

**ADF capability review: Australian Army
by Mark Thomson and Andrew Davies**

25

2 May 2008

This ASPI *Policy Analysis* is the second in a series intended to inform the Defence White Paper debate by providing a snapshot of ADF capability. The previous release considered Navy capabilities and future releases will cover Air Force and C⁴ISR capabilities.

Overview

With over 27,000 permanent and almost 16,000 part-time Reserve personnel, the Australian Army is small by regional standards and tiny given the size of our continent. Structured as a standing force rather than a mobilisation base, the Army is designed to be able to deploy and sustain a brigade group of around 3,000 troops indefinitely while retaining the capacity to deploy a battalion group of around 1,000 temporarily. Larger scale deployments are possible for a limited duration—as occurred to East Timor in 1999—or for extended periods if the current six-month troop rotation policy is relaxed.

At its core, the permanent Army is made up of six infantry battalions (including one commando battalion) two cavalry regiments, one armoured regiment and a Special Air Service regiment. These troops are supported by one aviation brigade, three artillery regiments, three combat engineer regiments and one air defence regiment, plus a comprehensive range of combat support and logistic support elements. In reality, many of the elements established as regiments are actually of a smaller scale.

The Reserve fulfils several roles at present. It provides individual personnel to help sustain permanent force deployments, it contributes sub-unit elements to low-intensity operations such as East Timor and the Solomon Islands, and it delivers a modest capacity to assist with domestic security. For the future, its role is being broadened through the establishment of a small High Readiness Reserve integrated into some permanent units.

Legislation allows the Reserve to be called out for full-time service in a broad range of circumstance and ex-permanent force personnel remain liable for call-out for five years after separation. However, neither plans nor adequate equipment holdings exist for a large scale mobilisation of the Reserve despite it retaining a structure of six nascent brigades.

The Army's capacity to deploy and sustain operations is being increased through the progressive addition of two more permanent infantry battalions. This will see the full-time Army expand to around 30,500 personnel by early next decade. At the same time, the land force is being re-equipped with better armoured mobility and networked communications under the Hardened and Networked Army (HNA) program. The HNA program aims to structure and equip the Army so it can fight in complex terrain and contribute to coalition operations of up to medium intensity. This will be achieved through increased firepower, protected mobility and network connectivity. Under HNA, the Army will have enhanced flexibility to reconfigure into mission-specific combined arms battle groups commanded by battalion/regiment level headquarters.

Principal formations of the permanent Army include the mechanised 1st Brigade in Darwin and Adelaide, the light 3rd Brigade in Townsville and the motorised 7th Brigade in Brisbane. Each of these three brigades contains a mixture of capabilities including infantry, artillery, cavalry, engineer and logistics units. The 16th Brigade (aviation) has elements in Townsville, Sydney, Oakey and Darwin. Reserve formations are scattered around the country broadly in line with the country's population.

Like the other services, the ability to collect, manipulate and disseminate intelligence, tactical information and positional data is critical to Army's effectiveness. These issues will be developed further in the ADF C⁴ISR paper to follow in this series.

Arguably, the most significant current capability shortfall for Army is the lack of a modern ground-based air defence that can deploy with land units. Current plans will replace existing short-range equipment about a decade from now, but Army will still not have wide-area long-range air defence that can deploy integrally with land units. Other areas where capability could usefully be augmented or expanded include; a protected combat engineer capability, greater capacity for human intelligence and civic military cooperation, and the scale and manning of logistics elements.

Major considerations in the medium term include:

- the choice of replacement artillery pieces
- introduction into service of new helicopter and light vehicle fleets
- replacement of aging analogue battlefield communication systems and the progressive networking of land forces
- development and introduction into service of an expanded amphibious capability when the Navy's two new Amphibious Assault Vessels enter service early next decade.

