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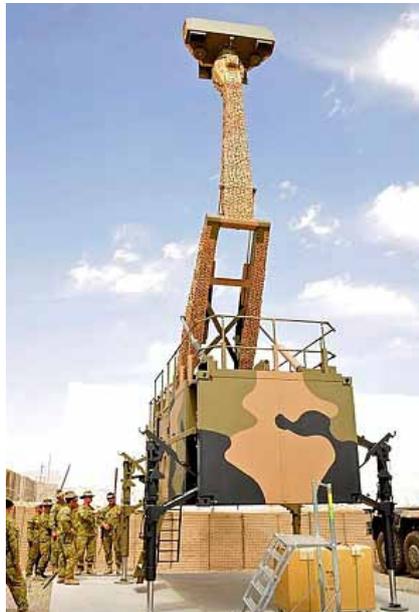
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What happened to GBAMD?

Tom Muir

Defence's supplementary estimates for 2012-13 notes that C-RAM, the counter rocket, artillery and mortar capability in the form of a truck mounted Giraffe Agile Multi Beam (G-AMB) radar, has been operating effectively in Afghanistan since December 2010 and that full operational capability in Afghanistan

was achieved in September last year with FOC in Australia scheduled for earlier this year (2013). It also appears that due to savings against the C-RAM purchase through FMS, revised expenditure for the year has dropped from \$56 million to \$30 million.

An \$87 million five-year contract was awarded to **Saab** for production and delivery of three Giraffe radars along with field sustainment support services, as part of the final stage of the **Land 19 phase 7A acquisition project** in 2010. Two of the C-RAM radars have been deployed at the multinational base at Tarin Kot and the ADF took delivery of the third Giraffe AMB radar earlier this year for use as an Australia-based training support system.

But with the drawdown of Australian troops from Afghanistan presumably one, or possibly both radars, will be returned to Australia. But will they continue to be held as an effective force protection capability, ready for deployment as such, or will their role broaden to that of airspace surveillance for the ADF's ground based air and missile defence capability (GBAMD)?

Perhaps one may be forgiven for assuming that this major investment in the C-RAM sensor and warning system, of around \$250 million, may represent an early start on the capabilities sought for the future GBAMD system originally proposed under Land 19 Phase 7B. The Giraffe AMB radar is certainly part of Defence's vision for an enhanced air-land GBAMD capability.

The ADF's current land based air defence capability is based on the 16 Air Defence Regiment's two batteries, each comprising three troops of five fire units, operating relatively new or upgraded RBS-70 missile systems with the latest generation **Bolide missile**. This has an intercept range of about 8 km and a ceiling of about 15,000ft. The



Bolide reaches a velocity of about Mach 2.2 (750metres per second) and also features a multi-role proximity fuse, selectable for threats like fighters, transport aircraft and helicopters, to smaller targets such as UAVs or cruise missiles.

Another improvement is the lightweight **Borc night sight** which incorporates a staring array sensor instead of a scanned array, providing greater resolution and consuming less battery power. Also each troop is equipped with an extended range version of the portable surveillance and target acquisition radar (PSTAR) now with a range greater than 40kms and much improved detection of targets in radar clutter.

But presumably, the Tactical Command and Control System (TaCCS) which enables radars linked to the Command Post to be networked to produce a single correlated local air picture, will be replaced by AFATDS. In deference to the wider range of threats, including missiles, the Phase 7B capability used to be referred to as the GBAMD system, and the potential for new technologies such as directed-energy systems. But that was then...



Laser gun for ground based air defence

Tom Muir

It turns out that the USMC and the Office of Naval Research are working to develop a laser weapon system that would fit on a tactical vehicle and

provide ground-based air defence for troops and convoys against threats ranging from small unmanned aerial vehicles to missiles and manned aircraft (GBAMMAD?).

The Marine Corps has been working for about a decade to determine what will replace its man-portable **Stinger weapon system**, and laser weapons may prove to be the most affordable and effective way to go, service officials believe. **Lee Bond**, ground-based air defence program manager at the program executive office for land systems, told *Inside the Navy* on April 4 that the service originally pursued a ground-launched **Advanced Medium-Range Air-to-Air Missile**, but it proved to be too much capability at too high a cost for the mission. After dropping that project – and following the Army's decision to eschew the comparable Surface-Launched AMRAAM (SLAMRAAM) - the two services are in talks about the best way to move forward.

