marks on the future of two major Indo-Russian pacts – multi-role transport aircraft agreement signed in November 2007 and fifth-generation fighter aircraft signed in October 2007. There is no reason to believe that these projects will not come through besides Russia is also a level player in the defence sector of India which is open under Prime Minister Modi's call of Make in India and relaxation of FDI limit relaxed to 49 per cent, and even beyond 49 per cent for selective projects. The BrahMos supersonic cruise missile is the best of its kind in the world and hallmark of Indo-Russian joint ventures. In any event, the Indo-Russian strategic partnership is important to both countries and should be expected to grow speedily. **SP**

India-Russia – Half-hearted Druzhba?



Prime Minister Narendra Modi with the President of the Russian Federation, Vladimir Putin, in New Delhi on December 11, 2014

[By **Ranjeet Kumar**]

The joint India-Russia statement titled “Druzhba-Dosti: A Vision for Strengthening the Partnership Over the Next Decade” promises a lot, reflecting the traditional strong strategic ties between the two Eurasian and Asian giants. However, it has ruffled a few feathers in many capitals of the world and the most significant reaction has been of the US over the high profile visit of Russian President Vladimir Putin.

The US State Department asserted that it was not the ‘right time for business as usual’ with Russia. Commenting on Putin’s less than 24-hour visit to India from December 10 to 11, an annual summit ritual which Putin performs in a hurried manner, the US spokesperson Marie Harf said, “Our view remains that it’s not time for business as usual with Russia, given its action in Ukraine.”

Since Russia is under heavy sanctions by the US and the European Union for its support of pro-Moscow rebels in Eastern Ukraine

as well as Russia’s annexation of the Ukrainian peninsula of Crimea, they expect India to join the western bandwagon. The mandarins in South Block were well aware of the impending reaction in western capitals, especially in view of India’s recent efforts to improve its relations with the US and its allies. Since Russia is on a sticky wicket, suffering from a battered economy due to western sanctions, Putin was more than willing to go extra mile to reassure India over its strategic partnership.

Umbilical cord

On the other hand, the umbilical cord of India’s armed forces is tied with Russian defence industry, which cannot be ignored. Modi, hence assured Putin, “Even as India’s options have increased today, Russia will remain our most important defence partner. We have conducted joint exercises across all three wings of the armed forces in the last six months. We also discussed how to align our defence relations to India’s own priorities, including Make in India.” Modi

thus underlined the primacy of Moscow in India's strategic calculations. Modi said these words even when Russia has ignored protests from India over Russia's latest defence cooperation agreement with Pakistan which envisages transfer of Mi-35 attack helicopters, ostensibly to help Pakistan army fight terrorists and insurgents on its western border.

Of course, India could not have protested beyond a limit as Indian armed forces are critically dependent on the Russian defence industry for maintaining its combat-edge over the neighbours. President Putin proudly reminded the Indian media that Russia had extended significant assistance in developing and manufacturing the BrahMos supersonic cruise missile, which in the age of Missile Technology Control Regime, none of Indian western strategic partners would have shared the know-how. Also, India cannot be blind to the sensitive technical assistance in the field of nuclear submarine Arihant and two more of the same class. BrahMos has provided the Indian armed forces a significant offensive capability, which should not be sidestepped. Similarly the Sukhoi-30MKI fighters have bridged the critical combat capability gap of the Indian armed forces. Many other class defence systems from Russia have formed the backbone of Indian military, but lack of spare support has bedeviled the armed forces.

Hence, Prime Minister Modi correctly proposed to his Russian friend, "that Russia should locate manufacturing facilities in

India and Russia has been built on the strong foundation of mutual trust, bilateral understanding and unique people-to-people affinities, the leaders emphasised that the time has come for a significant broad-basing of bilateral cooperation to carry the friendship between the countries to a qualitatively new level."

Diplomatic observers opined that these are mere rhetorical statements, which do not match with the Russian deeds, which had supplied not only advanced defence technology and defence systems to China, India's rival, but even has begun talking to Pakistan which India considers as an unfriendly act. But these well meaning words in the joint statement create confusion in the US and western capitals which wants to draw India away from Chinese and Russian influence.

Russia emerging as principal energy partner

However, India has to ignore the western sensitivities in view of India's huge energy demand and Russia appears to be emerging as the principal energy partner. The vision document titled "Strategic Vision for Strengthening Cooperation in Peaceful Uses of Atomic Energy Between the Republic of India and the Russian Federation" is a testimony to this. Russia has abundant energy and India's appetite for energy is ever growing in view of its fast rising economy. Hence, it was extremely significant that the Russian side offered to build more than 20 nuclear power plants in India. This offer has come at a time when



Su-30MKI have bridged the critical combat capability of the Indian armed forces; A Russian T-50, on which the FGFA is based

India for spares and components for Russian defence equipment in India." Putin responded very positively to his request.

There was no direct mention of the progress on the fifth-generation fighter aircraft (FGFA) project but these issues were discussed during the talks over which India has expressed resentment. The Russian Ambassador Alexander Kadakin had revealed a few days earlier that the Russian side is ready for 50:50 work share and the fighter project would not be delayed beyond 2018, discounting media reports that the IAF would not be receiving the first squadron of FGFA before 2022-23.

Even while this highly ambitious project is under discussion, the Russian President offered to manufacture the Russia's most advanced military helicopter gunship in India under Modi's Make in India policy.

The two sides issued a joint statement asserting the political will to further strengthen the special privileged partnership. The statement said, "The special and privileged strategic partnership between

India's principal nuclear energy partners—US, Japan and France—are asking for a relaxed nuclear liability law. After several years of delay, the Russian side has agreed to start construction work of the units 3 and 4 of the Kudankulam nuclear power plant. Russia was initially offered a nuclear park in Haripur in West Bengal but due to non-cooperative attitude of the West Bengal Government, the Russians could not commence work. The new site for nuclear power plant will be allotted soon as per a road map drafted in March 2010. The nuclear cooperation between the two countries has emerged as one of the largest globally and the world is taking note of it. The US and the western world feels cheated as they helped India join the international nuclear mainstream, but all the nuclear commerce is going to the Russians, ignoring the nuclear liability concerns. The Russians are also seriously supporting the case for India's membership of the four restrictive export control regimes, i.e. the Nuclear Supplier Group, The Wassenaar Arrangement, the Australia Group and the Missile Technology Control Regime, a move staunchly opposed by China. **SP**

Legalising representatives of arms companies

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

The media had reported in early October this year that the Ministry of Defence (MoD) is soon going to encourage registration of legalised agents with the new policy starting in December this year and that the Modi Government was working already to overhaul the policy on hiring of defence agents by foreign armament companies after implementing nuanced blacklisting norms to replace the earlier indiscriminate ones. The October report mentioned that MoD had already held one round of top-level discussions on the policy for “authorised Indian representatives or agents” and the role they can play in facilitating and smoothening arms deals in legitimate manner.

This move is obviously because of poor response to the regulatory role on agents that MoD had acquired for itself in conjunction with stringent guidelines issued in year 2001 – that had proved counterproductive. Interestingly, the government in 2001 had lifted the blanket ban on agents, which had been in force since 1987 after the infamous Bofors guns and HDW submarine scandals. But this bid to inject some transparency did not really work since the stringent norms laid down for agents were considered unrealistic, with the government even declaring it would determine the scale of commission to be paid to them. Consequently, almost no one came forward to be registered as an agent.

Defence Minister Manohar Parrikar through his recent statement has now confirmed that the government is planning to legalise representatives of various foreign arms companies in the country, for speedy purchase of military hardware. He said, “We will allow company representatives. They will be middlemen. When I say middlemen it doesn’t mean commission agents or *dalals*. He will be a company representative in India. The company representative can work on a fee basis. He will be the information provider. Several times we require feedback and also someone who can get us information. There are some foreign companies which want to come to India... they can’t go on sending their people here.”