In the longer-term, a critical point will be reached with the replacement of Army's existing fleets of protected mobility vehicles. There are a range of possible options, each offering a different combination and level of firepower and protection. Present funding is probably inadequate to replace the existing fleets with top-end infantry fighting vehicles on a one to one basis.

Capability summary

Individual components of Army capability are examined below. Though a capability based examination is unavoidable, it is important to note that the Army prepares for combined arms operations that integrate and closely coordinate the full range of land capabilities.

Infantry

As a light to medium weight force, the Australian Army is built around its infantry. As part of an integrated land force, infantry can be employed within combined arms teams.

Budget cuts in the early 1990s forced a reduction in the number of permanent infantry battalions from six to four. However, in response to the demands of East Timor in 1999, two battalions were subsequently reinstated. Then, in 2001, one of the battalions was converted to a commando unit and transferred to Special Forces command. At present there are:

- three light infantry battalions (including one parachute battalion)
- one motorised battalion
- one mechanised battalion.

Because Army has failed to meet recruiting targets in nine out of the past ten years, personnel numbers remain below budgeted strength. A consequence of these recruiting shortfalls and the high operational tempo of the last decade is that Army is experiencing difficulty in maintaining numbers in positions that require advanced infantry skills, especially in some support company categories. In part, this has been managed by reducing the number of infantry companies in some battalions from four to three.

Under the HNA initiative, the parachute battalion will be converted to a light infantry battalion and a further mechanised infantry battalion and a light infantry battalion will be raised. It remains to be seen if one of these new light battalions is given a parachute role (although the new commando battalion is parachute capable, its deployability is limited by domestic security commitments).

Infantry weapons and equipment are of a similar standard to that of other advanced Western armies. In recent years, a priority has been placed on acquiring protected mobility, and recent operations have seen the rapid acquisition of some items, including specialist clothing, body armour and man-portable Javelin anti-armour missiles. Planned acquisitions of infantry equipment in the next decade include new mortars, direct fire weapons and small arms. Up to a further \$950 million has been programmed to boost the capabilities of the individual combat soldier under the heading of 'soldier enhancement'.

Special Forces

Over the past seven years, Special Forces have been expanded and unified under a separate command within Army. Headquartered in Sydney, the key elements of Special Forces include the Special Air Service Regiment (SASR) in Western Australia and a commando battalion and Incident Response Regiment (IRR) in Sydney. A Reserve commando regiment is split between Sydney and Melbourne.

Well equipped and able to deploy by land, sea or air, Special Forces provide a flexible range of capabilities from long-range patrol through to strike raids and special recovery operations. An expanded role in domestic counter-terrorism emerged for Special Forces after 2001 and a standing squadron-strength Tactical Assault Group is now maintained on both the East and West coasts. The IRR provides a capacity to respond to a nuclear, chemical, biological or radiological event within Australia.

Armour

Tanks

Army has now taken delivery of fifty-nine refurbished Abrams M1A1-AIM tanks from the United States at a cost of \$560 million. The Abrams replace the Leopard tank which had become vulnerable due to the proliferation of shoulder-fired anti-armour weapons in our region.

Although the refurbished Abrams is a more capable platform than the Leopard, the transition involves a reduced number of vehicles. The 59 Abrams will replace 101 Leopards that themselves replaced 143 of their predecessor, the Centurion. Thus, while the technical sophistication of Army's armoured capability is now keeping pace with developments, the scale of armoured support continues to decline—notwithstanding that the Army is otherwise expanding.

Although the Abrams M1A1-AIM is one of the more capable variants in the US Abrams family, it is inferior to the newer M1A2-SEP variant in several respects. The latter has depleted uranium armour, more advanced command and control capabilities and a sighting and targeting system that is more effective, especially at long ranges. And although it provides good protection against early generation shoulder-fired anti-armour weapons now prevalent in the region, it is vulnerable to advanced Russian systems proliferating elsewhere, including the Middle East.

