

cal transport fleet would be replaced – via phase 2 of project Air 8000 – by ten light tactical fixed-wing aircraft in a logistics configuration that would “complement” the current 4 x C-17, and ultimately, 14 x C-130J air transport fleet – may also have some relevance in explaining the paring back of Land 17 artillery platform numbers.

Prime Minister Rudd regretfully acknowledged 29 April that the likely upturn in fighting in Afghanistan through to August, and in the long period of consolidation required afterwards, would likely see more coalition casualties.

The rush to boost combat and logistics helicopter numbers has also raised questions about the future of SPH units, especially if the Dutch honour their commitment to withdraw from Afghanistan after 2010. Instead of exposing self propelled howitzers to frequent insurgent attacks by moving them beyond protected locations (as effected by way of rockets and

mortars), one option is to shift emphasis to air mobile 155mm artillery units (ie: M777s), which can be more flexibly relocated by way of ‘Chinook’ helicopters as part of the anticipated rapidly moving campaign this coming northern summer in valleys leading to the Pakistan border.

The timing of the Air 8000/2 acquisition in the 2009 Defence Capability Plan (DCP) also has importance in determining one further option for air-based artillery support. Up until release of DWP’09, the light tactical fixed-wing platform to replace the ‘Caribou’ was considered almost exclusively in terms of a competition between the EADS C-295M & the L-3 Communications/Alenia North America C-27J. The White Paper couched the replacement capability as a new light tactical fixed-wing aircraft that “will have significantly greater range, speed and payload than the retiring ‘Caribou’ transports.”

Sources close to Defence suggest this specification gener-

ally favours the C-27J, and especially so if common logistics and through life support savings related to growing the C-130J fleet to 14 units are taken into account. Should this be the case, a parallel new capability development in the US may also offer the ADF an opportunity to procure its first-ever fixed-wing gunships.

The Defense Advanced Research Projects Agency (DARPA) and Alenia are reportedly seeking to integrate BAE Systems’ (BAES) M777 lightweight howitzer into the C-27J airframe, as part of a replacement program for existing US units in the form of AC-130H ‘Spectre’ and AC-130U ‘Spooky’ units. Under the Joint Common Aircraft (JCA) program, the US Army & Air Force are contracted to buy 78 C-27Js for use as light cargo transports. The first JCA was delivered to the joint program office on 25 September last year.

In FY2008, US\$32m was set aside by the Pentagon as part of

a \$1.8b re-programming request to buy one C-27J for quick modification as a prototype gunship to augment the US Air Force Special Operations Command’s (AFSOC) existing AC-130 fleet. AFSOC is also exploring using a decommissioned C-27 as a ground-based test bed. AFSOC currently has 17 ‘Spooky’ platforms (flown by the 4th Special Operations Squadron) and eight ‘Spectre’ platforms (flown by 16th Special Operations Squadron, which is presently serving in missions in Iraq and Afghanistan). Lockheed Martin’s C-130J is also being used as the host platform for the USAF’s new HC-MC-130J infiltration/exfiltration aircraft.

First used in combat in South Vietnam and Laos in 1967, the AC-130 encompasses armaments ranging from 20mm Gatling guns to 105mm howitzers. The US Air Force uses the AC-130 gunships for close air support, air interdiction and force protection. Close air support roles include supporting

CAPABILITY REVIEW: Air 5416

DEFENCE PHOTO



Rotary-wing power finds its place in an increasingly hazardous Afghanistan

Despite a massive injection of American troops and helicopters into southern Afghanistan, Australian and Dutch achievements in stabilisation and reconstruction in Oruzgan Province are likely to be sorely tested by an anticipated summer spike in insurgent violence. Whether coalition troop and local Afghan National Army numbers in the province – one of the lowest ratios in the country in relation to local population size – are up to the task, has been questioned by a former senior defence commander.

■ Nick Merrett/CANBERRA

Presenting a lecture in Canberra 20 May entitled ‘Australia and Afghanistan – Ways, Ends & Means’, MajGen Jim Molan (Retd) warned that the current number of coalition troops in Afghanistan (particularly in the south), needed to be dramatically raised if present efforts to rebuild and secure the country from insurgent influences were to succeed.

Drawing off his experience as a Coalition commander in Iraq, Molan stressed that the quantum of soldiers deployed (in terms of footprints on the ground), was the most important element in the overall strategy for stabilising Afghanistan. He further considered this might also “be the best contribution we can make to Pakistan ... the recent successful US ‘surge’ experience in Iraq should have sent a strong message to

ground troops, escorting convoys, and flying urban operations. Air interdiction missions are conducted against planned targets and targets of opportunity. Force protection missions include defending air bases and other facilities.