He however added that the concept of legalising middlemen has not been given a final thought, adding, “I am throwing this idea open, it is not a decision. This is loud thinking. Reactions and feedback are invited from public.” The Minister said middlemen can be permitted to charge expenses from parent companies for representing them in the country. The Minister opined that the government should be in a position to have a very clear-cut policy by January next on representatives and on blacklisting including a raft of measures to ensure transparency and at the same time speeding up such purchases to modernise the armed forces. This is not a new idea and has come up time and again, with many experts recommending its institutionalisation. The fact is that the absence of this led to high levels of corruption in arms purchases including in the MoD since agents still approached officials anyway. A dispassionate analysis would perhaps bring out

that not one single arms deal has taken place without involvement of an agent directly or indirectly. In fact, hordes of shady middlemen including in garb of consultants lurked in the corridors of power to grease the official machinery and swing deals with hefty kickbacks to politicians, bureaucrats and military officers despite all the anti-graft provisions and integrity pacts in place – some shady agreements made in environment of five-star hotels.

For example take, the recent case of a retired Lt General offering a serving Army Chief a bribe of some ₹17 crore in latter’s office. Take the mention of bribes given to politicians and bureaucrats in Haschke’s diary in connection with the Westland VVIP helicopter deal. Take the case of hefty bribes given to Indians in the Eurocopter deal, details of which are known to the Intelligence Bureau (IB). But then these are a drop in the ocean and the tentacles of the arms mafia has managed to put the lid on. As to corruption in the Defence Research and Development Organisation (DRDO) related to defence deals, including JVs with foreign companies, you just need to see last five years CAG reports. The bottom line is that our military procurements have been dogged by long delays and allegations of graft, some even through anonymous letters.

India is the world’s largest arms importer, having spent ₹83,458 crore in just the last three years in acquiring weapons from the US, Russia, France, Israel and others. Overall, India has inked arms deals worth well over \$60 billion since the 1999 Kargil conflict. But there are just a handful of legalised defence agents on the rolls of MoD. The move to legalise agent of arms companies is not only timely but imperative because: massive voids in military’s defence needs must be filled up speedily; with call of Make in India and relaxations in FDI, many foreign companies are looking at India and JVs must have authorised agents to deal with the official machinery; defence deals don’t originate only on government-to-government basis especially where private industry—therefore agents are essential; legalised agents can assist foreign armament companies in replying to arms tenders, trial evaluation of systems, price negotiations, enhancing the quality of after-sales service and in resolving performance and warranty issues, and; legalised agents will cut down on corruption in defence procurements. Registration of a greater number of legalised agents under a new policy is certainly required.

The armament companies should be free to choose anyone they want to act as their agents provided they are not blacklisted. It

should also be left to the company to decide how much commission it wants to pay the agent. As to blacklisting, the government may go for any amount of stringent measures but from the military point of view it is essential that an alternative source of similar defence equipment should be available, least the voids grow exponentially. This was one of the blind spots with former Defence Minister A.K. Antony who blacklisted firms at the drop of a hat, even on anonymous complaints, without alternative source of procurement, leading to mounting criticalities in the armed forces. **SP**

The armament companies should be free to choose anyone they want to act as their agents provided they are not blacklisted.

Pushing boundaries of energy and fuel efficiencies

General Atomics Electromagnetic Systems Group is a leader in research, development and manufacture of cutting-edge electromagnetic and electric power components and systems. GA is now uniquely positioned to support India with working solutions to help meet growing demand for efficient power technology.

Dr Vivek Lall, Chief Executive of Commercial Global Strategic Development, General Atomics Electromagnetic Systems Group, gives insights into the company's roadmap in India.

SP's M.A.I. (SP's): General Atomics is an extremely successful, privately held company with a diverse set of products, services and technologies. As chief executive of Commercial Global Strategic Development for GA Electromagnetic Systems Group, could you give us a brief profile of your organisation?

Dr Vivek Lall: GA Electromagnetic Systems Group (GA-EMS) is a recognised leader in the research, development and manufacture of cutting-edge electromagnetic and electric power components and systems designed to meet the growing demand for more reliable, fuel-efficient power. We offer electric power generation, propulsion, distribution and monitoring products to support a wide variety of defence, oil/gas, chemical, energy, mining, nuclear power, research and training requirements worldwide.

We are committed to ongoing research to keep us on the forefront of emerging market trends, and to delivering high quality products and services to help keep our customers competitive in the markets they serve.

SP's: What sets GA-EMS' technology and product offerings apart from others?

Dr Vivek Lall: Now, more than ever, we are called upon to leverage technology resources in new ways. Not only do we need to design, build, launch and support systems that keep services mission ready, we must develop systems that utilise electric energy more efficiently and are designed to ease maintenance and reduce life-cycle costs. Our products push the boundaries of energy and fuel efficiencies, harsh operational environments, and high reliability standards. An example is our work under contract with the US Navy for the installation of an electromagnetic aircraft launch and recovery system on the new US aircraft carrier Gerald R. Ford (CVN 78). We have successfully leveraged our experience in thermonuclear fusion research, and linear motor and electromagnetic launcher development to create this state-of-the-art aircraft launch system. The system is a highly redundant, modular design with few moving parts.

SP's: Could the electromagnetic aircraft launch system be implemented to help advance the Indian Navy?

Dr Vivek Lall: Yes, with concurrence from the US Navy and permission to export, the system could provide many key benefits to advance the Indian Navy. The system's flexible architecture allows for integration into a range of platforms with differing catapult con-

figurations, enabling the launch and recovery of a wide variety of aircraft, including unmanned aerial vehicles, to enhance situational awareness. Our integrated system requires fewer personnel to operate and maintain, and provides a more fuel-efficient alternative to legacy catapult systems.

SP's: What other products does GA have to offer India?

Dr Vivek Lall: GA is uniquely positioned to support India with working solutions to help meet growing demand for more efficient power technology. We're currently applying our highly efficient motors, generators, drives, high energy capacitors and integrated systems for use in power generation, integrated propulsion, and electric distribution applications for mining, solar energy, smart electric power grids, water and wastewater treatment, maritime, and oil/gas applications. We specialise in first-of-a-kind systems and product customisation to suit industry-specific requirements. For instance, our Gulftronic Electrostatic Separators are helping produce better yields at oil refineries through a unique, patented automated electrochemical process. For Indian refineries, this could mean greater efficiencies and improved yields as demand for oil and gas increases in a highly competitive world market.

India can also benefit from GA's high quality, extremely reliable radiation monitoring systems for the nuclear power industry. With over 40 years of experience, and more than 120 successfully fielded systems operating world-

wide, GA is a recognised leader in the design, development and support of environmentally and seismically qualified radiation monitoring systems. As India continues to address demand for more electricity via nuclear power, integrating proven radiation monitoring systems could help existing and new nuclear power plants improve safety and ensure continuous power generation.

SP's: How is your organisation positioned for the future?

Dr Vivek Lall: We will continue to leverage our unique electromagnetic and electric technologies, unmatched technical and design expertise, and commitment to research and development to create customised solutions that offer more efficient electric power for critical applications worldwide. We look forward to continuing to explore opportunities with India to collaborate and to enable technology innovations that address industry demand, growing markets, and new and changing requirements. **SP**



EMALS is a complete launch system designed to replace the existing steam catapult currently being used on US Navy aircraft carriers. The Gerald R. Ford (CVN 78) will be the first carrier to use EMALS.