Armoured mobility vehicles

The Army operates three types of armoured mobility vehicle; the US designed M113 armoured personnel carrier, the Canadian built ASLAV light armoured vehicle and the Australia designed Bushmaster infantry mobility vehicle.

The tracked M113 armoured personnel carrier has been in service with the Australian Army since 1965. The vehicle provides tracked mobility, protection and firepower for up to ten personnel. Of the more than 700 vehicles in inventory, around 430 are to be upgraded and returned to service, with improved armour, firepower, suspension, engine and drive train at a cost of \$617 million. After a three year delay, the first upgraded vehicles entered service in late 2007. The upgraded fleet will have the capacity to mechanise two battalions plus supporting elements.

Being a tracked vehicle that has variants with a 12.5mm turret gun, the M113 fleet provides good mobility in rough terrain and light firepower. While the upgraded vehicles will protect occupants against small arms, anti-personnel mines, light anti-armour weapons and shrapnel, the vehicle will remain vulnerable to 12.5mm or larger projectiles, medium to heavy anti-armour weapons, large Improvised Explosive Devices (IEDs) and anti-armour mines. With the exception of the M1A1 Abrams tank, the upgraded M113 is equipped with the best side-blast protected armour of the three armoured vehicles in service with the Australian Army. In addition, due to the M113's flat-bottom hull design, the vehicle's protection against under-vehicle IED is inferior to more modern hull configurations such as the ASLAV (see below).

Following purchases that commenced in the early 1990s, the Army now has a fleet of 257 ASLAV light armoured vehicles. These 8x8 wheeled quasi-amphibious vehicles provide an armoured reconnaissance and personnel carrier capability sufficient to equip two cavalry regiments. Each

vehicle can carry eight troops in the armoured personnel carrier variant or four in the gun variant, which is equipped with a turret mounted 25mm gun. Protection for ASLAV occupants is inferior to that of the M113 due to increased vulnerability to light anti-armour weapons and ballistic projectiles.

The most recent addition to the Army's range of armoured vehicles is the Bushmaster infantry mobility vehicle. After extended delays, 299 vehicles have now been delivered with a further 398 on order. Each of the 4x4 vehicles is capable of carrying up to ten personnel. When complete, the Bushmaster fleet will provide mobility adequate for roughly four battalions plus supporting elements. In addition to having inferior mobility over rough terrain compared to the M113 and ASLAV the Bushmaster is not designed as a fighting vehicle; and although it provides similar protection to an ASLAV (and superior with regard to mines and IEDs) its single roof mounted machine gun gives it inferior firepower.

Taken together, the Army's eventual fleet of 1,303 armoured vehicles will provide protected mobility and firepower for two cavalry regiments and seven to eight infantry battalions and some supporting elements depending on how assets are allocated. Army's current fleet provides limited protection against emerging threats such as IEDs. On current plans, replacement of the M113 and ASLAV fleets will commence in the second half of the next decade. While it is much too early to identify a replacement vehicle, present funding would likely constrain the options to something less than a top-end infantry fighting vehicle.

Aviation

Transport

Following the retirement of its 1960s-vintage Iroquois helicopters in 2007, the Army's air transport capability comprises thirty-three Black Hawk and six Chinook helicopters. The Black Hawk can carry eight fully equipped soldiers and the twin-rotor Chinook thirty-three. In practice, the resulting deployable single-lift capacity would be enough for several infantry companies but not a battalion. The Chinooks have only a basic self-defence suite against anti-air missiles, while the Black Hawk's self-defence capability is even less effective. On current plans both aircraft will be fitted with an improved self-defence suite before the end of the decade at a cost of \$240 million.

Following extensive delays, Army is now expected to begin operating the first four of twelve MRH-90 troop lift helicopters in 2011. The European-designed MRH-90 is a medium helicopter with capacity for twelve to fourteen fully-equipped troops (depending on the results of Army's MRH-90 cabin trials). From 2015 the existing Black Hawks (and Navy's Sea Kings) will be replaced by a further thirty-four MRH-90 aircraft. The total cost of the forty-six aircraft will be \$3.6 billion. The MRH-90 will come equipped with a modern missile self-defence system and will be capable of operating as an embarked helicopter.