AC-130 gunships feature side-firing weapons integrated with sensors, navigation and fire control systems to provide precision firepower or area-saturation fire with its varied armament. The aircraft can spend long periods flying over target areas at night, and in adverse weather. Onboard sensor suites allow the gunship to visually or electronically identify friendly ground forces and targets in most weather conditions.

AC-130Us are also equipped with the AN/APQ-180 synthetic aperture radar for long-range target detection and identification, and with twice the munitions capacity of the AC-130H, can attack two targets simultaneously. High tempo operations in the Middle East over the past

15 years mean the AC-130 fleet is quickly being flown to its airframe flight hour limit.

AFSOC is understood to see the AC-27J as the solution to fulfil new requirements defined under the AC-XX concept, and replace the AC-130s. The US Air Force has accordingly earmarked funding in its FY2010 Program Objectives Memorandum (POM) to start the process of upgrading the avionics on the AC-130s, as part of a broader C-130 avionics modernisation program.

The re-programming request states the prototype "will serve as a risk mitigation effort to field a new platform to operate in austere locations, with increased operational flexibility and a smaller support tail of manpower and logistics." Another \$11.5m was requested to execute an AC-XX engineering feasibility study associated with the 'Gunship Lite'. Further funding for the procurement of the aircraft is likely to be requested in the FY2010 budget.

The USAF announced in October 2008 it had successfully conducted first flight of an upgraded AC-130. Modifications included a Rockwell Collins Data Link Processor (DLP) and 'OpenEdge' net-enablement software, hosted on an Integrated Processing Cabinet (IPC 8303) that integrated Link 16 and Cursor on Target (CoT) functionality. Rockwell Collins supplies the data and display processing systems to BAES who integrate the Link 16 capabilities onto the platform. Twenty-five aircraft are being modified under a Flexible Acquisition and Sustainment Tool (FAST) prime contract from Lockheed Martin.

In a related development, the US Air Force let (15 October 2008) a US\$30m contract to Boeing to continue testing an Advanced Tactical Laser (ATL) system mounted within a C-130H transport aircraft, and equipped with a high-energy chemical laser and a beam control system. The new award

followed earlier advanced concept technology demonstrations, and outlined an Extended User Evaluation program (ie: a series of ground and air tests) designed to expand the ATL's engagement envelope, and further demonstrate how the new weapon's ultra-precision engagement capability could most appropriately be used. Boeing officials indicated the ATL would destroy, damage or disable targets with little or no collateral damage on both the open battlefield and in urban operations.

Defence White Paper decisions in regard to new 155mm artillery, heavy lift helicopters and light tactical fixed-wing are providing the ADF the opportunity to consider shifting emphasis from roadside bombs and IED-hazardous land operations, towards air mobile operations. The introduction of new air platforms brings with it opportunities for additional new military capabilities, including artillery. ADBR

Afghanistan insurgents that US troops would be no easy fight." General Molan went on to note that by end-2009, there will be 62,000 combined US forces in Afghanistan, and 90,000 coalition forces in total.

The Afghan National Army (ANA) currently has 80,000 troops, and is targeted to grow to 135,000 by 2012. Noting the average length of a counter-insurgency operation was nine years, Molan said the Iraq conflict had started with a ratio of six (US troops) per 1,000 of local population. This ratio was now 28:1000, he said.

Observing it had taken close to seven years to build up Iraqi army combat and police battalions (with only 17 of the present 175 army battalions, and two of 34 police battalions now considered elite), Iraqi security forces now totalled 618,000 members. Molan said that if the advice of US General Eric Shinseki had been taken, and forces of this size had been deployed early in the Iraq campaign – rather than the 150,000 first committed – a protracted counter insurgency would not have arisen.

Based on these assessments, General Molan said more troops were needed in Afghanistan to effectively partner with new Afghan troops emerging from training and mentoring units. Until such numbers were in place, civilian components focused on reconstruction could not operate effectively, as they would not have adequate security – as was clearly evidenced in Iraq by the constant sabotaging of new infrastructure by insurgents. According to Molan, "troops aren't the answer to everything, but they have to be the first answer."