Arihant sails out to its hunting ground

[By Rear Admiral Sushil Ramsay (Retd)]

Monday, December 15, 2014, will go down as a red-letter day in the annals of power status of our country; for on this day Arihant, the first of its indigenously designed and constructed nuclear submarine, stoutly steamed out of its nestling ground, Shipbuilding Centre, Visakhapatnam for proving its mettle at the hunting grounds under stern scrutiny of the ever vigilant nuclear safety watchdogs. The 112-metre and 6,000-tonne nuclear powered ballistic missile submarine (SSBN) was flagged off by the Defence Minister, Manohar Parrikar. This auspicious event of national importance was also witnessed by Admiral R.K. Dhowan, Chief of the Naval Staff (CNS), the Flag Officer Commanding-in-Chief, Eastern Naval Command, top brass from Nuclear Power Corporation of India, Defence Research and Development Organisation and the Bhabha Atomic Research Centre.

While Arihant remained ensconced in the wraps of secrecy for strategic reasons for over three decades, her moment of glory arrived when she was launched on July 26, 2009, by Gursharan Kaur, wife of Manmohan Singh, former Prime Minister. This was the major turning point in the life of Arihant when the shrouds were disgorged for all times to come. Thereafter, there was no looking back. The most vital and critical of all was the milestone when onboard 83 MW miniaturised nuclear reactor crossed the threshold to turn critical in August 2013. From July 2009 onward the outfitting and other systems integration work had progressed very satisfactorily. The progress on operationalising the onboard nuclear reactor was very well calibrated and executed with extreme caution and professional finesse in strict compliance of all design and safety norms and with due certification by the independent nuclear safety audits.

Prior to commissioning of a ship or a submarine there are rigorous trials, testing and tuning of various machineries, equipment, systems, sub-systems, assemblies, etc. This phase is divided into two, Harbour Acceptance Trials (HATS) and Sea Acceptance Trials (SATS). It is only on successful completion of both the phases that a ship or a submarine is commissioned into the navy. After successful completion of a highly complex and stringent phase of HATS, Arihant has now entered the second most crucial and vital phase of SATS. One may ascribe various reasons to the delay of more than four years. All this was most meticulously monitored and calibrated towards ensuring zero error in placing the first ever technology demonstrator of our country on a firm and sound foundation. In this context India is very fortunate to have incorporated all the right lessons from the difficulties and challenges faced by the pioneers of nuclear submarine designers. The delays in design, development and construction of Arihant are to be viewed in this perspective.

Onerous task before Arihant during SATS is to extensively prove,

out at sea in all of its designed roles, each and every piece of machinery, equipment, weapons, systems, etc. There will be no leniency or compromises by the faceless, yet most stringent of all audits. All of this will happen in a graduated manner but tested to its optimum efficiency. The very first sortie may last just for a few days, but Arihant will return to sea soon to engage in further sets of SATS. The process will continue until each and every concept of operations, operational doctrines and exploitation patterns of the third and invisible strategic leg of the nuclear triad are fully established and validated.

Reportedly, Arihant is capable of carrying four nuclear tipped submarine launched ballistic missiles, K-4 with a strike range of 3,500 kilometres or a dozen of tube launched missile, K-15 (Bo 5) with a strike range of 700 kilometres. This weapon configuration has been designed with in-built flexibility to change, depending on the mission requirements. Nonetheless, it will be fair to assess that with the upgradation of size, design parameters and induction of newer technologies the weapons and missile systems will also sequentially improve manifold with enhanced ranges and strike capabilities.

There are differing estimates for Arihant to complete SATS. Some conservative estimates indicate two years, while others assign 18 months to it. The successful completion of SATS is mandatory before Arihant could be inducted into the Indian Navy. Realistically the process could take another year to prove all weapons, sensors, controls and systems. However, it would be futile to speculate over this matter. What the essential pre-requisite will be to complete validation of Arihant as a SSBN. Having proven its capabilities and prowess, in keeping with the global trends, it will only pave ways for induction of advanced design features and more current technologies for three additional follow-on platforms. The work in this

direction has already begun in right earnest.

What really needs to be recognised and to be proud of the fact that with the successful culmination of each milestone by Arihant our nation is inching closer to the elite and exclusive club of the countries who acquired the expertise to build nuclear powered submarines. Presently there are just five—United States, Russia, France, Britain and China. And now it is merely a matter of time that India will be bestowed the proud status of being the sixth member of this revered Club.

Icing on the cake was the statement of Defence Minister Manohar Parrikar made on December 16, 2014, "It is an open secret. We are discussing the possibility of extending the current lease or of taking another submarine on lease. This will help us in training". This statement made a day after Arihant had set out for SATS is seen as a real shot in the arm to bolster the complex and specialised training of crew for nuclear powered submarines and future SSBNs for the Indian Navy. India will do well to pursue the positive vibes of the recent summit level discussions between President Vladimir Putin and Prime Minister Narendra Modi and to take this agenda forward for culmination in a time bound schedule. **SP**



Remembering 1962

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

December brings memories of two historical events – one happy, the other tragic—liberation of Bangladesh in 1971 and India's ignominy in 1962. We suffered the latter despite Home Minister Sardar Patel's strategic advice to Prime Minister Jawaharlal Nehru of Chinese irredentism and communist imperialism being different from the expansionism or imperialism of the western powers, former having a cloak of ideology making it ten times more dangerous and that in the guise of ideological expansion lay concealed racial, national or historical claims.

Governments in India have consistently declined from making the Henderson Brookes Report public by quoting the military does not want it declassified but this apart enough is in the public domain including excerpts of the Henderson Brookes Report itself released by Neville Maxwell. What happened in 1962 is well known including Nehru's missive to throw the Chinese out of Thagla Ridge. We fought a superior enemy in 1962 not because of the size of China but because we lacked strategic forethought, were unable to read the enemy, had poor political and military leadership and with an army that was armed, equipped and trained very poorly. Nehru died a disillusioned man after telling the nation that "a powerful and unscrupulous opponent had responded with evil to our good".

The lessons of 1962 can be summarised as follows: China used deception at the highest political level in duping the gullible Indian hierarchy into believing that China would never attack; lack of strategic thought and political beliefs devoid of reality led to the ill armed, ill equipped and ill trained state of Indian military; India failed to read Chinese intentions despite Chinese ousting nationalists from Manchuria in 1948, sweeping into Tibet in 1951, occupying Sinkiang and shelling Taiwan in 1954, occupying Aksai Chin (measuring 38,000 sq km) from 1955 to 1957, butchering own 30-40 million population during the 'Great Leap' and occupying Tibet in 1959 breaching promises made; military advice was totally ignored by India's hierarchy; the Thagla Ridge incident was mere excuse for the People's Liberation Army's (PLA) already planned pre-emptive strikes across a vast frontier creating massive shock action; China timed the offensive coinciding with the Cuban Missile Crisis to ensure US and USSR would not interfere much in the Sino-Indian border; coupled with human wave attacks, PLA employed numerous enveloping to force capitulation of Indian positions for fear of being cut off; Indian positions that had adequate fighting potential and could have been re-sup-

plied by air too were ordered to withdraw due to poor higher leadership; the IAF could have been used to bomb the enveloping movements, positions and administrative bases of the China as PLA Air Force (PLAAF) was handicapped without requisite airbases in Tibet.

However, this was not done, and appointing B.M. Kaul as Corps Commander at the Chinese front and making him responsible for entire North East Frontier Agency (NEFA) front was a huge mistake. He was ineffective in operations, reported sick at a crucial juncture and was sitting in a hospital in Delhi while his troops were routed. He resigned after the war. But what should be serious concern to us are the similes with the situation in 1962, major ones being: we had no higher defence structures worth the name in 1962 and today we continue to have nothing more than a disjointed construct; India did not have an integrated tri-service set up in 1962 and still is in the same state. HQ Integrated Defence Staff which should have been fully merged with the Ministry of Defence (MoD) has come up as a separate HQ altogether. There has been little movement towards creating Integrated Theatre Commands (ITCs) and Integrated Functional Commands (IFCs); the politico-military discord and disconnect has not improved much not counting the Prime Minister meeting the service chiefs on monthly basis; equipment and armament voids including ammunition shortages are alarming—government website of the Ministry of Industry and Commerce states 50 per cent of military equipment held by the army, navy and air force is obsolete.