Both services together are looking at what is the right mix of weaponry going forward between what we've traditionally called the kinetic kill weapons – bullets and missiles versus a directed-energy solution," Bond said. The solution could be an enhanced Stinger, a missile that is somewhere in between the Stinger and a SLAMRAAM, or a laser weapon system.

"You're looking for a defensive response to where we're not using a million-dollar missile to kill a **UAV** that cost somebody \$20,000 or less to assemble from Radio Shack with a few pieces of higher-end electronics riding on board," he explained.

"So you don't want to make that trade on a one-for-one basis, but you also need enough capability that if something more robust comes at you, a cruise missile or a manned aircraft, you still have capability there also."





P-8A Poseidon capability updates

Tom Muir

In a recent article in *Defence Week* we pondered, in somewhat lightweight fashion, whether as a capability, a smaller number of P-8As could match the enhanced capabilities of the much upgraded AP-3C Orions, with their extensive sea and land-based surveillance

capabilities. It seems that the answer really lies not in the eight P-8A aircraft to be acquired under Air 7000 Phase 2B, which come with Increment 2 capabilities, but in the acquisition of the Increment 3 retrofit capabilities and weapons, which are to be acquired under Phase 2C. This will be the P-8A's first planned upgrade in RAAF service.

The signing of a \$73.9 million **Increment 3 Project Arrangement** with the US Navy for the P-8A aircraft announced on October 5 2012 by Defence Minister Stephen Smith, formalised this country's participation in the development of the Increment 3 P-8A aircraft and marked Australia's continued commitment to the \$5 billion project to acquire a new manned Maritime Patrol Aircraft. So what capabilities does Increment 2 include?

The first part of Increment 2 of P-8 development will be integrated in 2014. This includes a technology refresh for the acoustic processor (which has four times the processing capacity of the present Orion system), the addition of the MAC active sonar system (the primary wide-area acoustic search system), and an update to the TACMobile system that provides the ground support elements for pre-flight mission planning, in-flight data processing, and post-flight data processing and analysis.

The second part of Increment 2, scheduled for 2016 with full-rate production, will include full MAC capability, more TACMobile upgrades, and a high-altitude ASW sensor, which integrates modified sonobuoy sensors to enable the P-8A capability to conduct its mission at higher than traditional fixed-wing airborne ASW altitudes. These higher altitudes will enable greater communications range with large area buoy fields and greater coverage from other onboard non-acoustic sensors. Included also is a **high-altitude ASW weapon capability (HAAWC)**. In this case HAAWC is a Mk-54 torpedo equipped with a wing kit enabling it to be launched from the internal weapons bay at high altitude. It could also be a **JSOW** similarly equipped.

Increment 3, scheduled for 2020, will include an ASW communications upgrade with wideband satellite communications, a net-enabled ASW weapon; mid-course update capability for the HAAWC, and an applications-based architecture to combine with the open-architecture software. Increment 3 also may include a signals intelligence capability as part of the plan to replace the capability of the **EP-3E electronic reconnaissance aircraft**.

The net-enabled ASW weapon is a class of air-to-ground munitions guided to coordinates entered prior to release. Net-enabled weapons have the additional ability



to have targeting coordinates updated in flight through the use of a common datalink, and be tracked by aircraft and other platforms logged into the same network. Under Increment 3 communications upgrades include wideband BLOS, extended line of sight IP and upgrade to the common data link. Third party targeting is an important feature and enables precision weapons such as JSOW to receive third party target updates in-flight, retarget after release and strike a precise point on a moving ship using the weapon's autonomous terminal seeker. It is anticipated that the Australian P-8As will be armed with the Mk-54 torpedo, including HAAWC, **Harpoon Block II+** and airlaid mines.

It would seem that retrofitted with the Increment 3 capabilities, this country will have a highly capable replacement for the venerable AP-3C Orion, well suited to the ADF's Maritime Intelligence, Surveillance, Reconnaissance and Response (MISRR) tasks. But whether we need more than eight P-8A aircraft and fewer MUAS, as has been suggested-is another matter.



ATK and NIOA form joint venture to capture DMMA contract

ATK and Nioa Nominees (NIOA) have agreed to form ATK-NIOA Munitions (ATK-NIOA), an Australian-based joint venture company to deliver a commercially viable business model to the

Australian Commonwealth in support of the Domestic Munitions Manufacturing Arrangements (DMMA).

The DMMA project seeks to establish a successor operator for the Benalla Munitions facility in regional Victoria and the Mulwala Explosives and Propellant facility in regional New South Wales.

ATK-NIOA has submitted a proposal in response to a RFP issued by the Defence Materiel Organisation (DMO) to be operators of both the Benalla and Mulwala facilities for a potential 10-year contract period.