Aerial reconnaissance and fire support

Forty-one Kiowa light observation helicopters provide the Army with a flexible aerial reconnaissance capability. However, since the retirement of the last six Iroquois gunships in 2004, the Army has been without a dedicated aerial fire support platform. The replacement for both capabilities—the 'Tiger' Armed Reconnaissance Helicopters (ARH)—was due to enter service in financial year 2004/05 but has been delayed until at least 2008. Designed

as an anti-tank attack helicopter for the Cold War, the ARH will be a much more capable platform than either the Kiowa or Iroquois gunships in their respective roles. Inevitably, however, the purchase of only twenty-two aircraft will deliver a reduced rate of effort, more limited concurrency for reconnaissance, and the loss of flexibility provided by the utility Iroquois.

Artillery

The Army has a total of one hundred and nine 105mm towed Hamel field guns and thirty-six 155 mm towed medium howitzers. Both weapons were acquired in the 1980s. The Hamel guns are divided between Field Regiments attached to 3rd Brigade and 7th Brigade while the howitzers are held by a Medium Regiment in 1st Brigade.

The present inventory of guns and howitzers are scheduled for replacement early next decade at a total cost of up to \$600 million. In each case, a smaller but qualitatively improved capability is sought. The current towed howitzers will be replaced by around eighteen protected self-propelled 155mm howitzers, while the existing 105mm guns will be replaced by around thirty-six lightweight towed 155mm howitzers. Because more than half of the existing guns and howitzers are not in use, the cuts will leave the scale of the permanent Army's artillery capability unchanged. What will be lost is the capacity to expand, although the relegation of existing assets to the Reserve could mitigate this.

Indirect fire support can also be provided by mortar tubes. The Army currently has only 81mm man-portable mortars, with a maximum range of around 5km. A larger mortar (such as a 120mm system) would provide a rapidly deployable indirect fire support asset with a range of 8km or more (depending on the munitions) and with a much smaller logistics footprint than artillery. There are no current plans to acquire such a system.

Engineers

The Army maintains a large number of Engineering capabilities. The heaviest capabilities are the construction engineering units that can build infrastructure for deployed forces or deliver projects as part of a civil action program—as in Afghanistan today. As an integral part of a combined arms team, combat engineers provide a range of capabilities including bridging, construction of field defences and the elimination of physical obstacles. However, the Army's present combat engineer capability lacks the protection needed to support manoeuvre operations in all circumstances.

Other units are more specialised, such as the Incident Response Regiment that can respond to chemical, biological, radiological and nuclear incidents domestically or in support of deployed forces.

Air defence

Following the retirement of the Rapier surface-to-air system in 2005, the Army's air defence capability now comprise a regimental headquarters and two batteries equipped with the short-range RBS-70 system. With a range of 8km and a ceiling of around 16,000 feet, the man portable RBS-70 provides local protection against low flying aircraft and helicopters but is ineffective against high altitude aircraft and medium range stand-off weapons. The RBS-70 system is further limited by employing a laser guided missile that requires manual guidance to intercept.

On current plans, these shortcomings will remain until at least 2018 when the RBS-70 system will be either upgraded or replaced. With up to \$1 billion earmarked for the project, it should be possible to acquire an improved short-to medium-range system that, nonetheless, will fall well short of a long-range wide-area defence system like the US Patriot. Until then, the Army will have to hope that either RAAF or coalition assets are available to protect against an even moderately capable air threat and, even then, the persistence required for 24/7 protection against the full range of air threats (including low-level unmanned aerial vehicles) will be difficult to arrange.