The gap between the PLA and Indian military was large in 1962. Today the gap has widening exponentially taking into account rapid reaction, space, cyberspace, electromagnetic, surveillance, PGM's, asymmetric capabilities etc; we continue to be without a national security strategy; our voids in strategic intelligence continue; India's border infrastructure was atrocious in 1962. It is only slightly better today, which has buoyed the Chinese to nibble large tracts of our territory. Forward movement of reserves and forces; the MoD continues to be manned by generalist bureaucrats sans basic military knowledge; the Defence Secretary, not the Defence Minister, continues to be tasked with the defence of the country; the Service Headquarters continue to be attached offices instead of being integrated into the MoD and the like. The present government has taken some baby steps towards improving the situation but what it must realise is that defence has been a thoroughly neglected sector over the past decade plus and much more needs to be done in the face of mounting threats to our national security. This requires major surgery not cosmetic actions—simultaneous initiatives at multiple levels. **SP**

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Sino-Indian War Memorial in Tawang

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Extended reach of ICG ship Sankalp's maiden voyage to Australia

Indian Coast Guard Ship (ICGS) Sankalp, the advanced off-shore patrol vessel (OPV) undertook the overseas deployment of 32 days to Singapore, Australia and Indonesia as part of international cooperation through exchange of information and bilateral exercises.

For the first time ever, an Indian Coast Guard ship made a port call at Darwin, Australia, on a five-day visit to further strengthen the expanding maritime cooperation between the two nations. During the stay at Darwin, ICG interacted with Australian Customs & Border Protection Services and Border Protection Command.

The ship was welcomed by Scott Morrison MP, Minister for Immigration and Border Protection, Australia. While welcoming the ship to Australian waters, the Minister said that Australia and India have a mature maritime security relationship, which will be strengthened by the implementation of the joint framework for security cooperation announced by Prime Minister Narendra Modi and Australian Prime Minister Tony Abbott.

The visit by ICG ship share a common interest in combating other maritime threats in the region, search and rescue, marine pollution, transnational crime, illegal foreign fishing and demonstrates the deepening and expanding maritime security relationship between the two nations.

ICGS Sankalp was commissioned in 2008. The vessel is indigenously built by the Goa Shipyard Limited and equipped with state-of-the-art navigation and communication equipment. The



ship is 105-meter-long with endurance of 6,500 nautical mile is an ideal platform for extended deployment at sea towards SAR, maritime law enforcement, EEZ surveillance and maritime pollution response mission.

The ship has complement of 11 officers and 100 sailors, and is being commanded by Deputy Inspector General M.V. Pathak. SP

Atlas Elektronik to deliver ACTAS sonar systems to Indian Navy

Atlas Elektronik and the Indian Ministry of Defence have signed a contract for the delivery of six active towed array sonar systems (ACTAS) for the Indian Navy. The total contract volume is approximately 40 million euros. Delivery of the first system is planned for 2016.

The towed array sonar ACTAS operates in the low-frequency range and permits observation of the sea space at ranges in excess of 60 kilometres, depending on the sound propagation conditions of the water. The performance of ACTAS delivers to warships an exceptional operational range advantage over both the operational range of radars and weapons systems employed by submarines. ACTAS can also locate and track surface vessels which permit reconnaissance of both submarines and ships in the same sonar search area.

The signing of the contract confirms the pronounced competence in hydro acoustics of Atlas Elektronik as a leading supplier of maritime electronic systems in the international market. SP

BAE wins £270 million to update Royal Navy torpedoes

The deal with BAE Systems ensures the sustainment of the UK's torpedo manufacturing capability in Portsmouth for another 10 years.

The Ministry of Defence (MoD) has awarded a £270 million contract to upgrade the Royal Navy's Spearfish heavyweight torpedoes.

The Spearfish programme supports 60 jobs in Portsmouth where the torpedo is designed and manufactured with an additional 40 new skilled engineering vacancies being recruited for to work on the programme by BAE Systems.

The company also estimates that hundreds of jobs will be sustained in the company's supply chain.

This year the MOD has already awarded BAE Systems a £600 million contract to run Portsmouth Naval Base and a £70 million Type 45 destroyer support contract that combined sustains more than 2,000 jobs in the Portsmouth region, including skilled engineering roles.

Defence Secretary, Michael Fallon, said: "This contract award is good news for the Royal Navy, the UK and the city of Portsmouth where around 100 engineering jobs will be created or sustained."

"Portsmouth continues to play a significant part in defence as illustrated by this contract award and has a bright future ahead of it thanks to recent investment such as the £600 million contract to run the naval base, sustaining thousands of jobs, and the upcoming £100 million of infrastructure work to prepare the city for the arrival of the Queen Elizabeth class carriers."

The Spearfish Upgrade includes a new warhead, a change to the fuel system to improve safety, full digitisation of the weapon and a new fibre optic guidance link to improve performance.

They are carried by the Royal Navy's Astute, Vanguard and Trafalgar class submarines and can target both underwater and surface threats.

Once the torpedo has been fired Spearfish homes in on its target using sonar and will be controlled by the submarine after launch via the new fibre optic link. SP

WASS: Successful firing of Black Shark torpedo WARSHOT in collaboration with Malaysian Navy

Black Shark, a heavy weight torpedo (HWT), is considered one of the top products of Whitehead Sistemi Subacquei (WASS), a company founded by Robert Whitehead over a century ago. WASS is in the forefront of torpedo development and Black Shark is the result of research and cutting-edge technologies in electronics, applied to electro acoustic field.

Recently, Black Shark was tested on a mission in Malaysia. The Black Shark torpedo WARSHOT firing was from a Scorpene submarine against a dismissed ship used a target. The torpedo is real technological excellence from WASS.

In the demonstration in China Sea waters, facing the military base of Kota Kinabalu, in Sabah region, the firing confirmed the excellent performance of Black Shark in terms of its communication's reliability with the fire control system through the fibre optic cable, of dynamic and acoustic performances, the effectiveness of its ignition chain and the explosive charge.

WASS and the Malaysian Navy have over 20 years of close relationship and the recent demonstration was carried out by the Navy technical staff with the WASS team. The demonstration is a matter



of pride and satisfaction to both the entities.

Black Shark has been shortlisted by India for the Scorpene submarine with BDL being nominated as the production agency. With execution of this contract, the Indian Navy would have in its inventory the most lethal, advanced and proven HWT in the world. **SP**

40,000 Javelin missiles delivered and counting



The Raytheon Company and Lockheed Martin Javelin joint venture recently delivered the 40,000th Javelin missile to the US Army.

Javelin is the world's premier shoulder-fired anti-armour system. After launch, Javelin automatically guides itself to the target, allowing the operator to take cover and avoid counterfire. The operator can reposition immediately after launch or reload to engage another threat. Following launch, Javelin climbs above its target for improved visibility and then strikes where the vehicle's armour is weakest. Javelin's launch design allows it to be safely fired from inside buildings or bunkers.

"Javelin provides a real battlefield advantage for US and allied warfighters," said Richard Benton, Javelin Joint Venture Vice Presi-

dent and Javelin Program Manager at Lockheed Martin Missiles and Fire Control. "Javelin's reliability, accuracy and lethality make it a key weapon in operators' arsenals. The attention to detail that our entire production team, including our subcontractors, give to the Javelin missile have made this significant production milestone possible."