ATK is the majority stakeholder in ATK-NIOA and will have operational control. ATK will contribute process, product, and facilities engineering expertise and integrate DMMA facilities' products into its global sales portfolio. NIOA will manage the sales, marketing and distribution functions for the joint venture.

ADM Cyber Security Conference

Date: 12-13 June 2013, Hotel Realm, Canberra

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Questions raised over MUOS site in Sicily

Tom Muir

The Sicilian government is resisting US Navy efforts to place one of four Mobile User Objective System (MUOS) ground sites in Niscemi, Sicily, according to a service spokesman. The service has not identified alternatives that would satisfy requirements for the site in Niscemi. However, the US Navy is confident an agreement signed between Italy and Sicily will allow the service to complete the MUOS ground facility. The Sicilian government recently voiced concern over the MUOS ground site, while the Italian government has signed off on the project.

“Since 2005, the Navy has coordinated closely with the Italian government to obtain all appropriate permissions to build and operate a ground station for the MUOS program near Niscemi, Sicily,” **Stephen Anderson**, spokesman for the US embassy in Rome, wrote in an April 5 email. “We are committed to working with Italian authorities to address health concerns raised by the local population.”

Australia is a participant in the MUOS program which operates as a global cellular service provider to support the war fighter with modern cell phone-like capabilities, such as multimedia. It converts a commercial third generation (3G) **Wideband Code Division Multiple Access (WCDMA)** cellular phone system to a military UHF SATCOM radio system using geosynchronous satellites in place of cell towers.

By operating in the UHF frequency band, MUOS provides troops with the tactical ability to communicate in poor environments, such as heavily forested regions where higher frequency signals would be unacceptably attenuated by the forest canopy.

The Australian ground site is located at the Australian Defence Satellite Communications Station at Kojarena about 30 km east of Geraldton, Western Australia. Other MUOS sites are located in Hawaii and the US mainland.



Five-year strategic plan for defence science

A blueprint for future scientific advice and technology support to defence was launched by the Minister for Defence Science and Personnel Warren Snowdon.

The five-year strategic plan for the Defence Science and Technology Organisation (DSTO) sets out priorities

and initiatives designed to enhance DSTO's reputation as a leader in technology



innovation and a collaborative partner with industry and the science community.

"DSTO is positioning itself to better meet future challenges and opportunities in the face of the changing global security and Defence environment, rapid advances in technology and increasing budget pressures," Snowden said.

"By leveraging partnerships with industry and universities, DSTO will become an even more valued advisor to Defence and the Australian Government.

"DSTO has world class scientists who will be involved in delivering high-impact technology outcomes for Defence and national security by working closely with external partners on large, complex and scientifically challenging programs."

Minister Snowden said these initiatives would help DSTO to keep Defence capability at the leading edge.

Chief Defence Scientist **Dr Alex Zelinsky** said the strategic plan had been developed in consultation with staff, the Defence leadership and external stakeholders.

"Staff are committed to the plan and keen to begin its implementation," Dr Zelinsky said.

The DSTO Strategic Plan 2013-18 is available by clicking [here](#).



Quickstep receives largest JSF purchase order to date

Quickstep has received new F-35 Lightning II Joint Strike Fighter (JSF) purchase orders from Northrop Grumman Corporation during the third quarter 2012/13,

under the long term agreements already signed with Northrop Grumman.

Quickstep will manufacture the JSF parts at its new Bankstown Airport facility, with delivery of most of these parts anticipated before the end of 2014.

"Together with our existing contract to supply parts for **Lockheed Martin's C-130J 'Hercules'** aircraft, our firm order book is now around \$20 million mostly for delivery by the end of calendar year 2014," Quickstep managing director, **Philippe Odouard** said. "These recent orders provide the backbone of the revenue growth anticipated from already signed agreements, and should drive a significant increase in manufacturing sales from the 2012/13 year to the 2013/14 year.

"We are continuing to negotiate with global aerospace, defence and automobile manufacturers to further extend our order book to support ongoing revenue growth."

Under various memoranda of understanding Quickstep is supplying carbon fibre composite skins and sub-assemblies for the JSF program. The overall agreement to supply JSF parts from different Original Equipment Manufacturers is valued at up to \$700 million to the company over two decades. At peak production rates, Quickstep is expected to generate JSF revenue of approximately \$40 million per annum.