Land transport

All parts of the Army depend extensively on motorised transport. There are roughly 4,000 four-by-four or six-by-six land rovers, 1,300 four-by-four Mercedes-Benz Unimog trucks and 900 six-by-six heavy Mack cargo vehicles. Under project *Overlander*, a range of new vehicles will be progressively acquired between now and the middle of the next decade.

Subject to negotiations, over the next several years around 1,000 Mercedes-Benz G-Wagen four-by-four and six-by-six light unarmoured utility vehicles will be acquired along with 2,400 BAE Systems lightly armoured medium and heavy trucks. This is planned to be followed next decade by a further 1,200 light armoured vehicles and 2,000 commercial off-the-shelf trucks. The end result will be a modernised land transport fleet with improved crew and passenger protection on a significant proportion of the vehicles.

Taking into account the number of armoured vehicles as well, this means that Army will operate a total of well over seven thousand vehicles. Given the total size of Army, a fleet of this size translates into a demanding maintenance requirement.

Logistics and combat support

The Army has to be able to support a wide range of combat capabilities in adverse environments over large distances. The requisite logistic and combat support capabilities include health, construction, survey, intelligence, surveillance, transport, signals, equipment repair and maintenance, engineering, and the resupply of fuels, stores, munitions, rations and water. A detailed analysis of these many specialised areas is beyond the scope of the broad assessment being attempted here. The critical question is whether the scale, quality and range of logistic and combat support align with what the Army's combat elements might demand. The answer is a qualified yes.

By the end of the 1990s, the Army's support capabilities had degraded significantly following an extended period of budget driven constraints and limited operational demand. After the East Timor deployment in 1999, a higher priority was placed on support capabilities. This saw new investment in a number of areas and the allocation of personnel to remove hollowness in support units. As a result, the Army is now much better placed to support and sustain deployments than it was. That said, problems with recruitment and retention in some specialist trades remain a concern. And, in any case, an extended deployment on a larger scale than presently underway would place strain on many support areas—a problem that will be exacerbated by the addition of two more infantry battalions.

Over the last several years, the ADF has employed private sector support in East Timor, Solomon Islands, Iraq and Afghanistan. This has helped to reduce the demands made on Army's organic support capabilities. Generally speaking the ADF has learnt how to make good use of private contractors where operationally feasible to do so but continue to resist taking the next step, which is to engage the private sector on a stand-by basis, as is routine practice for the US and UK military.

Civic military action

As the 'boots on the ground' in operations around the globe, the Army very often finds itself working within local communities. Recent operations in East Timor, Solomon Islands, Iraq and Afghanistan prove that the Army can do so effectively. While the enduring good nature of the Australian soldier has no doubt played a big role in these operations, there was also a high degree of conscious effort to build and maintain constructive relations. Doing so requires a range of human intelligence, language, and specialist communication and liaison skills. While the Army has adapted quickly to develop these sorts of capabilities as demands have arisen, it is an area where further development and refinement will be necessary if the recent pattern of deployments continues.

About the Authors

Andrew Davies is the Program Director for the Operations and Capability Program.

Mark Thomson is the Program Director for the Budget and Management Program.

The authors would like to thank Justin Tim for help during the preparation of this work. They are also grateful to the ADF for comments received on drafts of this paper. Any errors or omissions remain the responsibility of the authors.

About Policy Analysis

Generally written by ASPI experts, **POLICY ANALYSIS** is provided online to give readers timely, insightful opinion pieces on current strategic issues, with clear policy recommendations when appropriate. They reflect the personal views of the author and do not in any way express or reflect the views of the Australian Government or represent the formal position of ASPI on any particular issue.

ASPI
Tel + 61 2 6270 5100
Fax + 61 2 6273 9566
Email enquiries@aspi.org.au
Web www.aspi.org.au

© The Australian Strategic Policy Institute Limited 2008

This publication is subject to copyright. Except as permitted under the *Copyright Act 1968*, no part of it may in any form or by any means (electronic, mechanical, microcopying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the publishers.