Javelin's versatility makes it effective against tanks, bunkers, buildings, small boats and slow-moving helicopters. The system has a 94 per cent effectiveness rate in combat operation, and recent tests have demonstrated that it is also adaptable to many platforms, including tripods, trucks and lightly armoured vehicles.

"The Javelin joint venture is providing US and allied warfighters with an affordable, versatile and lethal one-man-portable, anti-armour, guided missile and superior battlefield surveillance system," said John Halvey, Javelin Joint Venture President and Program Manager at Raytheon. "The industry and government Javelin team is committed to providing warfighters with the most advanced close combat weapons on the battlefield." **SP**

The Netherlands sells infantry vehicles to Estonia

The Netherlands has sold 44 CV90 infantry fighting vehicles to Estonia. Minister Jeanine Hennis-Plasschaert and her Estonian colleague Sven Mikser signed the contract in The Hague recently.

Defence is selling part of its CV90 vehicles in the wake of a downsizing outlined in the 2013 White Paper "In the interest of the Netherlands." The Army decided that 13 Mechanised Brigade in Oirschot would convert to motorised brigade, for which its CV90s became redundant. The unit will replace the CV90 with [Thales Australia] Bushmaster protected vehicles. The Dutch army still holds about 132 CV90s.

The sale to Estonia also includes two bridge-layers, two recovery and two combat engineer tank variants of the Leopard 1 tank. Training, documentation, tools and spare parts are also part of the agreement. **SP**

Indian Navy selects Sikorsky's S-70B Seahawk

India's Navy has selected Sikorsky Aircraft Corp., a subsidiary of United Technologies Corp. to fulfill the service's multi-role helicopter requirement for anti-submarine and anti-surface warfare (ASW/ASuW), among other maritime roles. Negotiations will now begin to procure 16 S-70B Seahawk helicopters, with an option for eight additional aircraft, along with a complete logistics support and training programme.

"India's selection of the S-70B helicopter represents a major strategic win for Sikorsky in an important growth market, and positions us well for future opportunities," said Mick Maurer, President of Sikorsky Aircraft. "We look forward to a long-term collaboration with the Indian Government and local industry as we work to bring the Indian Navy the highly advanced multi-role S-70B aircraft."

The proposed Indian Navy S-70B variant will include avionics and flexible open architecture Weapons Management Systems that integrate advanced sonar, 360 degree search radar, modern air-to-surface missiles, and torpedoes for the ASW role. A blade and tail fold capability will facilitate shipboard storage.

The S-70B aircraft will also enhance the Indian Navy's capabilities to perform non-combat maritime roles, including search and rescue, utility and external cargo lift, surveillance and casualty evacuation.

Sikorsky has fielded increasingly more capable variants of the S-70B helicopter since 1984 for navies that prefer to acquire a modern, fully integrated ASW/ASuW platform direct from the manufac-



turer. Now operational in six countries (in Europe, Middle East, Asia and Latin America), the S-70B platform has a solid reputation for highly reliable shipboard operations and maintenance while operating aboard frigates and larger naval vessels.

The S-70B aircraft is part of Sikorsky's Seahawk helicopter family (including the SH-60 and MH-60 models) that has accumulated almost four million flight hours from more than 800 operational aircraft, and is considered one of the safest platforms available. **SP**

Airbus Helicopters delivers the first Tiger HAD Block 2 attack helicopters to France



The French Army's Tiger combat helicopter fleet has been expanded with Airbus Helicopters' delivery of the first two attack helicopters in the HAD Block 2 version, following its qualification by the French General Directorate for Armaments.

These two Tigers will join those already

in service for the military, which have proven their capabilities during operational deployments in Afghanistan, the Central African Republic, Somalia, Libya and Mali.

The Block 2 version brings additional enhancements that now offer the full capacity of the HAD version, including improved targeting accuracy for rockets, the addition of combat external fuel tanks that provide longer flight times while still enabling the full complement of armament to be used, an extension of the flight domain in which Spike and Hellfire anti-tank missiles can be fired, and the integration of digital communications for operations in today's digital battlefield. The HAD Block 2 helicopters are also "navalised," allowing their use from ships and in sea environments.

To date, Airbus Helicopters has delivered more than 110 Tiger helicopters to France, Germany, Spain and Australia – a total which includes six HAD Block 1 attack helicopters for the French Army, along with 40 in the HAP support and escort configuration. **SP**

CEPA evaluated the Rafale F3R

From December 1 to 4, test pilots of France's Centre d'Expérimentations Pratiques de l'Aéronautique Navale (Naval aviation trials center, CEPA) carried



out the first operational readiness review of the F3R standard of Rafale. These trials allowed the initial evaluation of the Meteor missile's fire control in an operational environment, and resulted in suggested improvements.

Thanks to the range of the Meteor missile, and to the detection range of the new AESA active antenna radar, the Rafale F3R will have an unprecedented air-to-air interception capability.

In addition to these improved air-defence capabilities compared to the F3 standard currently in service, the F3R variant will also be able to operate the new laser target designation pod as well as the new buddy-buddy refuelling nacelle, which is indispensable for conducting operations around the aircraft carrier group. Its initial operational capability in the French Navy is planned for 2020. **SP**

Boeing delivers 20th P-8A

P-8A Poseidon aircraft No. 760 took off from a Boeing facility in Seattle, Washington, on December 9 for delivery to fleet operators in Jacksonville, Florida, marking the 20th overall production P-8A aircraft for the US Navy.

This Poseidon, a game changer for naval aviation, will join a growing fleet of the newest US Navy maritime patrol aircraft. This 20th overall delivery will help the US Navy prepare the next squadron transition to the P-8A from the P-3C Orion. Currently, the second fully operational P-8A squadron is deployed to the 7th Fleet Area of Responsibility. **SP**

General Atomics begins training for new aircraft launch system

General Atomics Electromagnetic Systems Group (GA-EMS) began the first round of fleet training on the new Electromagnetic Aircraft Launch Systems (EMALS) currently being installed on CVN 78 (Gerald R. Ford), the first carrier to have EMALS. GA-EMS hired a senior training developer to work with experienced GA-EMS EMALS personnel to design and administer the training. The training team consists of former catapult operators and

maintainers with more than 80 years of combined experience.

Catapult and maintenance officers and senior enlisted personnel assigned to CVN 78 began a 10-day training period starting October 20, 2014, in GA-EMS's San Diego training facilities, including a Shipset Control Lab (SCL). Students received system familiarisation and performed simulated launches. Training will continue early next year at the Navair Lakehurst, N.J. EMALS test site.

The SCL simulates Ford class four catapult control systems. It contains bow and waist Integrated Catapult Control Stations (ICCS), four deck edge stations, and two centre deck stations. The SCL has been and continues to be used for software development and evaluation, and creation of operations manuals.

GA was awarded the prime contract to provide EMALS and AAG systems for CVN 78 in June 2009 and is manufacturing the CVN 78 hardware concurrently with the System Design and Demonstration (SDD) programmes. Hardware delivery to CVN 78 is scheduled to be completed in 2015, with dead-load launches beginning in 2015. CVN 78 is scheduled to join the fleet in 2016, with at-sea EMALS aircraft launches beginning shortly thereafter.

EMALS will lower operating costs, require fewer people to operate, improve catapult performance and expand the range of manned and unmanned aircraft that the aircraft carrier can launch. **SP**

GE Aviation implements in-flight refuelling probes on Airbus A400M

As the Royal Air Force receives its first Airbus A400M Atlas at RAF Brize Norton, full-scale production of the refuelling probe for the A400M is now well underway at GE Aviation, Hamble, providing key mission capabilities for this new-generation multi-role military transport.