Rohde & Schwarz releases Broadband Manpack Antenna

Rohde & Schwarz has released the Broadband Manpack Antenna R&SHK060, a vertically polarized omnidirectional receive and transmit antenna designed specifically for portable radios. With an extremely broad frequency range of 30 MHz to 513 MHz the R&SHK060 is ideal for multiband/multirole radios (MMRs).

The R&SHK060 offers similar performance to commercially available VHF band antennas and standard UHF band antennas, but in the one product, thus reducing the weight of equipment carried by the operator and avoiding the need to change antennas when changing frequency bands.

The R&SHK060 is lightweight and easy to mount with just the one connector between radio and antenna. For transportation the antenna can be folded with the folded state optimising antenna performance in the frequency range between the tactical VHF and tactical UHF frequency ranges.



Measuring illicit regional markets

Illicit markets in East Asia and the Pacific earn organized criminal groups nearly US\$90 billion a year – an amount roughly equal to twice the GDP of Myanmar, according to a UN Office on Drugs and Crime (UNODC) report released this week.

The UNODC report, **Transnational Organized Crime in East Asia and the Pacific: A Threat Assessment**, is the first comprehensive study of transnational organized crime threats in East Asia and the Pacific. It details the criminal flows involved and provides estimates of annual revenues generated for criminal groups by activities related to human trafficking and migrant smuggling, illicit drugs (heroin and methamphetamine), environmental crime (wildlife, wood products, e-waste and ozone-depleting substances), and counterfeit consumer goods and fake medicines.

“This report outlines the mechanics of illicit trade: The how, where, when, who and why of selected contraband markets affecting this region,” Sandeep Chawla, UNODC Deputy Executive Director, said.

The report estimates that the top money-makers for crime groups in East Asia and the Pacific are: the illicit trade in counterfeit goods (US\$24.4 billion), illegal wood products (US\$7 billion), heroin (US\$16.3 billion), methamphetamines (US\$15 billion), fake meds (US\$5 billion) and illegal e-waste (US\$3.75 billion).

“These transnational criminal activities are a global concern now. Illicit profits from crimes in East Asia and the Pacific can destabilize societies around the globe. Dollars from illicit activities in East Asia can buy property and companies and corrupt anywhere. We need to talk about this, and organize a coordinated response now. It takes



a network to defeat a network," **Jeremy Douglas**, one of the report's author said. Both the Australian and NZ governments helped in funding this report.



ADM Online: Weekly Summary

A summary of the latest news and views in the defence industry, locally and overseas. Check out our webpage for daily news updates on the *ADM* home page and make sure you bookmark/RSS this for a regular visit.

This week, Minister for Defence Materiel Dr Mike Kelly opened the **Land 121 Maintenance Training Facility** at Gaza Ridge Barracks near Bandiana in northern Victoria.

HMAS Choules returned to sea following sea assurance testing of the ship's six propulsion and power distribution transformers which were replaced after a defect was identified in June 2012.

Also, under the \$19.2 million contract Boeing will develop a precision-guided **HAAWC glide weapon** using smart bomb technology to serve as an anti-submarine weapon for the US Navy.

International



Insitu's RQ-21A for op testing mid-year

The Marine Corps' RQ-21A small tactical unmanned aerial system is rapidly approaching several acquisition milestones in the coming months and is set for initial operational capability

early next year, even as the Marines and industry are still brainstorming more ideas for payloads to attach to the drone.

The RQ-21A, built by **Boeing** subsidiary **Insitu**, is designed to send full motion video back to its ground station while simultaneously conducting communications relay work and additional missions based on the payload added to the cargo bay -- which could consist of whatever tools the Marines want that weigh 35 pounds or less and meet the vehicle's space and electrical requirements.

The drone system is headed toward a milestone C decision on April 25, which would initiate low-rate initial production of two systems, Major Kenneth Phelps, RQ-21 requirements officer at Headquarters Marine Corps, told *Inside the Navy*. Insitu will deliver two LRIP systems for operational testing. Phelps said land-based testing would begin in August at Marine Corps Air Ground Combat Centre Twentynine Palms, CA, and ship-based testing would begin in December aboard the New York (LPD-21) on the East Coast.





US Navy seeks F/A-18 improvements

The US Navy last month released a market survey seeking information from industry on potential improvements in selected subsystems of the F/A-18 aircraft, in order to “assess improvement initiatives for F/A-18 aircraft parts that are experiencing degradation due to wear and tear, as well as age,” the survey notice states.