He also warned that counter-insurgency operations could not be tailored to geographic areas (as coalition forces currently are in Afghanistan), as insurgents can simply relocate activities. Molan noted the present troop ratio in Afghanistan was 7:1000, albeit by end-2009 (including the extra 21,000 troops), this would be 9:1000. Hence, coalition forces in Afghanistan were presently "very much in a holding

strategy, and defensive operations would only prolong the suffering". Turning to the pending arrival of 1,000 US Aviation Battalion troops in Tarin Kowt, General Molan said the troop ratio in Oruzgan will rise to 9:1000, given there are about 550,000 people living in Oruzgan.

Molan considers (excluding the new 4th ANA Brigade currently being raised, and requiring 3-5 years to become mildly competent), that if the Dutch press their decision to leave the area in 2010, the ratio would fall to 4-5:1000. Even with the 4th ANA Brigade coming online, Molan still considers total numbers would not be sufficient. Further, any additional US deployments could not come until sometime in 2011. The ideal number of troops in Oruzgan was 20,000 (or a ratio of 20:1000), said the General, although Coalition forces might get away with having 6,000 troops in the province.

A large majority of the 21,000 additional US Army soldiers and Marines ordered by President Obama to deploy to Afghanistan (17,000 on 17 February and 4,000 more on 27 March) to support the August presidential elections, are being sent to the south and south west of the country, comprising the Pushtan provinces of Helmand, Kandahar, Oruzgan and Zabul.

The 82nd Combat Aviation Brigade (of the 82nd Airborne Division), consisting of about 100 helicopters and 3,000 personnel, constitutes a major part of the surge. The first wave arrived at Kandahar Airfield 15 May, assuming control of aviation operations in southern Afghanistan the next day. As such, there will be a vast increase in the number of (attack, reconnaissance, transport and medevac) helicopters operating in the Pushtan south, with some helicopter elements stationed in Oruzgan province, where the ADF's principal force elements are based.

The Chief of the Defence Force, Air Chief Marshal Angus Houston, indicated in additional Budget estimates hearings 25 February that the location of the new helicopters had been very carefully planned so that

“all areas of International Security Assistance Force (ISAF) operations are reasonably well covered.” The increase in troop numbers is further expected to provide a more effective launch pad for clearing out insurgents, holding territory free of insurgent influences, and then building infrastructure and delivering services to a greater number of people across Afghanistan.

In addition, the ‘surge’ will see a dramatic increase in the number of aero-medical evacuation (AME) helicopters deployed – doubling to 30 – as part of an American combat aviation brigade including three field surgical teams to be deployed throughout the southern area. Air Chief Marshal Houston assured legislators he was satisfied with support the ADF had been receiving, but similarly welcomed the new capability.

The NATO Medevac standard is two-hours: one hour to provide a resuscitation capability (which could be in either the field or in the helicopter), and then two hours to get the injured individual into hospital. Houston stated the increase in AME helicopters was designed to achieve a shortening of this time. “The NATO standard is still two hours, but what you will see is a more responsive service than perhaps we have had in the past,” he said.

Recognising a deficiency in NATO air mobility in Afghanistan, but unable to deploy its own self-protected combat and AME helicopters until at least 2010, mid-term Government budget papers (MYEFO) issued last November revealed Australia was to contribute three million dollars in 2008/09 to a UK-led initiative to augment coalition helicopter capability in Afghanistan, referred to as the NATO Helicopter Trust Fund.

The fund was designed to boost advanced pilot training and technical upgrades to enable more NATO helicopters to be deployed to Afghanistan in support of ISAF operations, even though it now appears the initiative was a stopgap measure until the US made up its mind on the massive commitment to send 100 helicopters.

First pitched by UK Prime Minister Gordon Brown at the Bucharest NATO summit in April 2008, the fund sought to raise up to US\$100m to establish a helicopter wing within ISAF and enable NATO member countries that had not provided troops to the Afghanistan mission to contribute capital or equipment instead. On 4 April 2008, one day after Brown had announced the initiative, US Secretary of Defense, Robert Gates revealed that ten countries had contributed to the fund.

Efforts to raise the required number of helicopters have been frustratingly slow, however. At an Informal Meeting of NATO Defence Ministers in Budapest on 10 October last year, NATO Secretary General Jaap De Hoop Scheffer conceded “there are thousands of helicopters in the NATO fleet. And Allies should definitely not have this kind of

trouble getting a few hundred to theatre to support our operations.” ADBR reported in 2008 (see Vol.27, Nos.06/07, p17) the current upgrade (under phase 2A of project Air 5416) of the electronic warfare self-protection (EWSP) capability of the Army’s S-70A-9 ‘Black Hawk’ helicopters had fallen substantially behind schedule.