The six-metre-long probe is installed on the A400M's upper fuselage above its cockpit, allowing the airlifter to be refuelled in flight. Such refuelling capability significantly extends the military transport's operational range, while also enabling it to take on fuel for the subsequent transfer to other aircraft when serving as an aerial tanker itself.

GE Aviation, Hamble is responsible for the metallic refuelling probe's design, manufacture and qualification. As part of the production package, the company also designed, builds and supplies the carbon composite fairings that ensure smooth airflow at the probe's interface with the aircraft's fuselage.

GE Aviation will be building A400M refuelling probes and fairings at the rate of 24 per year, delivering them to the aircraft's final assembly line in Seville, Spain. **SP**

Osprey fleet reaches milestone

Bell Helicopter announced that the revolutionary Bell Boeing V-22 fleet of tiltrotor aircraft has recently passed the 2,50,000 flight hour milestone.

The V-22 Osprey has been continuously deployed since entering service in 2007 with the United States Marine Corps (USMC) and the Air Force Special Operations Command (AFSOC). The aircraft has seen extensive action in Afghanistan as part of Operation Enduring Freedom, in Iraq as part of Operation Iraqi Freedom, and as part of a US Central Command (USCENTCOM) Special Marine Air Ground Task Force (SP-MAGTF) supporting a long-range rapid reaction/crisis response force covering the Mediterranean and parts of the African continent.

Since entering service the V-22 tiltrotor has been deployed in numerous missions around the world, including Casualty Evacuation, Tactical Recovery of Aircraft and Personnel, Humanitarian Assistance/Disaster Relief, resupply, VIP transport, and theater security cooperation. It is one of the safest rotorcraft aircraft operated by the United States Marine Corps.

"This 2,50,000 flight hour landmark is an incredible testament to the V-22's revolutionary design and is a tribute to the men and women of Bell Helicopter who build and support tiltrotor aircraft," said Mitch Snyder, Executive Vice President of Military Programs at Bell Helicopter. "The Osprey is designed to allow operators to



engage this revolutionary technology on a wide range of different missions. It comes in fast, executes resupply or support, and then takes off and exits quickly. The unique flight envelope helps the Marines and AFSOC do things which are not possible with any other aircraft." **SP**

Northrop Grumman delivers first operational MQ-8C Fire Scout to US Navy

Northrop Grumman Corporation has delivered the first operational MQ-8C Fire Scout unmanned helicopter to the US Navy. The system will be used by ship-based commanders to improve the Navy's intelligence-gathering capabilities.

The MQ-8C is an upgraded version of the existing MQ-8B Fire Scout using a larger airframe. It can fly nearly twice as long and carry three times more intelligence, surveillance and reconnaissance payloads.

"The test programme will run through the summer as we expect these aircraft to be ready for operations by year's end," said George Vardoulakis, Vice President for medium range tactical systems with Northrop Grumman.

The MQ-8C's first ship-board flight tests aboard the USS Jason Dunham (DDG 109) will be conducted this winter. The Navy will then assess the system for operational use.

Northrop Grumman is under contract to build 19 MQ-8C Fire Scouts, including two test aircraft. The Navy plans to purchase 70 aircraft total. **SP**



Last Australian Air Force Heron detachment returns from Afghanistan



After a five-year commitment in Afghanistan, the last contingent of Royal Australian Air Force (RAAF), Navy and Army personnel supporting the Heron remotely piloted aircraft (RPA) detachment returned home to Australia recently.

Heron aircraft have completed more than 27,000 mission hours during Operation SLIPPER at Kandahar Airfield providing intelligence, surveillance and reconnaissance support to Australian forces and International Security Assistance Force (ISAF) partners in southern Afghanistan since August 2009.

Deputy Chief of Air Force Air Vice-Marshal Leo Davies welcomed the personnel in Darwin before they returned to their home cities. "The men and women that have deployed with Heron should be very proud

of what they have achieved for the ADF mission in Afghanistan," said Davies.

Following the conclusion of Australia's mission in Uruzgan in December 2013, the Heron mission was extended to support ISAF members in Regional Command – South, including support to the 2014 Afghan presidential election.

Heron is Air Force's first unmanned aerial system (UAS) entering service directly into Afghanistan in July 2009 and flying its final mission there from Kandahar Airfield on November 30, 2014.

One Heron RPA will return to RAAF Base Woomera in South Australia in 2015, where another Heron is already based, and these aircraft will form the basis of Air Force's continued development of UAS operations in support of the Australian Defence Force. **SP**

Protests at drone expo in Los Angeles

Protestors briefly disrupted the opening of a Los Angeles consumer and commercial drone expo recently with chants blaming a speaker for predator drone deaths in Pakistan. The demonstration cut into a keynote speech by Austin Blue, President of Spectrum Aeronautical. Blue's family owns General Atomics, a producer of the unmanned predator aircraft.

"Austin Blue, shame on you, how many deaths were caused by you?" the group chanted before being escorted out of the Los Angeles Memorial Sports Arena by security.

A second group outside the venue blamed drones for 3,000 deaths in Pakistan and warned that the LAPD obtained two recently.

The protests and disruption did little to wane enthusiasm for the Unmanned Autonomous Vehicle Systems Association's inaugural Drone Expo at the Los Angeles Memorial Sports Arena. The expo catered to hobbyists, vendors, professional drone pilots and businesses interested in or already using drones with new product unveils and panels about the future of the industry.

Blue said the protestors – who were led away by security – had a right to speak out, just as people have a right to pilot drones. That kind of perception is what the drone industry has to overcome as it becomes more mainstream, but Blue said he is already seeing a shift.

"The applications that are going to increasing come to the forefront are the peaceful, economically helpful ones," he said. Drones can help farmers plant crops efficiently, film studios capture beautiful aerial footage and activists monitor endangered wildlife, he said. Like the first commercial aircraft, Blue said drones will eventually move past their military background. "Nobody here is even remotely interested in using them as weapons," Blue said.

Keith Kaplan, CEO of the Tesla Foundation and a founder of the UAVSA, said the Drone Expo started first as a small hotel-sized conference, but grew dramatically as the industry took off. The UAVSA advocates for fair regulations for both individuals and companies. **SP**

Crossing of militants from porous border stretches

Indian Insurgent Groups (IIGs), based and operating from Bangladesh, try to sneak into India taking advantages of porous border between India and Bangladesh.

The fencing has been erected only along the Indo-Bangladesh, Indo-Pakistan and a very small stretch of Indo-Myanmar borders. Along Indo-Bangladesh and Indo-Pakistan borders, the porous stretches i.e. the gaps in fencing have been identified by the Border Security Force (BSF). There are 783 numbers of porous stretches/gaps along the Indo-Bangladesh border and 149 numbers of porous stretches/gaps along the Indo-Pakistan border.

Government has adopted a multi-pronged approach to strengthen the porous border stretches. The steps taken in this regard inter-alia include:

- Effective domination of the border by carrying out round the clock surveillance of the borders by patrolling *nakas* (border ambushes) and by deploying observation posts all along the

international borders of the country. The riverine segments of international borders of the country are being patrolled and dominated with the help of water crafts/speed boats/floating Border Out Posts (BOPs) of Border Security Force (BSF) water wings.

- Introduction of force multipliers and high-tech surveillance equipments. Continuous efforts are made to procure the latest surveillance equipments fully equipped with day and night vision devices for further enhancing the border domination.
- Vulnerability mapping of the border outposts (BOPs) which are sensitive with regard to illegal migration/cross border crimes along the Borders have been carried out. These identified BOPs have been strengthened by deploying additional man power, Special Surveillance Equipment, vehicles and other infrastructure support.
- Upgradation of intelligence network, coordination with sister agencies and conduct of special operations along the borders.