Some of the improvement priorities include, among other things, solutions for leaking or broken fuselage fuel tanks, internal failures or abnormal functions on display units or the flight control set and broken or delaminated engine bay access doors, the notice adds. To determine the list of priorities for the survey, the Navy “used the fleet’s historical maintenance logs to search for the items that were removed from operating equipment the most often, or required the most maintenance time,” Naval Air Systems Command spokeswoman **Marcia Hart** said.

“We did this separately for each model of the F-18 from the A through the G. We combined the list and removed the ones that were already the subject of another improvement project. So this list is not necessarily the ‘worst’ parts for any particular model of F-18, they are just the items that we think might have the best opportunities for reliability improvement or cost reduction,” Hart explained. *-Inside Defense*



Cubic awarded US\$134 million training and support contract

Cubic Worldwide Technical Services (CWTS) has been awarded a contract for nearly US\$134 million for the Base Period and

Option Years from the US Naval Air Warfare Centre Training Systems Division (NAWCTSD) based in Orlando, Florida.

Cubic will deliver interactive and immersive academic and simulator instruction for nine different aircraft ranging between basic and advanced flight operation.

This Chief of Naval Air Training, Contract Instruction Services (CNATRA CIS) Task Order is issued as part of the Fielded Training Systems Support (FTSS) III indefinite delivery, indefinite quantity contract. The contract is slated to start on April 1, 2013 with a total period of performance of five years.

The contract will be performed at five locations including NAS Corpus Christi and NAS Kingsville, Texas; NAS Meridian, Miss.; and NAS Pensacola and NAS Whiting Field, Fla.





L-3 WESCAM completes demos of newly launched MX designator systems

L-3 WESCAM has successfully demonstrated its MX-Series of designator systems at the US Army's Yuma Proving Ground in Arizona.

Demonstrations of the MX-10D, MX-15D, MX-25D and MX-RSTA systems were conducted over a 30-day period on over four different aircraft and one ground vehicle. Operational hours spent on the trials totalled 100.



Selex ES delivers first M-LRFD for US Army Apache program

Selex ES has formally handed over the first of its Modernized Laser Rangefinder/Designators (M-LRFDs)

to its customer and prime contractor Lockheed Martin. The M-LRFDs will be installed on US Army Apache helicopters.

The company is under contract to supply the first three production lots of M-LRFDs, which have been awarded under the US Army Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) Modernized Day Sensor Assembly (M-DSA) Obsolescence Replacement program.

The M-LRFD tactical laser provides longer ranges and improved targeting for the Apache helicopter. It supports future weapons and provides an eye-safe laser that gives soldiers the capability to train like they fight.

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FORTHCOMING EVENTS

For a full list of defence and industry events, head to **ADM's** online events page at www.australiandefence.com.au

International Maritime Security Conference

DATE: 14-16 May 2013, Changi, Singapore

ENQUIRIES: IMDEX Asia Web: <http://www.imdexasia.com/index.aspx>

IMSC 2013 will bring together Navy Chiefs, Coast Guard Directors-General and academia around the world to discuss threats to maritime security and safety, as well as develop frameworks and solutions to deal with the security challenges that threaten and disrupt sea lines of communication.

2013 Hunter Defence Conference

DATE: 22-23 May 2013, Fort Scratchley

ENQUIRIES: Web: www.sticktickets.com.au/10869

The 2013 Hunter Defence Conference, supported by NSW Trade & Investment, HunterNet and Hunter Business Chamber, is an excellent opportunity for SMEs to hear about current Defence opportunities, diversification, innovation and skilling in supporting Defence.

ADM Cyber Security Conference

DATE: 12-13 June, 2013, Hotel Realm, Canberra

ENQUIRIES: ADM Events - Jamie Burrage, Ph: 02 9080 4321;

Email: Jamie.burrage@informa.com.au **Web:** www.admevents.com.au

ADM's 3rd Cyber Security Summit will see stakeholders from Australia's Defence and National Security agencies address the current and emerging cyber threats to Australia's security. More details to be released closer to the date.

DSEI

DATE: 10-13 September, 2013, ExCel, London

ENQUIRIES: Web: www.dsei.co.uk

DSEI is the largest fully integrated defence and security show in the world, featuring Air, Naval, Land and Security show content. Based in ExCel, London every two years, the event provides unrivalled access to key markets across the globe.

SimTecT

DATE: 16 Sep - 19 Sep, 2013, Brisbane Convention and Exhibition Centre, Queensland

ENQUIRIES: Web: www.simtect.com.au

SimTecT is the annual Simulation Technology and Training Conference held by Simulation Australia. Since its inception in 1996, SimTecT has grown to become Australasia's premier simulation conference for industry, government and academia.