In short, this meant that complexities relating to the ‘Echidna’ EW system’s overall integration into the extant ‘Black Hawk’ fleet had made it very difficult to know exactly when the capability would be ready to use, with the exact number of aircraft to be upgraded subsequently “undergoing further review”.

On 11 March 2009, BAE Systems (BAES) Australia confirmed it had successfully carried out a flight test on its ‘Echidna’ EWSP system, using a specially configured electronics pod mounted on a ‘Lear’ jet, and said to be providing “valuable data towards helping to finalise system integration.”

New military capability acquisition reports released in concert with the 2009/10 Budget papers indicate a final Army decision on the number of S-70A-9 units to receive the full ‘Echidna’ capability will be made based on progress shown with the prototype aircraft, and the retirement of the software development risk.

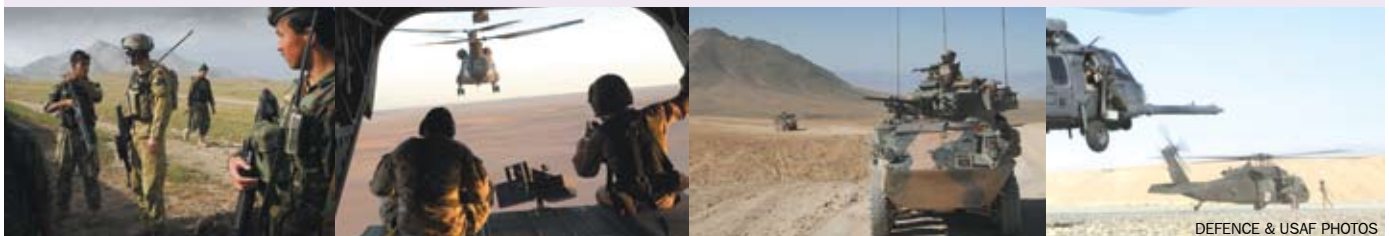
During 2007, using supplementary funding provided by an approved Army ‘minor’ project, an early delivery strategy was implemented for 12 ‘Black Hawk’ aircraft to be fitted with a subset of the ‘Echidna’ 2A capability, and comprising a missile warning system and countermeasures dispensing system. Five aircraft have since been modified, with the remaining seven aircraft expected to complete modifications by end-2009.

Ongoing aircraft availability issues with CH-47D ‘Chinook’ helicopters also proposed for EWSP installation – subsequent to overseas deployments since 2006 – has seen Defence suspend further upgrades of the aircraft to the full ‘Echidna’ standard. ‘Chinook’ modification kits are nevertheless said to be being retained for installation once aircraft can be free from operational commitments.

The DMO was said September 2008 by former Secretary of Defence Procurement, Greg Combet, to have been asked to take another look at options for consideration by the Government for the early delivery of combat zone-capable helicopters that could potentially be deployed to Afghanistan for medevac and other military uses.

This inquiry seems to have been subsequently subsumed by Australian contributions to the NATO Helicopter Trust Fund, and the US decision to ‘surge’ forces into Afghanistan over 2009, including a large helicopter component.

ADBR



DEFENCE & USAF PHOTOS

MORE HELICOPTERS TO COVER THE ADF IN AFGHANISTAN: Although the break-up of new American helicopters between the south and the east of Afghanistan is still not known, ADF officials feel comfortable the US-led ‘surge’ will take the heat off criticism that forces have been under-resourced with adequate aero-medical evacuation units. Australia redeployed its rotary wing group (5th Aviation Regiment, C Squadron) in February – consisting of two upgraded CH-47D ‘Chinook’ helicopters – which are co-located with a US combat aviation brigade operating out of Kandahar Airfield. The CH-47Ds are being pooled with coalition units, but will be available to satisfy the highest Australian operational priorities.

Reign of ‘Monarch’ chip to end land mine threat

Raytheon’s Advanced Concepts & Technology group on 28 April launched a new Morphable Networked Micro-architecture (MONARCH) device, and claimed

to represent the world’s first computer that is capable of switching its form of architecture, depending on the application.

Raytheon will use the MONARCH-equipped sensor on DARPA’s Seismic and Acoustic

Vibration Imaging program, to provide a sensor that will employ laser radar to find hidden targets by measuring ground-surface vibration.

Algorithms (electronic instructions for calculation and process-

ing) situated on the MONARCH chip and requiring substantial processing throughput will interpret the resulting data to detect and locate buried land mines and tunnels.

ADBR