This was stated by the Minister of State for Home Affairs, Kiren Rijiju in a written reply to Dr R. Lakshmanan in the Rajya Sabha. **SP**

Al Qaeda and ISIS plan to target Indian cities

There are no intelligence inputs to suggest that Al Qaeda and ISIS terror groups are working together to target Indian cities. However, a video was uploaded on September 3, 2014 containing the speech of Sheik Eyam Al-Zawahiri of Al Qaeda, in which he announced the establishment of a new wing of Al Qaeda, namely "Al Qaeda in Indian subcontinent (AQIS)". It is learnt that Asim Umar and Usama Mehmood have been appointed as the 'Amir' and 'Spokesperson' respectively of AQIS.

Similarly, Abu Bakar Al-Baghdadi of ISIS in a video, uploaded on June 29, 2014, on Internet, highlighted the alleged plight of Muslims in various countries including India and stated that rights of Muslims are forcibly being seized in these countries. However, there are no intelligence inputs about specific threat to Bengaluru city by these two outfits.

There is a very close and effective coordination amongst intelligence agencies at the Centre and the State levels on intelligence sharing. The Intelligence inputs about possible designs and threats are shared with the State Governments concerned on a regular basis. The Multi Agency Centre (MAC) has been strengthened and reorganised to enable it to function on 24 x 7 basis for real time collation and sharing of intelligence with other intelligence agencies and States, which ensures seamless flow of information between the State and the Central agencies. This has resulted in busting of many terror modules, thus neutralising major terror attack plans.

This was stated by the Minister of State for Home Affairs, Haribhai Parathibhai Chaudhary, in a written reply to Rajeev Chandrasekhar in the Rajya Sabha. **SP**

New policy for Maoists surrender

In order to bring left-wing extremists (LWE) into the mainstream, the State Governments have their own surrender and rehabilitation policies. The Central Government reimburses the expenditure incurred by the State Governments on rehabilitation of surrendered LWE in terms of its own policy in this regard.

The Government of India has revised the guidelines for 'Surrender-cum-Rehabilitation Scheme of LWE in the affected States' with

effect from April 1, 2013. The rehabilitation package in the revised policy, inter-alia, includes an immediate grant of ₹2.5 lakh for higher ranked LWE cadres and ₹1.5 lakh for middle/lower ranked LWE cadres who surrender before the State Government concerned. Also, those surrendering would be provided a monthly stipend of ₹4,000 for a period of three years for vocational training. In addition, incentives for surrender of weapons/ammunition, etc. are also provided under the said Scheme.

A total of 437 LWE cadres have surrendered during the period May 1 to November 15, 2014 in the States of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Odisha and Telangana.

This was stated by the Minister of State for Home Affairs, Haribhai Parathibhai Chaudhary in a written reply to Majeed Memon in the Rajya Sabha. **SP**

Bengaluru police arrest Biswas

Bengaluru Police arrested a city based executive Mehdi Masroor Biswas for allegedly handling pro-ISIS Twitter account. The police confirmed that Mehdi confessed that he was the operator of the pro-Islamic State Twitter account @ShamiWitness. However, police said that no direct link has been established between @ShamiWitness and Islamic State, National Investigation Agency has been told to investigate the matter. According to the Bengaluru Police it looks more like a case of 'self-radicalisation.'

The arrest of the pro-ISIS suspect came after a UK-based Channel 4 news revealed the key details of the person running the Twitter account including that it was being operated from Bengaluru. Although, the Bengaluru Police have detained the man behind the pro-ISIS Twitter account but it should be seen as a major lapse in security measures.

The @ShamiWitness twitter account was created in 2009. Since then, jihadists content has been posted from the account since then. According to the press note released by Bengaluru Police, Mehdi was interested in political developments in middle east countries like Gaza strip, Syria, Israel, Lebanon, Egypt, Libya since 2003. Police also said that he was allegedly in connection with key ISIS figures and UK jihadists. Most of his followers are Islamic State's foreign jihadists. **SP**

Lockheed Martin opens Center for Innovation and Security Solutions in UAE

Global security and aerospace leader Lockheed Martin celebrated the opening of a new state-of-the-art collaboration Center in Masdar City, Abu Dhabi, to explore innovation, advance security and help to achieve the UAE's vision of building a strong resilient economy. The Center for Innovation and Security Solutions (CISS) is the first of its kind outside the United States.

Located in the Incubator Building at Masdar City—Abu Dhabi's low carbon, sustainable urban development—the Center is a reconfigurable, multi-purpose facility. It will enable cooperation between Lockheed Martin and the UAE Government, industry and academia to develop solutions that address challenges facing today's world, from climate change to resource scarcity, and advance scientific discovery.

Speaking at a ribbon-cutting ceremony for the CISS, Marillyn Hewson, Chairman, President and Chief Executive Officer of Lock-

heed Martin, highlighted the company's commitment to enhancing the development of the UAE's skill-base to deliver economic benefits.

"We value the entrepreneurial, innovative spirit we see in the UAE and the commitment to real-world solutions and progress that Masdar represents," said Hewson. "We look forward to collaborating on innovations, growing technical expertise and contributing to economic development."

The CISS is the result of a long-standing partnership between Lockheed Martin and the UAE in programmes that support government, industry and the development of skills. Ten separate projects are underway or in planning.

Dr Sultan Al Jaber, Chairman of Masdar, Abu Dhabi's renewable energy and clean technology company, said: "By combining Lockheed Martin's 100 years of technology expertise with Masdar's holistic approach towards higher education, R&D and technology deployment we will be able to deliver innovations that address the UAE's most important challenges. The Center will facilitate capacity building and stimulate knowledge transfer by enabling access to Lockheed Martin's extensive network of laboratories, research facilities and centers of excellence across the globe." **SP**

Avinash Chander to continue as DRDO chief

Dr Avinash Chander, Secretary, Department of Defence Research and Development Organisation (DRDO), has been continued in the same post, beyond his retirement on November 30, for another 18 months on a contract basis, with the same terms and conditions as he would be entitled to Secretary of DRDO before the date of retirement. His contractual term will end on May 31, 2016. **SP**

Northrop Grumman Australia formally launched

Australian Minister for Defence, Senator David Johnston, formally launched Northrop Grumman Australia in a ceremony at the Australian War Memorial recently. With over 400 employees now in Australia, it is one of the key international growth areas targeted by Northrop Grumman Corporation.

Northrop Grumman products and systems have been supporting Australia's national security requirements for more than 20 years. The recent appointment of Ian Irving as Chief Executive for Northrop Grumman Australia, and the establishment of a permanent local presence marks a new phase in the company's contribution to Australia. **SP**



cash consideration of approximately \$28 million.

The Texas-based Eclipse Electronic Systems business employs approximately 90 people and provides highly-advanced intelligence, surveillance, and reconnaissance (ISR) products and services to the US defence and intelligence community. The proposed acquisition of the Eclipse Electronic Systems operations will enhance BAE Systems' ISR offerings to existing customers, and broaden the potential customer base.

"This proposed acquisition fully aligns with BAE Systems' strategy to invest in advanced technologies critical to US national security and defence needs," said Tom Arseneault, Chief Operating Officer at BAE Systems Inc. "By combining Eclipse Electronic Systems' products with BAE Systems' existing ISR capabilities, we will be able to support our customers' requirements for reliable, smaller, lighter, and more power-efficient sensor solutions to capture and harness actionable intelligence."

The proposed acquisition is conditional upon receiving certain regulatory approvals. It is anticipated the proposed acquisition will be completed during the first quarter of 2015. **SP**

Hanwha Group acquires shores of Samsung Techwin

An agreement has been signed which will see the controlling shareholders of Samsung Techwin, including Samsung Electronics, Samsung C&T and other Samsung Group affiliates, sell their holding stakes in Samsung Techwin to Hanwha Group.

"Hanwha Group's investment in Samsung Techwin will enable us to continued research, design and development of innovative market leading solutions that will create new business opportunities and ensure our future growth," said Han Soo Jung, Executive Vice President, General Manager of the Security Solution for Samsung Techwin. "Customers can be assured that it is 'business as usual' and that there will be absolutely no disruption to the supply of products or to the normal high levels of pre and post sales support that customers have come to expect from Samsung Techwin." **SP**

BAE Systems to acquire Eclipse Electronic Systems

BAE Systems announced that it has entered into an agreement with Esterline Corporation for the proposed acquisition of its wholly-owned subsidiary, Eclipse Electronic Systems Inc. for

DARPA virtual lab advances DoD's ability to test critical microelectronics

Under the auspices of the Defense Advanced Research Projects Agency's (DARPA) Integrity and Reliability of Integrated Circuits programme, researchers from the Naval Surface Warfare Center (NSWC) and Air Force Research Laboratory (AFRL) are collaborating in powerful new ways to determine the reliability and integrity of microchips embedded in some of the nation's most critical military weapon and cyber systems.

Integrated circuits or microchips are ubiquitous, found in virtually all modern appliances and systems ranging from desktop computers, laptops and cell phones to fighter aircraft and munitions. Despite that pervasiveness and criticality, few automated techniques today can verify whether the intended functionality of microchips has been compromised at any stage during design and fabrication.

To ensure performance of integrated circuits in military systems, DARPA, working in concert with its service partners, developed a 'virtual lab' with an integrated computer-aided design or CAD and file-sharing environment to transfer the large volumes of data accumulated during microchip analysis and debugging. In addition to file sharing, a website constructed for the virtual lab is facilitating communication between government researchers and programme performers from academia and industry.

"Integrated circuits or microchips form the backbone of all military IT and electronics systems, and ensuring that these microchips are free from unauthorised tampering is essential to national security. Unfortunately, this task has become increasingly difficult as more microchips are designed and built around the world in commercial facilities," said Kerry Bernstein, DARPA Program Manager. "Improving chip intrusion detection and assessment speed across the investigative community will help prevent the installation of counterfeit chips in military systems and enhance overall confi-

dence in the electronics supply chain."

DARPA's virtual lab is creating new methods for researchers to test electronic systems with substantial complexity, giving rise to innovative reliability analysis tools. These tools are applied to test articles distributed by DARPA to its performers, who stress the chips under loads likely to be seen during normal operating conditions.

One test, referred to as advanced failure analysis, uses state-of-the-art equipment, including multiple scanning optical microscope techniques transferred earlier this year from DARPA to NSWC. In a recent investigation conducted by NSWC Crane, AFRL Wright Patterson and University of Southern California's Information Sciences Institute, researchers devised a proprietary, non-destructive technique to analyse and repair microchips exhibiting erratic behaviour. Using this novel failure analysis tool, the team was able to determine the precise design fault responsible for the behaviour and correct the problem. The non-invasive testing was conducted using an innovative 1,340 nm laser application to physically alter the chip's circuitry. Traditionally, a focused ion beam (FIB) edit would have been required to conduct such a repair, risking destruction of the chip and its components. The new technique preserves functionality of the part and its use as evidence in subsequent forensic analyses.

"As we seek to authenticate, fix and/or remove suspected counterfeit microchips through these efforts, broadening the availability of non-invasive tools, techniques and related findings across the DoD is essential," said Bernstein. "Given how widespread microchips are, and their vulnerability to compromise, the numbers don't seem to be on our side. Through the virtual lab, however, we can help shift the balance in our favour. By extending testing resources to our service partners and working together more effectively, we can ensure the reliability of our most important electronic systems." **SP**

Pay dirt: Turning deadly chemical agents into harmless soil

Destroying chemical warfare agents in bulk is a challenge for the military and international community. Current methods of eradication, such as incineration or hydrolysis, create toxic waste that requires further processing. And the logistics required to transport large stockpiles from storage to a disposal site can be risky and expensive. Additionally, different types of chemicals require different methods to make them safe, so each agent requires a specific neutralisation procedure—one size doesn't fit all. To address these challenges, DARPA has announced the Agnostic Compact Demilitarization of Chemical Agents (ACDC) programme.

The programme aims to develop technologies for a transportable, prototype disposal system that converts any chemical warfare agent into safe organic compounds, such as harmless soil, using minimal consumables in the process and creating no hazardous waste. The system would enable safe destruction of chemical stockpiles on site without need for transportation.

"Chemical warfare agents are made of deadly combinations of chemicals that in their original, basic constituent form were at

one time a harmless part of the environment," said Tyler McQuade, DARPA Program Manager. "ACDC aims to develop technologies that reverse the process and return the chemical compounds to their safe, natural state in the environment, without creating hazardous waste in the process."

Looking beyond current incineration methods that can create acid rain as a by-product, and hydrolytic methods that require large amounts of water, ACDC seeks new methods that would allow indigenous materials near a chemical weapons storage site anywhere in the world to be used as scavenger material to neutralize agents. Soil is plentiful in many places around the world and is envisioned as a main consumable for a new neutralisation process.

"Simply put, we want a new process that would take dirt, plant matter, or whatever is plentiful at the storage location, mix it in with any chemical agent and get safe dirt or plant matter out the back side that can be put back in the environment right at that location, significantly reducing the cost of current methods," McQuade said.

The ACDC programme seeks expertise in areas such as soil science, environmental science/engineering, chemistry (analytical, inorganic, organic, physical), chemometrics, process engineering and control system engineering. **SP**

Guards of Julia Roberts slam dunk intruder

A crazed intruder tried to break into the home of actor Julia Roberts and was promptly thrown head first into cactus bushes by her ultra-tough security guards. Julia Roberts security comprises all former US military personnel.

The Hollywood actress may have had the fright of her life when the man tried to gain access into her stunning \$9.5 million Malibu property in mid-January, just a few weeks before the tragic suicide of her sister Nancy Motes.

One close neighbour, who saw the incident, explained to Radar online: "It was about one in the afternoon when four sheriff cars came rushing down the road, they were white ones, which means it's the chief in the area, they're not messing around. I thought someone had been murdered or there was a fire. By the time I got there, the man was just crawling out of the cactus bush outside her property and the security guards were talking to the police. One of them was boasting saying: 'I'm an ex-Marine and I just picked him up and threw him head first.'" **SP**



24-year-old scales New York City's Brooklyn Bridge

Police were investigating a new security breach on New York City's Brooklyn Bridge after a 24-year-old scaled the bridge and took photos with his iPhone, authorities said.

The incident happened in August this year. Video showed the man, identified as Yaroslav Kolchin, walking past security and scaling the bridge. Aviation, harbour and emergency service units rushed to the scene, and the man was taken into custody.

Kolchin faces charges of reckless endangerment, obstruction of governmental administration, criminal trespass and disorderly conduct – hazardous condition. **SP**

High-security labs safety breaches

High-security laboratories that handle the most dangerous viruses and bacteria have reported more than 100 accidents or near-misses to safety regulators in the past five years, UK official reports reveal, according to *Guardian*.

One blunder led to live anthrax being sent from a government facility to unsuspecting labs across the UK, a mistake that exposed other scientists to the disease. Another caused the failure of an air handling system that helped contain foot and mouth disease at a large animal lab.

Wear and tear also caused problems and potentially put researchers in danger. At a top security Ministry of Defence lab, tears were found in isolation suits at a facility handling animals infected with the Ebola virus.

Reports obtained by the Guardian from the Health and Safety Executive (HSE) reveal that more than 70 incidents at government, university and hospital labs were serious enough to investigate. Many led to enforcement letters, or crown prohibition notices, ordering labs to shut until improvements were made. Some were so serious they ended in legal action. **SP**

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